

EQUIPMENT ANALYSIS: INDIA

BACKHOE LOADERS

MARCH 2008

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INTRODUCTION

This report examines in detail the Indian market for backhoe loaders, and is an update and a more detailed review of the subject which was briefly covered in Off-Highway Research's Multi-Client Study on India in October 2007. The study only includes purpose-built backhoe loaders powered by diesel engines, while skid-steer loaders and machines based on agricultural tractors are excluded from the analysis. Engine output varies from 70 to approximately 100 horsepower and most of the machines have naturally aspirated engines although some have turbo-charged engines.

The most popular backhoe loader models sold in India feature 70 to 80 horsepower engines, two wheel drive, side-shift, a 1.0 m³ loader bucket and 0.23 to 0.25 m³ backhoe bucket. Centre-mount models have only limited appeal in India but the demand for larger machines and 4 wheel drive machines is growing. Nevertheless, even those manufacturers currently promoting higher horsepower machines are working on introducing machines in the 70 to 80 horsepower range volume market.

The findings presented in this report are based on Off-Highway Research's database and a series of in-depth personal interviews conducted with all of the industry's leading manufacturers.

SUMMARY

Table 1. India: Statistical Summary of Backhoe Loaders, 2007

Number of Suppliers	7
Number of Joint Ventures	3
Market Leader	JCB
Production (Units)	22,226
Sales (Units)	21,769
Importers' Penetration (%)	-
Population (Units)	70,500
Sales Forecast 2012 (Units)	52,000

Source: Off-Highway Research

The backhoe loader is by far the most popular construction machine in India, accounting for around 45 per cent of the mobile construction machinery market. It is also the fastest growing market across the whole Indian construction equipment industry. Sales of backhoe loaders in India reached almost 22,000 units in 2007, a growth of over 58 per cent compared to 2006. In the last ten years, the backhoe loader market in India has grown more than tenfold from 2,172 units in 1998 to 21,769 units in 2007.

JCB launched the first backhoe loader into India in the early 1980s through its then joint venture with Escorts. It continues to be the market leader and has a dominant presence with approximately 73 per cent of all sales. Other manufacturers of backhoe loaders in India are L&T-Case, Telcon, Terex-Vectra, Caterpillar, and more recently Action Construction Equipment (ACE) and BEML. All the backhoe loaders sold in India are manufactured in India (there have been no imports for the past three years) and there is only a small number of export sales to neighbouring countries.

There is every likelihood that a number of Chinese manufacturers will be importing backhoe loaders into the country in the near future, although it is unlikely that they will be manufacturing them in the country in the foreseeable future.

Applications for backhoe loaders in India include use as a utility machine at large construction sites (roads and dams for example) and urban infrastructure projects as well as the loading of hoppers and trucks, trenching, the cleaning of canals and ditches, general excavation, solid waste management and even demolition and mining work. However, the backhoe loader, with over 70 per cent of its usage being in excavating tasks, is most frequently used as a production machine as opposed to a utility machine in other parts of the world.

The backhoe loader market has been growing continuously for the last six years at a very impressive rate. With rapid urbanisation, GDP growth at over nine per cent and a government focus on developing the country's infrastructure, the forecast for backhoe loader demand is very positive indeed, and the market is expected to reach a level of 52,000 units by 2012.

As a result, many new manufacturers, both domestic and international, are looking at entering the lucrative backhoe loader market. Some of these have already developed prototype machines which are being tested before being launched onto the market. Lovol of China, for example, displayed a machine at Excon 2007, in Bangalore, and Standard Tractors displayed its prototype machine at the Auto Expo 2008 in Delhi. These are just two of many new entrants that may be expected to be participating in the market in the future.

ECONOMIC TRENDS

India's economic growth continues unabated with both economic indicators and business confidence remaining at a very high level. Growth in the country's gross domestic product has averaged 7.6 per cent during the most recent five year plan (the 10th), the fastest increase to date, and GDP was expected to cross the US\$ one trillion mark in 2007: India is expected to become a US\$2 trillion economy by 2012. Reports suggest that India now comes second only to China as a favoured location for global foreign investment, ahead of the USA, Russia and Brazil. Foreign investment, which averaged US\$6.0 billion between 2003 and 2005, topped US\$15.5 billion in 2006 and had reached US\$10.0 billion in the seven months to October 2007.

The Indian economy remained buoyant in the first half of 2007 with the GDP growth rate remaining above nine per cent, following annual growth rates of nine per cent in 2005 and 9.4 per cent in 2006. This growth is forecast to continue and is expected to be fuelled in particular by expansion in the mining, manufacturing, construction and services sectors.

Table 2. India: Basic Economic Indicators, 2002-2007*

	2002	2003	2004	2005	2006	2007*
Gross Domestic Product (Rs Bn)	22,653	25,494	28,559	32,509	37,174	19,510
Real GDP Growth (%)	7.4	8.1	7.5	9.0	9.4	9.1
Consumer Price Inflation (%)	4.0	3.8	4.6	5.4	7.0	5.5
Industrial Production (%)	5.7	6.0	6.5	7.9	7.9	9.2
Exports (\$ Bn)	52.7	63.5	76.2	102.7	122.0	72.3
Imports (\$ Bn)	61.4	77.0	83.4	149.2	187.9	109.2
Trade Balance (\$ Bn)	-8.7	-13.5	-7.2	-46.5	-75.9	-36.9
Gross External Debt (\$ Bn)	98.7	104.8	112.6	126.5	132.1	165.4
Foreign Currency Assets (\$ Bn)	71.9	107.4	135.6	145.1	191.9	240.0

*April to September 2007

Source: Government Statistics

The rupee has continued to increase in value against the dollar, and foreign exchange reserves have soared to over US\$240 billion. The average rupee to dollar exchange rate in the first half of 2007 grew by 11.5 per cent compared to the same period in 2006. This appreciation of the rupee had raised fears of a drop in exports, especially in IT, textiles, handicrafts and automobile components. However, exports have continued to grow, up by 18.5 per cent in 2007 relative to 2006. The stronger rupee has also resulted in cheaper imports increasing the availability of previously unaffordable, higher quality products, in turn providing a further boost to GDP growth. Imports grew by 25.5 per cent in first half of 2007 compared to the corresponding period of 2006.

The robust performance of the manufacturing sector has kept industrial growth buoyant with the index of industrial production increasing by 7.9 per cent in 2006. However, the first half of 2007 saw slightly slower expansion than the first half of 2006 (9.2 per cent compared to 11.1 per cent), perhaps due to a slackening of consumer and export demand in some industries, coupled with higher interest rates. It should be noted that capital goods production, an indicator of overall investment levels, showed a growth of 19.6 per cent in 2007 as compared to 17.5 per cent in 2006, reflecting growing confidence in India as a competitive location for outsourced manufacturing and services activities.

An analysis of the origins of India's GDP shows that services and industry sectors are the main drivers of growth, whilst the importance of agriculture is decreasing year on year. The most important sub-sector encompasses trade, hotels, transport and communication: this is the most rapidly expanding part of the service sector and also accounts for nearly 50 per cent of its contribution to the total economy. Growth within the industrial sector is dominated by the revival of manufacturing and construction activity, both achieving double digit growth in 2006. The government's focus on infrastructure development and an increase in the global demand for steel and ore are also expected to give an impetus to the mining and electricity sub-sectors.

These investments in infrastructure, estimated at US\$494 billion over the next five years, are expected to ensure continued growth, even in the face of fears of a global downturn resulting from the sub-prime crisis in the US. However, inflation has dropped to 5.5 per cent in the first half of 2007 as compared to 7.3 per cent in the corresponding period in 2006.

