INDIAN CONSTRUCTION EQUIPMENT MARKETS:
A REVIEW OF 2009 AND A FORECAST TO 2014

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Table 1. India: Sales of Construction Equipment, 2005-2009

(Units)

	2005	2006	2007	2008	2009	% Change 2008-2009
Articulated Dump Trucks	3	19	13	33	11	-67
Asphalt Finishers	473	687	954	879	920	+5
Backhoe Loaders	9,133	13,797	21,769	16,673	16,001	-4
Compaction Equipment	1,445	2,335	3,219	2,905	2,787	-4
Crawler Dozers	325	550	599	608	562	-8
Crawler Excavators	4,522	5,904	9,606	9,897	7,944	-20
Crawler Loaders	1	3	6	5	4	-20
Mini Excavators	22	24	22	64	71	+11
Mobile Compressors	1,157	1,906	2,620	2,854	2,999	+5
Mobile Cranes	4,140	5,859	8,115	7,870	6,499	-17
Motor Graders	185	360	544	553	342	-38
Motor Scrapers	-	-	-	-	-	-
Rigid Dump Trucks	784	749	594	771	808	+5
Rough Terrain Lift Trucks	-	3	11	6	15	150
Skid-Steer Loaders	118	175	265	480	290	-40
Wheeled Excavators	-	4	5	-	-	-
Wheeled Loaders	1,312	1,879	2,364	2,540	1,902	-25
Total Construction Equipment	**23,620**	**34,254**	**50,706**	**46,138**	**41,155**	**-11**
Annual % Change	+37	+45	+48	-9	-11	-11

Source: Off-Highway Research

Table 2. India: Forecast Sales of Construction Equipment, 2010-2014

(Units)

	2010	2011	2012	2013	2014	% Change 2010-2014
Articulated Dump Trucks	20	30	40	50	60	+200
Asphalt Finishers	1,150	1,350	1,500	1,600	1,650	+43
Backhoe Loaders	23,000	25,500	27,000	28,500	30,000	+30
Compaction Equipment	3,400	3,800	4,200	4,500	4,800	+41
Crawler Dozers	700	800	900	1,000	1,050	+50
Crawler Excavators	10,500	13,500	16,500	19,500	22,500	+114
Crawler Loaders	5	5	5	5	5	-
Mini Excavators	100	150	200	300	400	+300
Mobile Compressors	3,400	3,700	4,000	4,300	4,500	+32
Mobile Cranes	8,000	9,000	10,000	11,000	11,500	+44
Motor Graders	600	700	800	900	950	+58
Motor Scrapers	-	-	-	-	-	-
Rigid Dump Trucks	900	1,000	1,050	1,100	1,150	+28
Rough Terrain Lift Trucks	35	70	100	150	200	+471
Skid-Steer Loaders	350	450	550	650	750	+114
Wheeled Excavators	5	5	5	5	5	-
Wheeled Loaders	2,500	3,200	3,700	4,200	4,700	+88
Total Construction Equipment	**54,665**	**63,260**	**70,550**	**77,760**	**84,220**	**+54**
Annual % Change	+33	+16	+12	+10	+8	+54

Source: Off-Highway Research

SUMMARY

A Review of 2009

The global economic crisis, which started in September and October 2008, had a severe and direct impact on the Indian construction equipment industry in 2009, although the market started recovering in the last quarter of the year.

After fourfold growth between 2003 and 2007, the market declined in 2008 with a further drop in 2009. Following the record total of 50,706 machines sold in 2007, construction equipment sales reduced to 46,138 units in 2008, a decline of nine per cent. Sales of construction equipment further declined to 41,155 units in 2009, 11 per cent lower than the previous year. Current trends indicate a strong recovery in the industry and demand is likely to increase significantly in 2010.

The overall performance of the construction equipment industry from 2005 to 2009 is given in table 1 above, while analysis for individual equipment types is provided in detail in the following pages. The key observations on the current state of the market can be summarised as follows:

- In terms of the number of units sold, the market is dominated by 11 machine types. Of these, sales of eight products declined in 2009, while three of them increased.

- Of these 11 products, backhoe loaders, crawler excavators, and mobile cranes constitute nearly three-quarters of the market in terms of units, followed by mobile compressors, compaction equipment, and wheeled loaders, which together constitute a further 19 per cent.

- Asphalt finishers, rigid dump trucks, crawler dozers, motor graders, and skid-steer loaders make up the remaining six to seven per cent of the market, while other machines have a negligible presence. This structure has remained more or less unchanged for the past five years, though the market share of individual machine types has varied every year.

- The growth in demand during the period 2005-2007 was spectacular. Back in 2005, total sales were 23,620 units before surging strongly to 50,706 by 2007, a growth of 115 per cent. As always, the three main products dominated demand and their cumulative sales increased by a remarkable 122 per cent during this period. However, in 2008 backhoe loader sales declined by 23 per cent and mobile cranes fell three per cent, while crawler excavators grew by three per cent. The market for all the three types of equipment declined in 2009.

- Backhoe loaders constituted 43 per cent of total machines sold in 2007, but accounted for 39 per cent of the total market in 2009 with a decline of four per cent over 2008. Crawler excavators, which grew until 2008, declined by 20 per cent, while sales of mobile cranes slid by 17 per cent in 2009.

- Wheeled loader sales, which grew consistently until 2008, declined sharply by 25 per cent in 2009.

- Among road construction equipment, sales of asphalt finishers have increased annually, with the exception of 2008, and witnessed resumed growth of five per cent in 2009. Sales of motor graders, which increased until 2008, registered a major decline of 38 per cent in 2009. Compaction equipment sales witnessed significant growth from 2005 to 2007, but their market declined successively in 2008 and 2009 by 10 and four per cent.

- Sales of mobile compressors grew rapidly from 1,157 units in 2005 to 2,620 units in 2007, a growth of 126 per cent in two years. Contrary to the overall trend, sales of this equipment type increased again in 2008 to 2,854 units and to 2,999 units in 2009, a growth of five per cent. Sales accounted for seven per cent of the total industry in 2009.

- The sales of rigid dump trucks showed a perverse trend as they declined between 2005 and 2007 and increased thereafter in 2008 and 2009. Sales grew by 23 per cent in 2008, followed by a further growth of five per cent in 2009 to reach 808 units.

- The market for skid-steer loaders grew steadily until 2008, but witnessed a notable decline of 40 per cent in 2009. However, their sales remained higher than 2007, a year when the overall construction equipment market was at its peak.

- Crawler dozer sales also grew until 2008 but declined marginally in 2009. The combined sales of other equipment, which includes articulated dump trucks, mini excavators, crawler loaders, and rough terrain lift trucks, were 101 units in 2009 as against 108 units in 2008.

The Winners: The markets for all the best-selling equipment fell sharply in 2009, but five types of equipment showed positive growth. Rough terrain lift trucks and mini excavators registered impressive growth of 150 and 11 per cent respectively, but their contribution to the total market remained insignificant. Sales of asphalt finishers, mobile compressors and rigid dump trucks

grew equally by five per cent in 2009. These three types of machines together accounted for 11 per cent of the market.

Together, the machines that saw an increase in sales accounted for only 12 per cent of the market in 2009.

The Losers: Among the top three losers, the market for articulated dump trucks fell 67 per cent (though total sales are insignificant compared to the overall market), skid-steer loaders declined by 40 per cent and motor graders by 38 per cent.

Among more popular equipment types, crawler excavators, the second largest selling machine in the country, witnessed a huge drop in sales of 20 per cent in 2009, followed by wheeled loaders (25 per cent) and mobile cranes (17 per cent). Other major equipment which witnessed a relatively smaller decline included crawler dozers (eight per cent), backhoe loaders (four per cent) and compaction equipment (four per cent).

Together, the machines that saw a decrease in sales accounted for 88 per cent of the market in 2009.

Forecast to 2014

The construction equipment market will continue to be driven by the development of infrastructure and the economic growth of the country. The stable government formed after the general election held in May 2009 is focusing on infrastructure development, which is essential to achieve the desired rate of economic growth.

The global economic turmoil did only little damage to the Indian economy, which through its resilience sent a very strong message to the world that its macroeconomic fundamentals and the banking system were sound. This also provides an assurance to global investors, especially at a time when the world's major economies are still facing recession. The government is taking policy measures to improve investor confidence and attract foreign investments, and is also encouraging public private participation (PPP) for infrastructure development.

The infrastructural development, which witnessed a slowdown in 2008 and in the first half of 2009, is now recovering fast. The worst now seems to be over and the signs of economic recovery are visible, as indicated by growth in all sectors including services, industry and agriculture.

Off-Highway Research is very bullish indeed about the short and long term prospects for the Indian construction equipment industry, due to the sheer scale of work yet to be done in the infrastructure sector. Even though little of that work has yet started on any of the major projects, sales of construction equipment have been improving every month since the middle of 2009. Crucially, the availability of finance is now not a problem, although additional credit checks have been put in place by banks and non banking finance companies (NBFCs).

The future demand for construction equipment will increasingly be created by the release of government projects, and pent-up demand due to artificially low sales in the previous two years caused by the lack of finance, rather than any inherent problems in the market itself.

Off-Highway Research forecasts a robust growth of 33 per cent in the total equipment market for 2010 to reach 54,665 units, exceeding the earlier peak achieved in 2007. This is likely to be followed by a growth of 16 per cent in 2011, and thereafter between eight and 12 per cent annually to reach 84,220 units by the end of 2014.

All types of equipment will witness growth, though the market will continue to be dominated by the six most popular products: backhoe loaders; crawler excavators; mobile cranes; compaction equipment; wheeled loaders; and mobile compressors. Together these will account for 93 per cent of the market in 2014. Crawler excavators will account for 27 per cent of the market in 2014 as against 19 per cent in 2009, while the share of backhoe loaders will decline from 39 per cent to 36 per cent. Importantly, demand for equipment that has sold only in small numbers in the past such as mini excavators, rough terrain lift trucks and skid-steer loaders, may also increase considerably.

ECONOMIC TRENDS

All the economic data in this report pertains to the fiscal year which starts on 1st April and ends on 31st March of the following year. For example, fiscal 2009 starts on 1st April 2009 and ends on 31st March 2010.

After five years of consistent growth, the economy entered difficult times in 2008. The slowdown in the rate of growth, which began in the second half of 2008, continued in 2009. The growth rate of gross domestic product (GDP) in 2008 was 6.7 per cent. According to advance estimates, a GDP growth rate of 7.2 per cent is projected for 2009.

Table 3. India: Basic Economic Indicators, Fiscal 2005-2009

	2005	2006	2007	2008	2009
GDP at Factor Cost (Rs Bn)	32,491.3	35,646.3	38,934.6	41,549.7	44,530.6*
GDP Growth at Factor Cost (%)	9.5	9.7	9.2	6.7	7.2*
Average Consumer Price Index (% Change)	4.4	6.7	6.2	9.1	11.4**
Average Wholesale Price Index (% Change)	4.4	5.4	4.7	8.4	1.6**
Index of Industrial Production Growth (%)	8.2	11.6	8.5	2.6	8.6**
Exports (US$ Bn)	103.0	126.4	163.1	185.3	117.6**
Imports (US$ Bn)	149.2	185.7	251.7	303.7	193.8**
Trade Balance (US$ Bn)	-46.1	-59.3	-88.5	-118.4	-76.2**
Gross External Debt (US$ Bn)	139.1	172.4	224.4	224.6	242.8***
Foreign Exchange Reserve (US$ Bn)	151.6	199.2	309.7	252.0	283.5****
Average Exchange Rate (Rs/US$)	44.27	45.28	40.26	45.99	47.94****
Gross Fiscal Deficit (% of GDP)	4.0	3.3	2.6	5.9	6.5*

*Advance estimate

** April to December 2009

***End of September 2009

**** As of end of December 2009

Source: Government Statistics

The wholesale price index (WPI) exhibited significant volatility during 2008, and varied from 12.82 per cent in August 2008 to 1.20 per cent in March 2009, mainly due to the variation in international fuel and commodity prices. However, it continued to fall during the first half of 2009 due to the high levels of the previous year, and remained negative from June to August 2009.