CONSTRUCTION ACTIVITY

Growth in the Indian construction sector, including roads, power, housing and other infrastructure projects, has more than matched the expansion of the wider economy. The sector, which is the second largest employer after agriculture, has a workforce of 33 million and saw growth of 12.1 per cent last year. Large-scale civil engineering work to improve India's infrastructure as, well as a booming residential and non-residential construction sector, have been the main drivers of this growth. The total investment in the sector amounted to \$60 billion during 2006 and in the 11th Five Year Plan (2007-2012), with a staggering investment of \$494 billion being allocated to infrastructure development alone. The construction industry's value is forecast to reach \$143 billion in 2011. The investment figures are net projected investments and assume that 15 per cent of the planned investment will spill over to the 12th plan.

Roads

The Indian road network is the second largest in the world with 3.3 million kilometres, but of this around 1.6 million kilometres, or 50 per cent of the total road network, is still un-surfaced. Roads carry around 65 per cent of the total freight and 80 per cent of total traffic, so this sector is a crucial one for expansion. Out of the total 200,000 kilometres of National and State Highways only 10 per cent is four-lane, 55 per cent double-lane and 35 per cent single lane. National Highways constitute only two per cent of the total length but carry more than 40 per cent of the total transport demand, and this will be a priority for development.

Table 3. India: Size of Road Network, 2007

Category	Kilometres	%
National Highways	66,590	2
State Highways	137,711	4
District Roads	467,763	14
Rural Roads	2,650,000	80
Total	3,322,064	100

Source: Government Statistics

In 1995 the National Highway Authority of India (NHAI) was established to implement and manage the National Highway Development Project (NHDP). This initially consisted of building 13,146 kilometres of four to six lane national highways.

The project, which will cost an estimated Rs600 billion (\$14 billion), has two components: the Golden Quadrilateral (GQ) connecting the four metropolitan cities of New Delhi, Mumbai, Chennai and Kolkata, with a total length of 5,846 kilometres, and the North-South-East-West (NSEW) corridors with a total length of 7,300 kilometres connecting Srinagar to Kanyakumari, Silchar to Saurashtra and Salem to Cochin. The GQ project is now nearly complete and the government has set 2008 as the completion deadline. The next phase of development which comprises the North-South and East-West road links has already started and should be completed by 2009.

The government has since added many more projects to the initial NHDP including improving port connectivity, four-laning and two-laning other national highways, and expressways. Below is a summary of the status of the NHDP as of December 31, 2007.

Table 4. India: NHDP and Other NHAI Projects on Four Laning
(Status as on 31st December 2007)

Status (Kilometres)	NHDP					Port Connect	Others	Total by NHAI
	GQ Phase I	NS-EW Corridor Phase II	NHDP Phase III	NHDP Phase V	NHDP Total			
Total Length	5,846	7,300	12,109	6,500	31,755	380	962	33,097
Current Four Lane Under Implementation	5,634	1,635	295	-	7,564	166	337	8,067
Yet To Be Awarded	212	4,686	1,780	148	6,826	208	605	7,639
	-	821	10,034	6,352	17,207	6	20	17,233

Source: Government Statistics

Other important road projects include the **Special Accelerated Road Development Programme for North Eastern Region (SARDP)** – aimed at two and four lanes for 3,251 kilometres of national highways, and widening to two lanes or improving 4,388 kilometres of state roads in the north eastern region – and the **Pradhan Mantri Gram Sadak Yojna (PMGSY)**, the scheme that will connect most large villages to the national highways by all-weather roads by the end of 2009.

Table 5. India: Projection of Investment on Roads and Bridges in 11th Plan
(US\$ Billions)

National Highways	State Roads	Rural Roads Under Bharat Nirman	North East Road Under SARDP	Total
44.3	33.3	10.5	1.4	89.5

Source: Government Statistics

Funding for these projects comes from a variety of sources, the main components being a tax on road fuel to cover 35 per cent of the costs, and World Bank and Asian Development Bank loans for another 35 per cent. Other government borrowing will provide a further 20 per cent, and the remaining 10 per cent will be met by the private sector in the form of Build Operate Transfer (BOT) concession agreements.

Railways

With 108,805 kilometres of track, of which 14 per cent is electrified, India has the most extensive railway network in the world. The railways are government-owned and carry more than 14.8 million passengers every day and over 1,500 million tonnes of freight every year. In

the 11th five year plan the Government is catering for an increase in these numbers to 3 million tonnes of freight and 23 million passengers a day.

As a result, the railways have embarked on an ambitious, \$74 billion programme to modernise the network and to eliminate capacity bottlenecks. This includes the \$25 billion **National Rail Vikas Yojana** while other major projects planned for the railways include:

- 10,300 kilometres of new railway lines; gauge conversion of over 10,000 kilometres.
- Modernisation and redevelopment of 21 railway stations.
- Introduction of private companies to run container trains to speed up the introduction of rolling stock and capacity.
- Metro rail projects in Mumbai, Chennai, Kolkata, Bangalore and Ahmedabad.

Airports

Currently, India has 125 airports catering for 75-80 million passengers and about 15-17 million tonnes of cargo a year. With the passenger traffic expected to grow at 20 per cent per annum and cargo at 10 per cent per annum, major planned modernization and expansion projects include:

- Construction of seven green field airports, including new international airports projects at Bangalore and Hyderabad.
- Modernisation of four metro airports at Delhi, Mumbai, Kolkata and Chennai which are currently underway.
- Modernisation of 35 non-metro airports.
- Construction of three airports in the North East.

Table 6. India: Projected Investment in Airports in 11th Plan, 2007-2012

	Non Metro	Metro	Greenfield	North East	Total
US\$ Mns	1,500	4,171	3,033	149	8,853

Source: Government Statistics

Ports

India has 12 major and 187 minor ports which annually handle around 650 million tonnes of cargo. With traffic volumes set to reach over 1,200 million tonnes in 2012, investment and expansion in port facilities is becoming increasingly urgent.

As a result, the 11th five-year plan envisages increasing capacity by 485 million tonnes at major ports and 345 million tonnes at minor ports. The government has allowed 100 per cent foreign direct investment in ports and 100 per cent income tax exemption for ten years. The ratio of public to private investment in the sector is 26:74.

Table 7. India: Projected Investment in Ports in 11th Plan, 2007-2012

	Major Ports	Minor Ports	Total
US\$ Bns	13.47	7.74	21.21

Source: Government Statistics

Power

The total installed power generation capacity in India is currently over 135,000 MW, yet the peak power demand shortage in 2007 was over 14 per cent. To remedy the situation the Government has developed its “**Power for All by 2012**” plan to increase the installed generation capacity to 200,000 MW by 2012 and to provide electricity to all non electrified hamlets and rural households through the **Rajiv Gandhi Garmin Vidhyutikaran Yojana (RGGVY)**.

Investment projected in the sector under 11th five year plan is US\$177 billion. Major planned power projects include those at Mundra in Gujarat, Sesan in Madhya Pradesh, Krishnapattnam in Andhra Pradesh, and Tilaiya in Jharkhand. There are also 11 National Hydro Power Corporation (NHPC) projects in Himachal Pradesh, Jammu & Kashmir, Sikkim, Assam and West Bengal under construction.