From September 2009 onwards, the WPI has been rising at a very fast rate largely, because of increases in the price of food and non-food agricultural items. The WPI in December 2009 was 7.3 per cent, while the average WPI from April to December 2009 stood at 1.6 per cent as against 8.4 per cent for the same period of the previous year. Inflation measured in terms of the Consumer Price Index has remained higher than WPI from November 2008 to December 2009. The average for 2008 was 9.1 per cent, but increased to 11.4 per cent during April to December 2009.

The gradual decline in the Index of Industrial Production (IIP) started in the first quarter of 2007 and continued until the last quarter of 2008 due to global commodity price rises, immediately followed by the global financial crisis, which made it difficult for the industry to raise resources in 2008 and 2009. The IIP declined from 10.5 per cent in April to June 2007 to its lowest point of 0.5 per cent from January to March 2009.

The shrinking of export demand that started in September 2008 affected export-intensive industries resulting in build-up of inventories. The decline in the real estate market and construction activities further affected related manufacturing sectors.

The IIP declined to 3.8 per cent in the first quarter of 2009, however growth resumed in June 2009 and the index for the mining, manufacturing and electricity sectors for the month of December 2009 grew at 9.5, 18.5 and 5.4 per cent respectively as compared to December 2008. The cumulative growth during April to December 2009 over previous year in these three sectors was 8.5, 9.0 and 5.8 per cent, which created overall growth in the general index of 8.6 per cent.

Exports for the period April-December 2009 were US$117.6 billion as against US$147.6 billion in the same period of 2008, a decline of 20.3 per cent. Imports during the same period were US$193.8 billion as against US$253.8 billion in 2008, a drop of 23.6 per cent. Accordingly, the trade deficit for April-December, 2009 was estimated at US$76.2 billion, lower than the deficit of US$106.2 billion for April-December, 2008.

External debt, at US$242.8 billion as of September 2009, was up 8.1 per cent over March 2009. Of the total increase of US$18.2 billion in external debt in September 2009, the valuation effect caused by the depreciation of the US dollar against major international currencies accounted for US$8.3 billion. Another factor behind the increase in debt was due to higher SDR (special drawing right) allocations to India by International Monetary Fund.

The foreign exchange reserves increased from US$252 billion at the end of March 2009 to US$283.5 billion at the end of December 2009. Out of the total accretion of US$31.5 billion, US$11.2 billion (35.6 per cent) was on a balance of payments basis (excluding valuation effect) because of higher inflows under FDI and portfolio investments, while US$20.3 billion (64.4 per cent) was on account of valuation gains due to the weakness of the US dollar against major currencies.

With the signs of recovery and return of FII flows after March 2009, the rupee has been strengthening against the US dollar. The average monthly exchange rate appreciated by 9.9 per cent from Rs51.23 per US$ in March 2009 to Rs46.63 per US$ in December 2009.

The government's stimulus to counter the impact of the global economic slowdown in 2008 continued in 2009. The net result was an increase in the fiscal deficit from 2.6 per cent in 2007 to 5.9 per cent in 2008 and 6.5 per cent in the budget estimates for 2009. The fiscal deficit is

proposed to be at 5.5 per cent in the budget for 2010 and the medium term fiscal policy statement has fixed the rolling targets for fiscal deficit at 4.8 per cent and 4.1 per cent for 2011 and 2012.

CONSTRUCTION AND MINING ACTIVITY

Table 4. India: Infrastructure Investment in the 11th Five Year Plan, 2007-2011

	10th Plan (2002-2006)		11th Plan (2007-2011)	
	US$ (Bn)	% Share	US$ (Bn)	% Share
Electricity (Including Non-Conventional Energy)	71.18	33.10	150.37	30.40
Roads and Bridges	35.34	16.50	76.05	15.40
Telecommunications	30.10	14.00	65.12	13.20
Railways	29.18	13.60	62.93	12.70
Irrigation	27.20	12.70	54.42	11.00
Water Supply and Sanitation	15.18	7.40	48.57	9.80
Ports	1.00	0.50	18.03	3.60
Airports	1.65	0.80	8.48	1.70
Storage	1.18	0.60	5.46	1.10
Gas	2.13	1.00	5.00	1.00
Total	**214.76**	**100.00**	**494.43**	**100.00**

Source: Government Statistics

Development of the infrastructure remains vital for economic growth, and the government has increased its financial allocations by about 130 per cent for the 11th five year plan as against the 10th plan, to US$494 billion. In the recent budget for 2010, the government provided Rs1,735.52 billion for infrastructure development in the country, which accounts for over 46 per cent of the total plan allocations.

Roads

Table 5. India: Projected Investment in Roads in the 11th Five Year Plan, 2007-2011

(US$ Billion)

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

In the recent budget for 2010, the government has raised the allocation of road transport by over 13 per cent to Rs98.94 billion.

The National Highways Authority of India (NHAI) implements the National Highway Development Project (NHDP) and other major road projects. As of the end of January 2010, a total of 6,769 kilometres of road was under implementation, while 14,811 kilometres was due for the award of contracts under the NHDP (including Phase I to III, V to VIII, port connectivity and others). In addition, Phase-IV aims at widening of 20,000 kilometres of road to two lanes with paved shoulders.

The government is targeting the completion of 20 kilometres of national highway per day, which translates to 35,000 kilometres at the rate of 7,000 kilometres per year during the next five years (2009-14). The NHAI has formulated plans for awarding contracts for 12,000 kilometres each year during the years ending March 2010 and 2011.

Table 6. India: Road Construction Progress under PMGSY, 2005-2009

(Kilometres)

	2005	2006	2007	2008	2009 (Apr to Dec)
Length of Road Completed	22,891	30,710	41,231	52,405	36,273
Expenditure, Rs Bn	41	73	106	152	130

Source: Government Statistics

The Pradhan Mantri Gram Sarak Yojna (PMGSY) aims at constructing 146,185 kilometres and upgrading 194,132 kilometres of rural roads. The 11th Five Year Plan has projected an investment requirement of Rs413.47 billion for rural roads. In addition to the PMGSY, there are also roads built by Public Welfare Departments and Panchayati Raj institutions in rural areas.

The Special Accelerated Road Development Programme for the North Eastern Region (SARDP-NE) envisages improvements in road connectivity to all the state capitals and district headquarters. The proposed programme includes the improvement of 9,760 kilometres of roads comprising of National Highways (5,104 kilometres) and State roads (4,656 kilometres).

Railways

The total planned investment for railways in the 11th five year plan is US$74 billion, and major projects to be undertaken during this period include the construction of dedicated freight corridors (DFC), gauge conversion, new railway lines and the development of local metro rail projects. The DFC project consists of a Western DFC (1,483 kilometres) from Mumbai to Dadri/Tughlakabad and an Eastern DFC (1,806 kilometres) from Ludhiana to Dankuni.

Table 7. India: Major Projects Under Railway Vision 2020, December 2009

(Kilometres)

Name of Project	Short-Term Target up to March 2012	Long-Term Target up to March 2020
Doubling Lines Including DFC	1,000	11,000
Gauge Conversion	2,500	9,500
New lines	1,000	24,000
Electrification	2,000	12,000
Dedicated Freight Corridors (DFC)	3,289	-
High Speed Corridors	-	2,000

Source: Government Statistics

According to Indian Railway Vision 2020, the government plans to add 25,000 kilometres of new lines by 2020, and in the recent budget it has announced its intention to construct 1,000 kilometres of new lines in the next financial year ending 2011.

Airports

Table 8. India: Projected Investment in Airports in the 11th Five Year Plan, 2007-2011

(US$ Million)

Non-Metro	Metro	Greenfield	North-East	Total
1,500	4,171	3,033	149	8,853

Source: Government Statistics

The development work at Delhi airport and in Mumbai under PPP is likely to be completed by 2010 and 2012 respectively, at a total cost of Rs200 billion. The development of Kolkata and Chennai international airports has been taken up by the Airports Authority of India (AAI) at the approved cost of Rs19.42 billion and Rs18.08 billion respectively. The work is in progress and is scheduled to be completed by May 2010 and January 2011.

The AAI plans to construct greenfield airports in the north-eastern region and construction work has already commenced at Pekyong Airport in Sikkim at a cost of Rs30.95 billion, which is likely to be completed by January 2012. Approval is being obtained for the construction of airports at Cheitu (Nagaland) and Itanagar (Arunachal Pradesh).

In addition, 35 non-metro airports at an estimated cost of Rs46.62 billion are being developed. Of these, nine have been completed and other projects are in progress and likely to be completed

by March 2011. The Committee of Infrastructure has identified 24 of the 35 non-metro airports for city-side development through PPP.

Ports

Table 9. India: Projected Investment in Ports in the 11th Five Year Plan, 2007-2011

(US$ Billion)

Major Ports	Minor Ports	Total
13.47	7.74	21.21

Source: Government Statistics

India has 12 major and 187 smaller ports. The major ports had a capacity of 574.77 million tonnes of cargo, and handled 530.53 million tonnes in the year ended March 31, 2009. Infrastructural development in terms of modernisation and capacity enhancement at various ports is under progress. The 11th Plan target was to create an additional capacity of 511 million tonnes in major ports, but has been revised to 311 million tonnes. The government is also encouraging private sector participation through the PPP route in this sector.

Power

Table 10. India: Planned Capacity Addition in the 11th Five Year Plan, 2007-2011

(MW)

	Thermal				
Hydro-Electric	Coal/Lignite	Gas	Total	Nuclear	Total
15,627	52,850	6,843	59,693	3,380	78,700

Source: Government Statistics

The 11th Five Year Plan envisages a capacity addition of 78,700 MW, of which 19.9 per cent is hydro-electric, 75.8 per cent thermal and the rest nuclear. The target for 2007, the first year of the 11th Plan, was fixed at 12,039 MW. Against this target, a capacity addition of 9,263 MW was achieved during the year. The revised capacity addition target of 7,530 MW was originally planned for 2008, against which a capacity of 3,454 MW was added up to March 31, 2009.

Nine ultra mega power projects (UMPPs) of 4,000 MW each have originally been identified for development under international competitive bidding. Four UMPPs, namely Sasan in MP, Mundra in Gujarat, Krishnapatnam in Andhra Pradesh and Tilaiya in Jharkhand have already

been awarded. One unit of 660 MW at Sasan and two units of 800 MW each at Mundra are expected to be commissioned during the 11th Five Year Plan.

Mining

India is a leading global producer of minerals, in particular mica, coal, barite, bauxite, iron ore, manganese and aluminium. The mining sector has without doubt performed well in 2009. Though contributing less than three per cent towards the country's GDP, it recorded over 8.5 per cent growth in the first half of 2009, a growth not witnessed for several years.

As of now, 213 coal blocks with geological reserves of about 49.07 billion tonnes have been allocated to public/private companies, and 25 have already commenced production. Out of these, 95 with geological reserves of about 27,388 million tonnes have been allocated to public-sector companies and the rest to private-sector companies.

With the boost given by the government to various infrastructure projects and housing, growth in cement consumption is anticipated to rise to 236.16 million tonnes in 2010 and touch 262.61 million tonnes in 2012.

The production of iron ore has increased substantially from 77.6 million tonnes in 2000 to peak at 215.4 million tonnes in 2009. India is the fourth largest producer of iron ore in the world and, unlike coal, the mining of iron ore is done both by government companies and private mine owners. The estimated recoverable iron ore deposits are around 9,600 million tonnes of hematite and 3,400 million tonnes of magnetite.