Irrigation

The 11th five-year plan envisages the provision of water to 16 million hectares through irrigation projects, ground water development and the restoration of tanks:

Table 8. India: Projected Investment in Irrigation in 11th Plan, 2007-2012

	Major and Medium Irrigation	Minor Irrigation	Command Area Development	Flood Control	Watershed Development	Total
US\$ Bns	43.63	8.64	3.40	2.42	5.94	64.03

Source: Government Statistics

Urban Infrastructure

The \$12.2bn, 7-year **Jawaharlal Nehru National Urban Renewal Mission (JNNURM)** began in 2006 and is operating in 63 selected cities. In the waste water and sewerage sector the private sector funded Rs6 billion Visakhapatnam Industrial Water Supply project is almost complete, while the Tiruppur water project is now proceeding after several delays. The Madhya Pradesh, Karnataka and the Maharashtra Rural Water supply projects are all in various stages of construction while waste management projects with private sector involvement are planned for Bangalore, New Delhi, Jaipur and Alandur.

Telecommunication

India currently has more than 200 million telephone subscribers and the 11th five year plan envisages:

- Achieving 600 million telephone subscriptions, with 200 million rural connections.
- Achieving a broadband coverage of 20 million, and 40 million internet connections.
- 3G service in all cities and towns over 100,000 population.
- To make India a hub of telecom manufacturing by facilitating the establishment of telecom specific Special Economic Zones (SEZ).

An investment of US\$65.12 billion is expected to be made by end of 11th plan.

MARKET SIZE AND TRENDS

When the backhoe loader was introduced in the early 1980s by JCB, sales averaged 100 units per year. By 1990 they had reached about 300 machines and in the next 10 years climbed to 3,500 units. This represented steady but unspectacular growth, but there was little indication of the furious pace of demand that was to come: in the last three years sales have grown by a

dramatic 342 per cent to reach almost 22,000 units in 2007, and there is much momentum left in future demand.

The popularity of the machine stems from its versatility, comfort and mobility as well as the widespread availability of financing and after sales support. Owning and operating costs and resale value are other important factors, while a widespread distribution network across the country also helps strengthen the machine's commercial appeal. Put simply, the backhoe loader is affordable to almost every buyer, especially one that is purchasing his first machine, and is a product that is put to use in every conceivable application. As such its place in the industry is assured, whatever the trends of competitive machines might be seen in the future.

Table 9. India: Sales of Backhoe Loaders, 1998-2007

(Units)

1998	2,172	2003	4,390
1999	2,749	2004	6,391
2000	3,483	2005	9,133
2001	2,744	2006	13,797
2002	3,562	2007	21,769

Source: Off-Highway Research

Years of industrial reforms and liberalisation of the construction industry have created an army of private contracting companies who are now bidding for contracts traditionally reserved for the public sector, including electricity, telecommunications, roads, buildings, and irrigation projects. This is creating significant new demand for all types of machines, with backhoe loaders being one of the greatest beneficiaries.

Although backhoe loaders in India are used mainly for excavation work (the backhoe is used for 70 per cent of the machine's work), there are few viable alternatives. Specialist machines such as midi excavators, though more efficient, are more expensive to buy and maintain, and do not have the mobility offered by backhoe loaders. The difficulties in repairing and maintaining locally made alternative equipment also encourages the use of backhoe loaders. This, coupled with their widespread availability, has resulted in backhoe loaders becoming the most cost effective machine for small contractors.

The development of smaller contractors has coincided with a reform of the way contracts are managed. The likelihood of delays and cost overruns has reduced thanks to the allocation of

funds before a project is announced, and the introduction of strict completion deadlines with bonus and penalty clauses. This has in turn led to greater use of equipment.

Social changes leading to a reduction of manual labour as well as the steadily increasing cost of labour are forcing contractors to search for cheaper and more productive options. This is providing further impetus for mechanisation in general and backhoe loader usage in particular.

The growth of service and manufacturing industries and a decreasing dependence on agriculture is fuelling the process of urbanisation resulting in the high level of construction activity that can be observed across the country. More particularly, farmland in semi-urban areas is being acquired to accommodate the additional housing, special economic zones (SEZ) and industrial areas this urbanisation requires. As a result, many farmers have found themselves suddenly cash rich, and have the desire to invest it. This investment capital, combined with the successful product awareness campaigns run by backhoe manufacturers, notably JCB, and the reputed earning potential of the machines, as well as their compatibility with other vehicles owned by farmers such as tractor trolleys, is encouraging many of these former farmers to invest in backhoe loaders.

The widespread availability of equipment finance through banks and non-banking financial companies (NBFCs) has also played a major role in fuelling the growth of the backhoe loader market in India. This network of financing companies including their direct marketing agents (DMAs) acts as an extended distribution arm for manufacturers and suppliers, and has played a vital role in increasing demand. Equipment suppliers have also signed agreements with financiers to formulate special financing schemes to facilitate them with minimal investment up front. As a result, almost 40 per cent of the buyers of backhoe loaders are first time buyers, with no prior experience of running machines.

Overall, plant hirers continue to be the largest market for backhoe loaders in India constituting about 65 per cent of the total market. Next come contractors (including mining and quarry applications) with 25 per cent while the remaining 10 per cent consists of institutional buyers, civic bodies and agricultural and industrial applications. Despite the increase in availability of backhoe loaders, this has been more than matched by increased demand resulting in higher rental rates, and increased viability for plant hirers which itself fuels further growth. A typical plant hirer would normally expect to have contracts for the first four to six months after buying a backhoe, and would be very confident about obtaining future work.

In addition to those features already described, the specification of a standard Indian backhoe loader includes a reinforced dipper arm, a digging depth of up to 5 metres and a loading height of over 4 metres, which is typically required to load a 10 to 15 tonne truck. As the majority of customers are plant hirers who hire the machine with fuel, fuel efficiency can be a major differentiator between models, although productivity is not considered to be such an important attribute. It should be noted that those suppliers that are able to offer the most fuel efficient machines are likely to gain considerable market share, for fuel efficiency is of increasing importance.

With the current growth in truck sizes, there would appear to be the possibility of increased demand for larger, side shift backhoe loaders. Indeed, in the last five years there has been an increase in demand for larger machines over 75 horsepower, which in 2007 accounted for over 17 per cent of the total market.

This has been matched by operators becoming more aware of the machines' abilities, resulting in greater attention being paid to matching a machine more closely to the job in hand. Previously, if a contractor needed to carry out work which was beyond the capabilities of a 75 horsepower backhoe loader, he would purchase (or hire) a crawler excavator. Today, the contractor is in the position to present his precise requirements to the supplier. This is one of the reasons why JCB, Telcon, L&T Case and, most recently, TEREX Vectra have all started the production of larger machines.

Four wheel drive backhoe loaders remain a niche, however. An analysis of sales in 2007 shows that demand for four wheel drive machines has grown slightly and has now reached four per cent of the total, or around 900 units. These machines are most popular in the north eastern states of India and with institutional buyers.

Pricing, rather than operating conditions, is expected to be the most important determinant of future demand for four wheel drive machines. The four wheel drive backhoe loaders are considered to be too expensive for the advantages they offer on account of higher prices, higher fuel consumption and lower resale value. Nevertheless, the pricing battles currently taking place mean they are becoming an increasingly attractive proposition for filling trenches, dozing or handling materials in difficult ground conditions, and are being promoted with 6-in-1 buckets to improve their versatility.

Currently, all backhoe loaders manufactured and sold in India have a rigid chassis. The success of articulated machines, were they to be introduced to the market, is likely to be limited as a result of the inherent compromise of this design on machine stability.

No demand for all-wheel steer machines with equal size tyres has been observed and none of the OEMs is planning to introduce such a machine. Telescopic booms for both backhoe and loader arms are unlikely to meet with any more success than elsewhere – the additional cost involved for providing these options is a powerful deterrent. There is also little demand for smaller backhoe loaders. These would be competing with manual labour and would therefore encounter similar problems to those faced by skid-steer loaders in establishing a market.