Real Estate

The Indian real estate sector plays a significant role in the country's economy. It is second only to agriculture in terms of employment generation and contributes heavily towards the gross domestic product (GDP). Almost five per cent of the country's GDP is contributed to by the housing sector and this is expected to rise to 6 per cent in the next few years.

Urban Development

The Jawaharlal Nehru Urban Renewal Mission (JNNURM), launched in December 2005, is aimed at developing urban infrastructure and currently covers 65 cities. During 2008, the seven-year allocation for additional central assistance (ACA) for its Urban Infrastructure and Governance (UIG) component was increased from Rs255 billion to Rs315 billion.

As of December 2009, 515 projects across 31 states at a cost of Rs580.38 billion had been sanctioned under the UIG, comprising 147 water supply projects, 108 sewerage projects, 70 drainage/storm water drainage projects, 41 solid waste management projects, 85 road/flyover projects and 34 urban transport projects.

The scheme for small and medium towns (UIDSSMT) is a sub-component of the JNNURM for the development of infrastructure facilities in all towns and cities (other than mission cities). From its inception to December 2009, 753 projects across 636 towns and cities at a cost of Rs128.25 billion have been sanctioned under the UIDSSMT, comprising 416 water supply projects, 97 sewerage projects, 65 storm water drainage projects, 51 solid waste management projects, and 103 road projects.

The Delhi and National Capital Region plan aims to complete 187 kilometres of metro rail by September 2010. The government has also approved metro projects for 145 kilometres in other cities which include Bangalore, Kolkata, Chennai and Mumbai.

Rural Infrastructure

The irrigation component of Bharat Nirman, a rural infrastructure development programme which started in 2005, has six components. Under the programme, an additional irrigation potential of 10 million hectares has been targeted. As of September 2009, 7.3 million hectares had been achieved. Other components of the programme are aimed at developing rural infrastructure for drinking water supply, electrification of villages, rural housing, road connectivity (PMGSY), and telecommunication and information technology.

EQUIPMENT ANALYSIS

Articulated Dump Trucks: Sales peaked at 33 units in 2008, followed by a decline of 67 per cent in 2009 to only 11 units. These machines are sold only in niche markets as they are sophisticated and expensive, and face stiff competition from locally made on-road trucks. They

have been sold in small numbers to iron ore mines in coastal Goa which has a hilly landscape with high annual rainfall.

Some machines are demanded in mountainous Himalayan regions for hydro-electric projects, where they are particularly suited for negotiating steep gradients and operating in restricted areas that demand high manoeuvrability. Previously, some machines were also sold to coal mines in Tamil Nadu, and tunnel applications in north east India.

Volvo is the main supplier for articulated dump trucks and, except in 2006, all the units sold during 2005-2009 were supplied by the company. **Komatsu** is another supplier, which previously supplied a couple of machines in 2006. Moxy from **Doosan**, which displayed the product for the first time in Excon 2009, has also announced its entry into the market. All the machines are imported as no company currently manufactures these machines in the country.

The majority of machines sold in the country have payload capacities in the range of 30-40 tonnes. The future for articulated dump trucks is not particularly bright, but they will continue to sell in limited numbers. The market is expected to grow to 20 units in 2010, and is likely to peak at 60 units in 2014.

Asphalt Finishers: These machines were sold in limited numbers until the late 1990s, but demand picked up with the start of the NHDP, which also facilitated the duty free import of large crawler type asphalt finishers with paving widths of over 7.0 metres. Imports of these machines still continue, as domestic production has met with only limited success.

The mandatory use of this type of machine, increased awareness of its advantages, and the flurry of activity in road construction has created a flourishing local industry in 4.5 to 5.5 metre class asphalt finishers. These machines are invariably tyre-mounted and are available in several varieties; they are normally made to order based on specific customer requirements. Almost all manufacturers of asphalt finishers are based in and around Ahmedabad, in the state of Gujarat.

Around seven per cent of machines sold are crawler mounted, and suitable for 9.0 metre paving widths. These are almost entirely imported. The remaining machines are locally produced, with wheeled models often being less than 5.5 metre paving width, available in both hydraulic and mechanical versions.

Sales of asphalt finishers totalled only 473 units in 2005, but doubled to 954 units in 2007 and followed by a decline of eight per cent in 2008. Of the 879 machines sold in 2008, 76 units were

imported. Sales increased to 920 units in 2009, including 73 imported machines. Local machines with up to 5.5 metre paving widths were responsible for this growth, while sales of larger machines declined marginally.

Gujarat Apollo is the largest domestic manufacturer and the market leader, and the company has consistently outsold its competition for many years accounting for 74 per cent of the total market. Other prominent local manufacturers are **Dhruvi**, **Jay Khodiyar**, **Solid (India)**, **Unipave** and **Vishwakarma**.

Wirtgen India, which markets the imported **Vögele** brand, sold 60 units. It accounted for seven per cent of the total market and 82 per cent of imported machines. The rest of the market for imported machines was shared by **Dynapac**, **Volvo** and **Caterpillar**.

The market potential for these machines will continue to be large in view of the ongoing construction and maintenance needs of an expanding road network. Yet demand will be restricted by the number of road building projects actually undertaken by the government at any given time.

In view of the huge planned investments in roads, the future outlook for asphalt finishers is very favourable indeed, and Off-Highway Research forecasts the market to reach 1,200 units in 2010 and to peak at 1,650 units in 2014.

Backhoe Loaders: Sales of backhoe loaders peaked at 21,769 units in 2007, with a growth of 58 per cent over 2006, and ten times the volume sold in 1998. It has long been the largest selling machine in the country, although in 2008 sales declined to 16,673 units, a drop of 23 per cent over 2007. Sales then further decreased to 16,001 units in 2009. Backhoe sales accounted for 43 per cent of all equipment sales in 2007, but this declined to 39 per cent in 2009.