Another singular aspect of the Indian backhoe loader market is their continued use on large projects where the use of larger excavators might be more expected. One reason for this phenomenon could be that main contractors generally sub-contract low value earthwork to a large number of small sub-contractors, who find completing the job with backhoe loaders more economical on account of the machine's widespread availability and competitive pricing.

Regional Sales

Table 10. India: Sales of Backhoe Loaders by Region and State, 2007

(Units)

Region	State	Units	%	Region	State	Units	%
North	J&K	430	2.0	East	Bihar	329	1.5
	Punjab	650	3.0		Jharkhand	550	2.5
	Himachal	550	2.5		West Bengal	760	3.5
	Haryana	600	2.8		NE States	760	3.5
	Uttarakhand	550	2.5		Orissa	650	3.0
	Delhi (NCR)	700	3.2		Sub Total	3,049	14.0
	Uttar Pradesh	875	4.0	South	Andhra Pradesh	1,850	8.5
	Rajasthan	1,740	8.0		Karnataka	1,850	8.5
	Sub Total	6,095	28.0		Tamil Nadu	2,175	10.0
West	Chattisgarh	650	3.0		Kerala	1,525	7.0
	MP	815	3.7		Sub Total	7,400	34.0
	Gujarat	1,800	8.3				
	Maharashtra	1,750	8.0				
	Goa	210	1.0				
Subtotal	5,225	24.0	Total		21,769	100.0	

Source: Off-Highway Research

The demand for backhoe loaders has been steadily growing all over India. Rapid urbanisation and investments in infrastructural projects have ensured that development rate and construction activities are on the upswing even in previously less well-developed regions. As a result, manufacturers can ill-afford to ignore any of the regions, although a concentrated focus on selected pockets for some time may be useful to establish a market foothold.

The regional sales distribution of backhoe loaders in India has changed slightly in 2007 with the share of total sales accounted for by the eastern region reaching 14 per cent. This has climbed from 13 per cent in 2006, due largely to increased construction activity especially in the North Eastern States, where the activity level has previously been low.

As can be seen, however, the backhoe market is spread across the whole of India. The geographical spread of the states with the largest markets for backhoes – Rajasthan in the northern region; Gujarat and Maharashtra in the western Region and the whole of the southern region which between them account for over 55 percent of the market – means a strong sales and product support network covering the entire country is a pre-requisite for success. This is one of the reasons for domination of backhoe loader market in India by JCB, and one that is being prioritised by all other suppliers.

TECHNOLOGY

JCB successfully marketed its most popular backhoe in India – the 3D model – for over 15 years without any change in technology and still retained market leadership, mainly on account of the strength of its distribution network and backing by equipment financiers. With other manufacturers also not upgrading the technology used on their machines, all the backhoe loaders sold in India until as recently as 2003 had 15 year old technology.

The scenario started changing in 2002 when L&T Case introduced its 851 model and Telcon introduced its improved JD315 V (John Deere) model. In 2003 Caterpillar introduced its 424 Series I backhoe loader, with improved aesthetics, visibility and ergonomics, as well as upgraded structural components including a ‘banana’ boom, Z-bar linkage, oil cooled disc brakes, maintenance free axles and load sensing hydraulics with a variable displacement hydraulic pump. At the same time, Terex Vectra also introduced Fermecc’s latest model, the TX760, and started manufacturing the machine at its Greater Noida plant in 2004.

These technological changes by its rivals in India forced JCB to respond. In 2004 it introduced its improved 3DX model and the company has since added the 3DX Super and 4DX. This trend

towards upgrading technology has continued. In 2006, L&T Case launched its indigenously developed 770 model and Caterpillar introduced its improved 424B model, which has a much larger cabin and improved structural components. JCB is also working on new models for both the domestic and export markets, which might include some important new features that should secure its position in the industry.

PRODUCTION

The enormous growth in domestic demand has seen a corresponding increase in domestic production, and with no imports of note, output has increased from a mere 6,400 units in 2004 to over 22,000 units in 2007. All of the leading suppliers are currently adding to capacity, with most of them expected to at least double their output capabilities in the next two years. In addition, it is likely that most of them, if not all, will consider the expansion of their product ranges through the inclusion of both smaller and larger machines to meet the anticipated changing structure of demand.

JCB is the largest manufacturer of backhoe loaders in India by a considerable margin, and since 2005 its output has more than doubled to reach 16,066 units in 2007. Output has in fact tripled in the last three years and quadrupled in the last four years.

Table 11. India: Production of Backhoe Loaders by Manufacturer, 2003-2007

(Units)

	2003	2004	2005	2006	2007
JCB	3,480	5,200	7,400	10,400	16,066
Telcon-JD	400	462	850	1,425	2,000
L&T-Case	480	525	695	1,183	1,950
TEREX Vectra	-	87	310	775	1,285
Caterpillar	47	245	235	215	700
Others	-	8	10	45	225
Total	4,407	6,527	8,735	14,043	22,226

* Others include Bempl and ACE

Source: Off-Highway Research

The popular, two-wheel drive, 76 horsepower 3D model, retailing at about Rs1.85 million, has been manufactured in India since 1987 and a total of over 50,000 units have been produced to date. Production of the all-wheel drive 4D model, often used with a hydraulic breaker in mines and quarries, began in 1997 and reached 390 units in 2007. The 4-wheel drive 3D Super model,

fitted with a more powerful engine and hydraulic system, is a more recent introduction. All three models are assembled at the JCB Ballabgarh plant at the rate of 60 machines per day.

The Ballabgarh plant in Haryana, which is now solely dedicated to the production of backhoe loaders, is in the process of being extended and re-organised at the cost of Rs3.0 billion (\$75 million), and on completion should have the capacity to meet JCB's needs for the foreseeable future.

Telcon, best known for its production of Hitachi crawler excavators, entered backhoe loader production in 1998 in technical collaboration with John Deere. The 92 horsepower Tata-JD315E model, produced in 2-wheel drive and 4-wheel drive versions, has been assembled at the Dharwad plant, and in 2007 the company produced 2,000 machines. It is also exploring the possibility of introducing new models in 2008 that will be able to meet the growing demand for different sizes of machines.

L&T Case, a joint venture partnership between Larsen & Toubro and CNH, has been manufacturing backhoe loaders at its plant in Pithampur since 1989, based on the 2 wheel-drive Case 580H model, which was upgraded in 1994 and 1998. In 2002 the company introduced a more advanced and more powerful machine, the L&T-Case 851, based on the 95 horsepower LB85 model produced at the CNH plant in Italy. The latest addition to the range is the 76 horsepower L&T-Case 770 model designed and developed at the plant in 2006.

The company is increasing its production capacity at its Pithampur plant from 3,000 units to 10,000 units in total, split between backhoe loaders and compactors. Backhoe loader production will be shifted to a new plant currently being built on the same site while the existing plant will produce only compactors. The company plans to double its backhoe loader production in 2008.

TEREX Vectra, a new joint venture company that was established in 2003, started producing backhoe loaders in May 2004. An initial production run of 60 units in 2004 included the 90 horsepower 760 model, using locally produced Kirloskar diesel engines with other main components sourced from the TEREX Compact Equipment (TCE) Coventry plant in the United Kingdom.

Terex's intention is to focus more closely on the opportunities afforded by the Indian market. It is considering launching a complete line of backhoe loaders including a four wheel drive machine and a model with a naturally aspirated engine as well as centre mount and higher

capacity machines. Some of these models may be introduced as early as the first or second quarter of this year. The company plans to manufacture 1,600 backhoe loaders in 2008.

Caterpillar started production of its 424 Series I backhoe loader in July 2003. This was the first Cat branded product to be manufactured in India following the company's acquisition of Hindustan Motors' earthmoving equipment division in early 2001. The company produced 47 units in the first year and increased this to 245 units in 2004. However, production stalled due to quality and support issues and only 235 units were made in 2006. In 2007, Caterpillar launched the improved 424B backhoe loader model in India and manufactured a total of 700 backhoe loaders. It plans to manufacture 2,000 machines in 2008.

Beml has been manufacturing backhoe loaders for a long time, but its focus has always been on heavy earthmoving machines and it is presently only a marginal participant in the backhoe loader market in India.

Action Construction Equipment (ACE) was a new entrant in the backhoe loader market in India in 2007 and started production of its 80 horsepower 2-wheel drive machines at its Dudhaura plant in Faridabad.

COMPONENT SOURCING

Table 12. India: Component Sourcing for Backhoe Loaders, 2007

	Beml	Caterpillar	JCB	L&T-Case	Telcon	TEREX Vectra	ACE
Engines	Kirloskar	Simpsons	Kirloskar	Kirloskar	Tata	Kirloskar	Simpson
Transmissions	In-house	Caterpillar	In-house	851: Simpsons Graziano,	ZF (Germany)	Turner	In-house
Hydraulic Pumps	In-house	Bosch-Rexroth	JCB (UK)	851: Dana Spicer Commercial	Commercial	Pacoma	Bosch-Rexroth
Axles	In-house	Carraro	In-house	851: Casappa CNH – Antwerp	ZF (Germany)	Carraro	Carraro
Steelwork	In-house	In-house	In-house	In-house	In-house	Sub-contracted	Sub-contracted
Cabs	In-house	Sub-contracted	Sub-contracted	Sub-contracted	Sub-contracted	Sub-contracted	Sub-contracted
Tyres	Various	Various	Various	Various	Various	Various	Various

Source: Off-Highway Research

All manufacturers use low priced, locally-made diesel engines, although the supply of other components varies. JCB and Beml make a large proportion of components in-house, including transmissions and axles, whereas ACE, Caterpillar, L&T-Case, Telcon and TEREX Vectra have chosen to use local or foreign suppliers.

FOREIGN TRADE

Very few backhoe loaders are currently **exported** from India and most of the machines produced in the country are destined for the Indian market only. It is estimated that in 2007 JCB sold around 125 machines to Sri Lanka, Nepal, and Bhutan, and L&T-Case sold 10 units to Nepal, and other companies like Telcon also had a few sales overseas to neighbouring countries.

Whilst this activity is relatively modest at present, it is very evident that many of the leading manufacturers have their sights set very firmly based on their export potential. Many of them are planning to use India as their manufacturing hub for South-East Asia, and perhaps beyond, and are currently expanding their capacities over and above the significant future increase in domestic demand to meet their export goals.

There have been no **imports** of backhoe loaders in India in the past three years.

MARKET SHARES

The biggest factors governing the successful sale of backhoe loaders in India are coverage, ease of financing, after sales support in terms of the easy availability of servicing and parts, owning and operating costs and resale value. Since over 65 per cent of customers are plant hirers, machine price, fuel consumption and consumable parts costs (owning and operating costs per hour) assume even greater significance, while productivity is not as important as the machines are rented on a per hour basis only.

Table 13. India: Suppliers of Backhoe Loaders and Their Market Shares, 2003-2007

	2003		2004		2005		2006		2007	
	Units	%	Units	%	Units	%	Units	%	Units	%
JCB	3,470	79	5,105	80	7,008	77	10,130	73	15,920	73
L&T-Case	475	11	515	8	695	8	1,183	9	1,908	9
Telcon	391	9	455	7	851	9	1,421	10	1,976	9
TEREX Vectra	5	-	63	1	308	3	772	6	1,215	6
Caterpillar	47	1	245	5	263	3	251	2	570	3
Others*	2	-	8	-	8	-	40	-	180	1
Total	4,390	100	6,391	100	9,133	100	13,797	100	21,769	100

* Others include Bendl and ACE

Source: Off-Highway Research

After sales support in terms of service and parts availability is particularly important, for many backhoe loader customers are owner-operators and cannot afford a machine to breakdown for even a short while. The maintenance practices followed by many of these customers are far from the ideal, being heavily reliant on local mechanics and parts, yet they still demand immediate attention and warranty support from OEMs and their dealers in case of major breakdown.

JCB has always dominated the domestic market and its share has never fallen below 70 per cent. The company claims to have 56,000 backhoe loaders working in India, of which more than 54,000 are accounted for by the highly popular 3D/3DX model, which is currently priced at about Rs1.85 million (\$46,500).

The company's strength lies in its scale of manufacturing and sourcing of components, which allow it to be very cost effective and price competitive. At the same time a large sales organisation of 20 regional offices and 46 dealerships with 285 outlets has enabled it to dominate this product sector.

Another critical success factor for JCB in the backhoe loader market in India has been the ease of financing for its customers. The established resale market and high residual values for the company's machines (not always the case for other manufacturers) mean financiers are ready to accept lower margins and offer lower financing rates with minimal collateral guarantees, as they perceive their risks to be lower.

Telcon mainly sells its Tata-JD315-V model, which is very competitively priced against the market leaders, although the company concentrates more on sales of crawler excavators, of which it sold over 4,500 units in 2007. Nevertheless, Telcon is exploring the possibility of entering other sizes of backhoe loaders that offer greater fuel efficiency than its current, and there is little doubt that the company has ambitious plans for its backhoe loader interests in India.

L&T-Case claims a population of 7,500 backhoe loaders, but its sales have progressed at a slower rate than the market as a whole. It will be interesting to see if the recently reorganised distribution network and new 770 model introduced in 2006 (which is gaining popularity) can act as a catalyst for improved sales of L&T-Case backhoe loaders in the near future.

L&T-Case already has a strong position in the Indian backhoe loader and compaction equipment markets, but the company's ambition is to substantially increase market penetration in the next three years. The company is expanding its production facilities in Pithampur and plans to step up

promotion of the 770 backhoe loader as well as its range of tandem rollers using its re-organised distribution network.

TEREX Vectra has recorded sales growth in line with the market, but has not been able to gain market share as targeted. However, new models are due to be launched in 2008 that could assist it gain further penetration, a process that will be assisted by a focus on strengthening its distributor network.

Caterpillar launched its updated 424B model in November 2006 and hopes that this, together with a more dense and aggressive distribution network, will result in better sales. It is technically the most advanced and productive machine in its class available in the market, but needs greater support on the ground if it is to fully realise its potential.

Beml concentrates more upon its heavy equipment range and, despite the introduction of an indigenously designed model, there has not been an improvement in its backhoe loader market share. However, the company now seems to be increasing its focus on smaller equipment and has established a nationwide network of dealers. The company is also planning to fit an in-house manufactured engine on the machine, but the time of introduction is not yet clear.

Action Construction Equipment (ACE) is a major manufacturer of pick-and-carry mobile cranes, wheeled loaders, forklift trucks, and mobile tower cranes. It also has an agreement with Zoomlion of China to promote its products including high capacity tower cranes, piling rigs and concrete pumps among others. The company launched its backhoe loader model AX130 in 2007 and has also established a pan-India dealer network.