The typical machine sold has an engine of 70 to 80 horsepower, 2-wheel drive, a side-shift backhoe, and is equipped with a 1.0 m^3 loader bucket and 0.23 to 0.25 m^3 backhoe bucket. The demand for larger machines and 4-wheel drive is growing, but there is only a limited demand for centre-mount backhoes.

There are a number of reasons behind the rapid rise and fall in the demand for backhoe loaders. Key market drivers include business confidence, the boom in real estate construction, easy availability of finance, low interest rates, and the growth in the rental business – and all of these factors were unfavourable in 2008 and at the beginning of 2009. The effect of the economic

slowdown was first noticed in this machine, and it was also the first machine to show signs of a recovery.

JCB launched its backhoe loaders in India in the early 1980s through its then joint venture with ECEL. The company continues to be the market leader, and accounted for 74 per cent of total sales in 2009, a small increase on its market share of 73 per cent from 2006 to 2008.

L&T-Case, which maintained a market share of 9-10 per cent until 2008, accounted for 11 per cent in 2009. **Telcon** accounted for nine per cent of the market from 2006 to 2008, but fell to six per cent in 2009. **Terex Vectra**, which accounted for six per cent of the market in 2006 and 2007, lost market share in 2008 and 2009 and accounted for four and five per cent of the market respectively.

Caterpillar's market share fluctuated in the range of 2-4 per cent during 2005-2008, and accounted for three per cent in 2009. **Action Construction Equipment** and **BEML** contributed only a little to the total market. There are no imports, while few machines have been exported to neighbouring countries.

Usage of backhoe loaders varies from a utility machine on large construction sites such as road building, dam building and urban infrastructure projects, to hopper/truck loading, trenching, canal and ditch cleaning, general excavation, solid waste management, and occasionally for demolition and mining.

The market for backhoe loaders in the future will become increasingly competitive as new manufacturers are exploring the possibilities of manufacturing these machines domestically. **John Deere**, under a joint venture with **Ashok Leyland**, is planning to start production in early 2011. **ECEL Construction Equipment Ltd (ECEL)** has just launched its backhoe loader and **Mahindra** is planning to produce one in future. Some other manufacturers are also exploring the possibilities of manufacturing these machines in the country.

Rapid urbanisation and the government's plans to develop infrastructure should make the forecast for these machines very bullish. However, the high growth rate witnessed during 2003-2007, and again expected in 2010, will not be sustained due to the high machine population and low rental rates. Off-Highway Research estimates demand will reach 23,000 units in 2010 and 30,000 units in 2014.

Compaction Equipment: After five years of sustained growth since 2003, the market for compaction equipment peaked at 3,219 units in 2007, but declined to 2,905 units in 2008 and 2,787 units in 2009. Delay in awarding contracts and the slowdown in road construction activities were the principal causes of this decline.

The market for **soil compactors**, which varied from 49-52 per cent of the total market during 2006 to 2008, reduced to 47 per cent in 2009, when sales declined by 13 per cent to 1,310 units. In contrast, the demand for the **tandem rollers** increased by 16 per cent to reach 1,231 units, and accounted for 44 per cent of the total compaction equipment market as against 37 per cent in 2008. This was due to the demand from road maintenance works, and the fact that many projects were in their final stages.

The market for **pneumatic-tyred rollers (PTRs)**, which increased from 37 units in 2005 to 75 units in 2008, witnessed a sharp decline with sales falling to 46 units in 2009. These machines are used for surface sealing, but this application is generally limited to major roads, and **Volvo** is the only domestic manufacturer of these machines.

The sales of traditional **static** 8 to 10 tonne dead weight rollers have been declining rapidly. They accounted for nine per cent of the total market in 2008, but further declined to seven per cent with sales of 200 units in 2009.

The compaction equipment market has been dominated by four local manufacturers, who together accounted for 79 per cent. **L&T-Case** led the market with a 28 per cent share followed by **ECEL** with 21 per cent, **Volvo** with 18 per cent, and **Greaves-Bomag** with 13 per cent.

JCB commenced local production of the **JCB Vibromax** soil compactor model VM115 in 2007 and introduced locally manufactured VMT850 tandem rollers in 2008. The company substantially increased its market share from one per cent in 2007 to four per cent in 2009. After the acquisition of **Dynapac** AB by Atlas Copco in May 2007, the company started local production of CA250 soil compactors and CC384HF vibratory tandem rollers. Its market share, which remained below one per cent until 2007, grew to two per cent in 2008, and the company sold 93 units with four per cent of the market in 2009 following the start of domestic production.

Caterpillar entered the market in 2006 with its imported machines, and sold 103 units in 2008 giving a four per cent share. The company sold 84 units in 2009, and its market share declined to three per cent. **Telcon** sold only one unit in 2007, 10 units in 2008 and 18 units in 2009, and its market share has remained below one per cent. **Hamm** sold 11 units in both 2008 and 2009.

Liugong, which currently offers only 14 tonne soil compactors, sold seven units in 2007, 8 units in 2008 and five units in 2009. Other Chinese suppliers include **Sany** and **Changlin.**

Against the backdrop of the government's focus on road construction, demand for compaction equipment is expected to rise to 3,400 units in 2010. The market is forecast to grow further to 4,800 units by the end of 2014.

Crawler Dozers: Sales of crawler dozers in the recent past have remained more or less steady at between 300 and 350 units per year, except for the trough in demand in 2002 and 2003 as a result of reduced orders from Coal India. The market underwent a remarkable revival in 2006 in line with the growth in mining and road building projects, and reached a historic high of 608 machines in 2008. Sales declined marginally to 562 units in 2009.

Earlier, sales were dependent on government purchases, but in recent years there has been a shift in the structure of the market. It is estimated now that some 60 to 70 per cent of purchases are by private contractors operating in coal and iron ore mines, and in the construction sector.