DISTRIBUTION AND MARKETING

Table 14. India: Distribution Networks of Backhoe Loader Suppliers, 2007

Supplier	Offices/Branches	Dealers	Outlets
JCB	20	46	285
Telcon	32	38	125
L&T-Case	20	45	100
Terex-Vectra	18	39	75
Caterpillar	1	2	80
Action Construction Equipment	9	34	-
BEML	30	22	-

Source: Company Information

Action Construction Equipment (ACE) is the latest entrant in the backhoe loader market in India and has nine offices as well as an India-wide network of 34 independent dealers.

BEML has a national network of 10 regional offices controlled from Bangalore:

- Chennai
- Hyderabad
- New Delhi
- Sambalpur
- Bilaspur
- Mumbai
- Ranchi
- Singrauli
- Kolkata
- Nagpur

These are supported by a network of 16 smaller district offices – some located at customer premises – which provide sales, training and support:

- Hubli
- Bhilai
- Panjim (Goa)
- Madurai
- Ahmedabad
- Dhanbad
- Jammu
- Bhubaneswar
- Ramagundam
- Neyveli
- Asansol
- Guwahati
- Kothagudem
- Chandrapur
- Udaipur
- Hospet

In addition, Beml has established a national network of 22 dealers covering the whole of India as well as four large service and machine activity centres:

- Ongole
- Hospet
- Katni
- Bangalore

Caterpillar has two dealers in India, namely **GMMCO Ltd**, covering southern and western India, and **TIL Ltd**, covering northern and eastern India.

GMMCO distributes its products through a network of eight regional offices with each responsible for the operation of branches, site offices and repair and service centres located within its area. These offices are located in:

- Kolkata
- Nagpur
- Chennai
- Ranchi
- Mumbai
- New Delhi
- Ahmedabad
- Hyderabad

In all there are 57 site offices and parts and repair centres supported by sales staff and service personnel located at 26 branches:

- Chennai
- Vizag
- Goa
- Singrauli
- Coimbatore
- Bailadila
- Nagpur
- Korba
- Madurai
- Ahmedabad
- Bhilai
- Sambalpur
- Bangalore
- Surat
- Chandrapur
- Singrauli
- Hospet
- Gandhidham
- Pondicherry
- Visakhapatnam
- Cochin
- Mumbai
- Jabalpur
- Ranchi
- Secunderabad
- Pune

In addition GMMCO supports the needs of major coal producers throughout India and has service personnel located at:

- Ranchi – Central Coalfields Ltd
- Singrauli – Northern Coalfields Ltd
- Bilaspur – South-eastern Coalfields Ltd
- Nagpur – Western Coalfields Ltd
- Sambalpur – Mahanadi Coalfields Ltd

The main office for **TIL** in the eastern region is in Kolkata, where there is also a large parts warehouse. In addition there are 13 sales and customer support centres in:

- Guwahati
- Dhanbad
- West Bokaro
- Barbil
- Tisukia
- Asansol
- Talcher
- Ramgarh
- Siliguri
- Bhubaneswar
- Jharsuguda
- Noamundi
- Jamshedpur

For the northern region the main office is in Sahibabad near New Delhi which also has a large parts depot. The main sales and customer support centres are at:

- Jaipur
- Lucknow
- Ludhiana
- Chandigarh
- New Delhi
- Karnal
- Udaipur
- Amritsar
- Baglihar

In addition there are a number of service workshops in both the Northern and Eastern regions.

Both the dealers of Caterpillar have Cat rental stores that deploy a large number of backhoe loaders in their fleet. Currently there are 11 rental stores in India, a number that is expected to more than double in 2008. This is a captive market for Caterpillar backhoe loaders and an integral part of its strategy.

The **JCB India** sales and distribution network consists of six regional zones comprising of 20 area offices. In total 150 people are employed in marketing, sales and service support. In addition JCB has four parts warehouses in Pune, Chennai, Kolkata and the main parts depot in Ballabgarh. JCB area offices are located in:

- Pathankot
- Chandigarh
- New Delhi
- Lucknow
- Jaipur
- Jodhpur
- Udaipur
- Jamshedpur
- Bhubaneswar
- Guwahati
- Ahmedabad
- Bhopal
- Nagpur
- Raipur
- Pune
- Visakhapatnam
- Bangalore
- Secunderabad

The area offices support the retailing network of 46 independent dealerships with over 285 outlets and 500 service engineers throughout the country.

Under the **L&T-Case** distribution arrangement, sales of all products manufactured by the Pithampur plant and all CNH-Case construction equipment imported to India are controlled by the L&T-Case commercial office, located in Powai Works in Mumbai.

The company, which employs 95 people, utilises a network of 35 offices and branches throughout India distributed into five regions, and controls a network of 45 independent dealers with over 100 sales and service points. Spare parts support is provided from the centralised spare parts centre in Indore.

Telcon has a two tier distribution network that employs 250 people, including 100 salesmen and 135 service engineers. Backhoe loaders, mini and midi crawler excavators – up to the EX200 model – are sold and distributed through a network of 32 Authorised Customer Support Centres (ACSC), Telcon's equivalent of independent dealers.

All other products are distributed through a network of 38 branches, controlled from the company headquarters in Bangalore. Each branch consists of a sales office, repair and service

workshops and a small spare parts centre. There are also several large spare parts warehouses located in New Delhi, Kolkata, Dharwad and Nagpur.

Table 15. JCB India: Dealer Network, 2007

Dealer	Location	Dealer	Location
Gaurav Enterprises	Jamshedpur (Bihar)	Bhopal Motors	Bhopal (M.P.)
Krishna Automobiles	Chandigarh	Sidharth Auto Engineers	Pune
Dynamic Engineers	Raipur (Chhattisgarh)	Gadre Engineering Services	Nagpur
Caculo Earthmovers	Panaji (Goa)	Kalinga Automobiles	Bhubaneswar
Amin Equipment	Ahmedabad	Mehar Enterprises	Rourkela (Orissa)
Yantraman Automatic	Chanti	Sumeet Earthmovers	Pathankot (Punjab)
Leo Earthmovers	New Delhi	Rajesh Motors (Agencies)	Jaipur
India Techs	Kochi	Mayank Equipment	Jodhpur (Rajasthan)
Taurus Earthmovers	Bangalore	Vijoi Earthmoving Equipment	Chennai
Gautam Eng.	Jammu	Jayaraj Automobile Agency	Madurai
Aishwarya Earthmovers	Hubli (Karnataka)	Alliance Industrial Marketing	Lucknow
K.B.S. Earthmovers	Imphal (Manipur)	Jayshree Automobiles	Durgapur
TBL Enterprise	Aizawl (Mizoram)	A&A Earthmovers	Noida (UP)
Bombay JCB Earthmovers	Mumbai	Frontier Commercial Vehicles	Jabalpur
Dyna Tech	Villipuram	L.E.S. Ltd	Dhaka
Gold Fields	Nellore	Lexls	Salem
Mgb Motor & Auto	Hyderabad	Modern Earthmovers	Rohtak
Moray Auto	Kathmandu	Oja Earthmovers	Guwahati
Patliputra Earthmovers	Patna	Podder & Podder	Silchar
Ratnappabbha	Aurangabad	Saini Earthmovers	Kolkata
Senok Trade	Colombo	Sri Venkatesh	Bellary
Sayaan	Nasik	Triveni Motors	Agra
Ygen Earthmovers	Thimpu	Vishnutek Eng.	Vishakhapatnam

Source: Off-Highway Research

In addition Telcon has a network of 29 regional offices in:

- Ahmedabad
- Dhanbad
- Jaipur
- Chennai
- Jabalpur
- Goa
- Raipur
- Lucknow
- Hospet
- Kolkata
- Pune
- Durgapur
- Udaipur
- Salem
- Madurai
- Rajkot
- Guwahati
- Cochin
- Nellore
- Mumbai
- Indore
- Jamshedpur
- Nagpur
- Vizag
- New Delhi
- Bhubaneswar
- Chandigarh
- Bangalore
- Hyderabad

TEREX Vectra currently has a total of 18 offices in India including its headquarters in Greater Noida, with 50 people in sales and marketing and 50 in product support. The company sells directly from its area offices in:

- Hyderabad
- Nagpur
- Jaipur
- Panchkula
- Bangalore
- Mumbai
- Ahmedabad
- Kolkata
- Pune
- Guwahati
- Chennai
- Jamshedpur
- Kochi
- Rajkot
- Udaipur
- Indore
- Bhopal

It also sells through a network of 39 dealers with 75 branches throughout India, which is being further strengthened.

PRICING

India's complex tax laws have a direct impact on how machines are priced and sold. Sales tax comes under the jurisdiction of the individual states, meaning there are a number of different tax structures across the country. Central government is trying to streamline this with the implementation of value added tax (VAT) for local transactions, but some states have not yet subscribed to VAT. Moreover, current rates of VAT vary from state to state for construction equipment. The existence of state entry taxes is a further complication. For customers registered with the sales tax authorities there are often concessions in the rate of sales tax, especially for interstate transactions involving central sales tax (CST).

As a result of this complexity, the total price of machines varies from state to state and from customer to customer. It also means types of sales transactions vary, as shown below:

- **Direct Sale:** OEM bills directly to the end customer (generally done in the case of customers eligible for concessional rate of tax). Customer has to provide state entry form and concessional tax form where applicable.
- **Sale-in-Transit:** OEM bills the machine to dealer on concessional rate of tax and the dealer bills to customer without incurring any additional tax. This transaction is allowed only for customers eligible for concessional rates of tax. Customer has to provide state entry form and concessional tax form.

- **Stock-and-Sale:** Most common transaction where the OEM bills the dealer on a concessional rate of tax and the dealer bills the customer charging VAT/local tax as per state requirements.

Table 16. India: Average Transaction Prices of Backhoe Loaders, 2007

Manufacturer (Model)	Unit Price* Rs Mns (US\$)	Free of Cost Spares Rs Mns (US\$)
JCB (3DX)	1.53 - 1.58 (38,250 - 39,500)	0.06 - 0.10 (1,500 - 2,500)
Telcon (JD315-V)	1.45 - 1.50 (36,250 - 37,500)	0.06 - 0.10 (1,500 - 2,500)
L&T Case (770)	1.45 - 1.50 (36,250 - 37,500)	0.06 - 0.10 (1,500 - 2,500)
Terex-Vectra (TX760)	1.48 - 1.53 (37,000 - 38,250)	0.06 - 0.10 (1,500 - 2,500)
Caterpillar (424B)	1.55 - 1.60 (38,750 - 40,000)	0.04 - 0.08 (1,000 - 2,000)
ACE (AX130)	1.38 - 1.43 (35,000 - 36,250)	0.06 - 0.10 (1,500 - 2,500)
BEML (BL9H)	1.45 - 1.50 (36,250 - 37,500)	0.04 - 0.08 (1,000 - 2,000)

*Basic Sale Price for Standard Model exclusive of Duties and Taxes

Source: Off-Highway Research

Transaction prices indicated in the above table are basic prices for standard machines, to which excise duty at 16.48 per cent and either central sales tax at three per cent or value added tax at 12.5 per cent will have to be added. In some of the states concessional VAT rates of four per cent apply, in which case stock and sale billing is prevalent. The delivered price of a JCB 3DX standard machine with CST at three per cent would be approximately Rs1.85 million (US\$46,500). Machines with heavy duty tyres would cost an extra Rs40,000 (US\$1,000).

Overall, prices increased by about five per cent during 2007 for most manufacturers. The price a customer ends up paying generally includes all Duties and Taxes along with delivery charges and free of cost (FOC) spares. The amount of FOC spares may vary from deal to deal and in some cases a cash discount (generally 65 to 70 percent of the FOC spares value) is also given by the dealers. Purchasers of backhoe loaders in India insist on the inclusion of freight and FOC spares as they can then be included in the asset value and thus in the finance package. Prices and the volume of FOC spares also vary by region, with the southern region generally the most profitable for manufacturers.

As JCB is the undisputed market leader, its pricing is the benchmark for other manufacturers. Among all Indian manufacturers, Caterpillar has the highest pricing (even higher than JCB), whereas all other manufacturers offer prices lower than JCB. The backhoe loader market in India is very price sensitive and customers can be very demanding in terms of after sales service and parts availability, as a large proportion of customers is made up of owner operators. In this context, JCB has the edge over other manufacturers thanks to its comprehensive distribution network and the easy availability of parts and service. If a customer is considering suppliers other than JCB, then they generally insist on a very good deal in terms of price, FOC spares and financing terms. Machine productivity and reliability are relatively unimportant in the choice of manufacturer, though fuel consumption can be a major differentiator.

The financing of machines also plays a very important role in the sale of backhoe loaders in India. Generally, customers buy a backhoe loader through financing arrangements agreed with banks or Non Banking Financial Companies (NBFC). Financing periods vary from two to three years and customers have to make a down payment of between 5 per cent and 25 per cent depending on the machine and his credit rating. Manufacturers also collaborate with financiers to provide special financing schemes to attract customers, especially during the lean monsoon season.

Machines are generally financed through hire-purchase schemes or through lease finance. In the first case ownership remains with the customer and the machine is hypothecated to the financier. This allows the customer to claim depreciation and removes the need to pay any transfer fee at the end of the financing term. In the case of lease finance, ownership of the equipment remains with financiers who claim depreciation and also charge a transfer fee at the end of the financing term. However, the absolute financing rate for such an arrangement is lower compared to hire purchase.

Although all manufacturers have a relationship with financiers for promoting their products, JCB receives preferred treatment from all financiers on account of the volume of its business and the easy resale of repossessed JCB machines. This can lead to situations where financiers ask for additional concessions from suppliers, although suppliers try to resist this by linking other product sales with backhoe loaders. JCB's customers are likely to receive financing for 85 to 95 per cent of the asset value and the loan can be approved in two to three days. Other manufacturers' machines are likely to be financed to 75 to 85 per cent of asset value and the approval of the loan can take eight to 10 days.

With regards to residuals, a three year old (5,000 to 6,000 hours) JCB backhoe loader is likely to fetch 60 to 65 per cent of the price of a new machine price i.e. around Rs1.2 million (US\$30,000). The value of used machines from other manufacturers is not so well established and they are relatively difficult to sell.

POPULATION AND END-USERS

The active population of backhoe loaders is estimated to be 70,500 machines, of which 53,000 have been supplied by JCB and 7,500 by L&T-Case. The average utilisation of a backhoe loader is between 2,000 and 3,000 hours per year, which underlines why there is a very significant and valuable spare parts business.

Table 17. India: Population of Backhoe Loaders by End-User, 2007

	Units	%
Rental (Plant Hirers)	46,000	65
Contractors	12,500	18
Mining and Quarrying	5,000	7
Government	4,500	6
Industry and Agriculture	2,500	4
Total	70,500	100

Source: Off-Highway Research

The most important end-users are plant hirers, often owner-operators with a single machine, who collectively account for around 65 per cent of the total population of backhoes. The average hourly rate for a backhoe loader on short term rental is Rs600 to Rs750 including fuel, maintenance and an operator. With long term rental rates for one calendar month, including operator and maintenance costs, of between Rs70,000 to Rs80,000, a return on a backhoe loader investment can be made after only two to three years.