Small, **under 150 horsepower** dozers, which accounted for nearly 13 per cent of the market in 2008, grew to 21 per cent in 2009. These are primarily used in residential, light construction and land development, as well as irrigation projects and agriculture. The demand for medium size crawler dozers (**150-300 horsepower**) declined in 2009 to account for 40 per cent of the market as against 44 per cent in 2008. These machines are favoured for road construction and general earthmoving applications. The **over 300 horsepower** machines, which accounted for 42 per cent of the market in 2008, declined to 39 per cent in 2009. Sales of this class of dozers are predominantly to the mining sector and large hydro-electric power projects.

BEML, currently the only domestic manufacturer of crawler dozers, continues to dominate the market, though its share declined from 83 per cent in 2004 to 50 per cent in 2008, and increased to 54 per cent in 2009. The share of **Komatsu** grew from seven per cent in 2004 to 28 per cent in 2008, but declined substantially in 2009 to 18 per cent. **Caterpillar**'s share fluctuated in the range of 10-12 per cent from 2005 to 2008, but declined to nine per cent in 2009.

Shantui, which entered the market in 2005, gained a seven per cent share in 2008 and increased it to 10 per cent in 2009. Other Chinese suppliers, such as **Pengpu** and **Xuanhua** entered the market in 2007 and accounted for three and one per cent of the market in 2009.

The government's investment plans for infrastructure and increasing mining activity, especially in the coal sector, will continue to be the main drivers behind the growth of this market. Off-Highway Research forecasts a steady growth for the crawler dozer sector: sales are expected to grow to 700 units in 2010 and should peak at 1,050 units in 2014.

Crawler Excavators: This is the second largest construction equipment sector in volume terms, after backhoe loaders, and one that has grown at a cumulative average annual growth rate of nearly 30 per cent during 2005-2008. The market grew three per cent to a new peak of 9,894 units in 2008, but declined by 20 per cent with sales of 7,944 units in 2009.

The **18-22 tonne** class continues to dominate the market, but its share of the overall total declined from 54 per cent in 2008 to 49 per cent in 2009. The **6-12 tonne** range, which accounted for 24 per cent of the market in 2008, increased to 26 per cent in 2009. At the same time, demand for the **12-18 tonne** class increased significantly, and accounted for 12 per cent of the market in 2009 as against eight per cent in 2008.

The demand for the **22-32 tonne** segment declined significantly and its share also dropped to five per cent in 2009. The **32-50 tonne** class retained its sales levels with an increase in its share to six per cent, but **over 50 tonne** machines declined marginally. The combined sales of over 22 tonne machines declined to 13 per cent of the total market in 2009 as compared to 14 per cent in 2008.

The traditional market leaders continued their dominance in 2009 and **Telcon** led with sales of 3,124 units, a 39 per cent market share. **L&T-Komatsu** followed with sales of 2,410 units, and together these two suppliers accounted for over 69 per cent of total excavator sales. Two other local manufacturers, **JCB** and **BEML**, accounted for eight and one per cent of the market respectively. **Hyundai**, which started local manufacturing at the end of 2008, made substantial gains and achieved a share of six per cent compared to one per cent in 2008.

Among the importers, **Volvo** accounted for eight per cent of the market, while **Caterpillar** and **Kobelco** both accounted for three per cent. **Doosan** sales grew significantly from 59 units in 2008 to 158 units in 2009. Other importers, **Yanmar**, **Terex** and **Liugong**, sold an incremental number of units in 2009.

The crawler excavator is the most important machine for infrastructure development and is used in a wide range of applications for all types of projects. Demand is expected to recover strongly

in 2010 and will continue to grow at a very high rate thereafter. Sales are expected to reach 10,500 units in 2010 with a growth rate of 32 per cent and reach 22,500 units by 2014.

Mini Excavators: In contrast to the more mature standard excavator market, demand for mini excavators is very modest due to the abundance of cheap labour and the overwhelming popularity of backhoe loaders. The total market for mini excavators was just 22 units in 2005, and remained at the same level until 2007. It witnessed a large growth in 2008 with sales of 64 units, which further increased to 71 units in 2009.

The machines sold so far have nearly all been in the **2.2-5.5 tonne** weight class, with **Telcon** capturing over 80 per cent of this market, while **Yanmar**, distributed by Dozco, was the other supplier in 2009. **Liugong**, which sold a few units in 2007 and 2008, did not sell any machines last year.

Sales of mini excavators will doubtless continue to grow from these low base volumes in niche and specialist applications. Off-Highway Research forecasts sales of 100 units in 2010, and these are expected to double in 2012. The market is likely to reach 400 units by 2014.

Mobile Compressors: The market for mobile compressors has been growing rapidly for the last five years from 1,157 units in 2005 to 2,854 units in 2008, and registered a further growth to reach 2,999 units in 2009. It is the fourth largest selling type of equipment in 2009, with more than a seven per cent share of the total construction equipment market.

The market is dominated by **under 400 cfm (11 m^3/mn)** machines**,** though the share of this segment declined from 46 per cent in 2008 to 42 per cent in 2009. The **400-600 cfm** class, which accounted for 33 per cent of sales in 2008, declined to 30 per cent in 2009. The **over 600 cfm (17 m^3/mn)** class has grown rapidly with its share rising from 16 per cent in 2007 to 22 per cent in 2008, and 28 per cent in 2009. Huge demand for water well drilling is the main reason for this growth. Interestingly, a large growth in this segment led to an increase in total sales in 2009, despite an overall decline of below 600 cfm machines.

Mobile compressors are currently supplied by four main manufacturers, dominated by **Atlas Copco**, which also manufactures and markets the **Chicago Pneumatic** brand. Together, they sold 1,319 units and accounted for 44 per cent of the market in 2009 as against 48 per cent in 2008. **Elgi**, which increased its market share from around 26 per cent in 2007 to 36 per cent in 2008, accounted for 35 per cent of the market in 2009 with sales of 1,046 units.

Doosan, which manufactures **Ingersoll-Rand** compressors, registered a 47 per cent growth in 2009 and sold 619 units as compared to 422 units in 2008. Its market share increased from 15 per cent in 2008 to 21 per cent in 2009. **Kirloskar Pneumatic (KPC)** sold 15 units in 2009 as compared to 34 units in 2008, with a further drop in its share.