The second most important end-user segment is private contractors who account for 18 per cent of the machine population. Large contractors use the machine as utility machines and deploy them on every project for a variety of utility applications. Small contractors, who often also work as sub-contractors, use them as production machines for contract work, particularly for road works, utility subcontracting, and irrigation projects. The importance of private contracting companies in India has been growing, and their importance is continuing to increase in the light of government policy to encourage private companies in the development of India's infrastructure.

Mining and quarrying is another significant end user market and accounts for seven per cent of total machines in operation. These machines are frequently fitted with hydraulic hammers and are used for sand, stone, coal and mineral mining extraction throughout the country.

Government departments are also important users of backhoe loaders accounting for a total of six per cent of the total population. The municipalities have a fleet of about 3,000 machines and the Indian Army has over 1,500 machines in service, mainly four wheel drive.

Farming and industrial applications remain of little importance in the total market and account for the remaining 2,500 machines, or four per cent, of the total population.

FORECAST

The appetite for backhoe loaders has grown tremendously in the last five years, and with the economy growing at around nine per cent per annum, there is considerable momentum in favour of further demand growth.

Table 18. India: Forecast Sales of Backhoe Loaders, 2008-2012

(Units)

2008	2009	2010	2011	2012
30,000	37,000	43,000	48,000	52,000

Source: Off-Highway Research

The current emphasis on road modernisation and building, the expansion of utilities in all regions and the maintenance of the existing infrastructure suggests the high level of sales experienced in the last two years should continue in the short term. With government plans to address the remaining acute shortages of water and electricity, together with other infrastructure projects, the outlook for backhoe loader sales in the long term is very positive indeed.

There are a number of other reasons to substantiate the forecast in the table above:

- Backhoe loaders have already achieved a very good reputation, and their large population and positive image have yet to be matched by other equipment types.
- Most of the world's leading manufacturers have put their faith in the product's future by establishing domestic manufacturing plants. The joint marketing efforts of these major suppliers should inevitably increase the size of the market.

- Almost all manufacturers are also enhancing their production capabilities to meet the anticipated strong growth in demand for backhoe loaders in India, but also for exports.
- Given the investment currently being made into a variety of new products, it is likely that the marketing efforts of all participants will remain considerable. This will doubtless continue to further raise the profile of the backhoe loader over the next few years, and in the meantime attract more dealers to develop the concept at a local level.

As well as the anticipated increase in sales to private road building contractors in the next few years, more backhoe loaders are likely to be delivered to the mining and quarrying sectors, and this is likely to be reflected in a trend towards higher horsepower machines. It is also anticipated that continued competition will have an impact on prices of backhoe loaders as some manufacturers try to 'buy' market share.

Chinese manufacturers, who have until now been targeting the loader and motor grader markets in India, are also expected to start promoting backhoe loaders with both rigid and articulated machines – witness the recent displays of machines at exhibitions by Lovol Foton and Standard Tractor. This entry of Chinese manufacturers with competitive pricing policies will further doubtless stimulate the backhoe loader market in India. It will take time, however, to gauge their success given the current prevalence of locally manufactured products and the demanding after sales requirements in India.

There are some reasons for using a degree of caution when assessing the future of the backhoe market in India, however. The widespread availability of finance on very lenient terms has encouraged many first time buyers into the market for backhoes, in spite of their not having any experience in operating machines. Where this leads to the unprofitable and unsustainable use of a machine this can lead to a vicious circle of falling rental rates in a continued attempt to generate business. This can have a knock-on effect across a local area and can result in higher default rates on financing deals.

The increased number of re-possessed machines that are then made available on the resale market are often joined by machines sold by owners looking for more profitable returns on their money, such as real estate. This can lead to a lowering in the resale value of used machines, further reducing the viability of backhoe loader ownership.

Increased default rates can also have a deleterious impact on new machines sales by obliging financiers to reconsider their portfolio and take corrective measures in the form of more stringent credit terms leading to a slowdown in market growth. This trend has already been observed at

the beginning of 2008. It should be noted, however, that a similar trend is observed every year, and is normally short lived (about a month) with financiers relaxing credit terms to meet their quarterly and yearly targets.

A final note of caution comes from the impact of the increasing competition between plant hirers that can lead to falling margins. Where these fall to such an extent that the viability of their operations comes under question plant hirers may begin to look for either cheaper equipment suppliers or specialist equipment like midi excavators or even wheeled-excavators – always assuming such a machine were available at a price comparable with cost of a backhoe loader.

In summary, Off-Highway Research is confident that sales should grow steadily to around 52,000 units by 2012. Some of the product's potential will naturally be eroded by other machines that will replace it, such as crawler excavators and wheeled loaders, and their growth rates over the period will doubtless be higher than that of the backhoe loader. In spite of the probable trend towards partial substitution by other products, the position of the backhoe loader as India's largest volume machine remains assured for the foreseeable future.

MACHINES AVAILABLE

Table 19. India: Backhoe Loaders Available, 2007

Manufacturer	Model	Engine		Operating Weight (Tonnes)	Product Source
		HP	Manufacturer		
ACE	AX130	80	Simpson	7.2	India
Beml	BL9H	72	Kirloskar, Beml	7.6	India
Caterpillar	424B	72	Simpson	7.8	India
JCB	3DX	76	Kirloskar	6.8	India
	3DX Super	96	Kirloskar	6.9	India
	4DX	96	Kirloskar	7.9	India
L&T-Case	580-3	72	Kirloskar	7.0	India
	851	96	Simpson	7.1	India
	770	76	Kirloskar	7.0	India
Telcon	JD315-V	92	Tata	7.6	India
TEREX Vectra	TX760	90	Kirloskar	7.2	India

Source: Off-Highway Research

MANUFACTURERS OF BACKHOE LOADERS, 2007

ACE

Action Construction Equipment Limited
Jajaru Road, 25 Milestone, Mathura Road,
Ballabgarh, Faridabad
Haryana – 121 004

Tel: +91 (0) 129 2307922 / 933 / 924
Fax: +91 (0) 129 2307562, 2260854
www.ace-cranes.com

Caterpillar

Caterpillar India Private Ltd
Melnallathur
Thiruvallur – 602 004
Tamil Nadu

Tel: +91 (0) 44 2764 1085
Fax: +91 (0) 44 2764 1097
www.cat.com

L&T-Case

L&T-Case Equipment Limited
Plot No 157, Sector III
Pithampur 454774
Madhya Pradesh

Tel: +91 (0) 7292 56302 / 56308
Fax: +91 (0) 7292 56301
www.larsentoubro.com

TEREX Vectra

TEREX Vectra Equipment (P) Ltd
Plot No. 22 Udyog Vihar
Greater Noida, P.O. Surajpur
Uttar Pradesh – 201 306

Tel: +91 120 256 0830 / 0542 / 9601
Fax: +91 120 256 0541 / 0831
www.terexvectra.com

BEML

Bharat Earth Movers Limited
(A Government of India Undertaking)
BEML Soudha”, 23/1, 4th Main Road
S.R. Nagar, Bangalore 560 002

Tel: +91 (0) 80 2296 3167
Fax: +91 (0) 80 2296 3284
www.bemlindia.com

JCB

JCB India Limited
23/7 Mathura Road
Ballabgarh – 121004
Haryana

Tel: +91 129 230 9000
Fax: +91 129 230 9050
www.jcb.com

TELCON

Telcon Construction Equipment Company Ltd
Jubilee Building, 45 Museum Road
Bangalore – 560025

Tel: +91 80 6695 3301/02/03/04/05
Fax: +91 80 6695 3309
www.telcon.co.in