Sales of mobile compressors for water-well applications were particularly noteworthy in the last two years, with approximately 682 units sold in 2008 and nearly 1,269 units in 2009. Elgi captured nearly 70 per cent of this segment followed by Ingersoll-Rand with 24 per cent.

Future demand for compressors under 600 cfm is expected to come from mining, quarrying and construction sites, while that for over 600 cfm machines is most likely to come from new and ongoing projects at shipyards, airports, oil and gas sector, and government sponsored irrigation and drinking water programmes. Sales are expected to increase by 13 per cent to 3,400 units in 2010 and Off-Highway Research forecasts the market to grow at around 8-9 per cent until 2013, and reach 4,500 units in 2014 with a growth rate of five per cent.

Mobile Cranes: This market grew rapidly until 2007, but declined marginally by three per cent in 2008, followed by a substantial drop of nearly 17 per cent in 2009. It accounted for 16 per cent of the total construction equipment market in 2009, and is the third largest selling item of equipment.

Sales of mobile cranes are dominated by locally manufactured pick-and-carry cranes, which have always accounted for over 93 per cent of the market. Sales of conventional cranes, which include truck-mounted, all terrain, rough terrain, crawler and industrial cranes, registered impressive growth from 190 units in 2005 to 535 units in 2008. However, sales fell to 453 units in 2009 equating to a drop of 15 per cent.

Pick-and-carry cranes have a rigid superstructure, and are essentially material handlers, with rated capacities in the range of 3-23 tonnes; however, models rated at 9-14 tonnes are the most popular. The total pick-and-carry crane market in 2009 was 6,046 units and is dominated by **ECEL** which had a 53 per cent share followed by **Action Construction** with 38 per cent. **Omega**, a local manufacturer based in Faridabad, accounted for two per cent of the market. **JCB**, which also started manufacturing pick-and-carry cranes in mid-2008, accounted for one per cent of the market in 2009. Other important manufacturers include **Voltas**, **Indo Farm** and **Standard**.

The **crawler** crane market grew from 13 units in 2005 to 283 units in 2008, but fell sharply by 31 per cent in 2009 with sales of 196 units. Despite low volumes, this segment is represented by 11 suppliers and is dominated by imported cranes from China and Japan, while **Telcon** and **ABG** are the two local manufacturers.

The market for crawler cranes was led by **Zoomlion**, which sold 40 units in 2009. **Telcon**, which also distributes **Hitachi-Sumitomo** crawler cranes, sold 38 units including four imported cranes. **Fushun** from China, which was a market leader in 2007 and 2008 with sales of 103 and 80 units, sold 32 units in 2009.

Kobelco, distributed by Voltas, witnessed a large increase in its sales from 12 units in 2008 to 31 units in 2009. **XCMG** increased its sales from 15 units in 2008 to 27 units in 2009, while **Sany** sold 17 units in 2009 as against 50 units in 2008, a decline of 66 per cent. **IHI**, which is distributed by ECEL, and **Liebherr** from Germany, also sold a few units. **ABG**, the erstwhile distributor of Fushun cranes, started local manufacture and sold two units in 2009.

Rough terrain cranes are typically used for general handling in ports and on construction sites, whereas larger machines are also used in mining and on large civil engineering contracts. The market for these cranes in 2008 was 115 units, which declined to 95 units in 2009. The 20-50 tonne capacity range constitutes a major part of the market, which is dominated by local manufacturers. **TIL** continued to lead the market and its market share increased from 45 per cent in 2008 to 60 per cent in 2009, while the share of **ECEL** declined from 35 per cent to 23 per cent with sales of 22 units in 2009. Other local manufacturers such as **Action Construction** and **Voltas**, and **Tadano** imported by Telcon, sold a few units.

The demand for **truck-mounted** cranes, which declined from 121 units in 2007 to 101 units in 2008, increased to 122 units in 2009. The Chinese supplier **XCMG** has been the market leader for the last two years and accounted for 53 per cent of the market in 2009. **TIL** sold 27 units in 2009 with a share of 22 per cent, while **Action Construction** accounted for 15 per cent of the market. **Sany** started offering truck-mounted cranes last year, and accounted for eight per cent of the market. **Zoomlion**, the market leader in 2007, formerly distributed by ABG, but now distributed by **ECEL**, sold two units.

Industrial or yard cranes, so popular in the 1960s and the 1970s, have not been in great demand in recent years as their application areas can now be served better by reach stackers or industrial forklifts. The total sales in this segment were 34 units in 2009, with **TIL** and **ECEL** being the major suppliers with 50 and 47 per cent share. **Voltas** also sold one unit last year.

All terrain cranes have always had a very limited market in India because of their high price. In 2009, only six units were sold by **Liebherr** and **Grove** (marketed by TIL).

Despite the slowdown in demand in 2008 and 2009, the outlook for the mobile crane sector remains optimistic in view of the ongoing infrastructural development and high level of construction activity that the future projects are likely to generate. Total demand is expected to reach 8,000 units in 2010 and grow between five to 12 per cent annually until 2014, to reach 11,500 units.

Motor Graders: Demand for motor graders follows very closely the trends of expenditure on new roads and maintenance, and began to grow only after the NHAI made its use mandatory for development of national highways in the late 1990s.

With this impetus from road development projects, and greater than usual demand from mining companies, sales of motor graders grew very rapidly from 113 units in 2004 to 544 units in 2007, representing a fivefold growth in a short span of three years. The market grew by a further two per cent in 2008 to peak at 553 units, but a huge decline was noticed in 2009 with sales falling to 340 units.

The **135-150 horsepower** range generally used for road construction and maintenance accounted for 58 per cent of the market in 2009. The **180-200 horsepower** category is preferred by large contractors seeking higher productivity, and accounted for nearly 27 per cent. The **200-250 horsepower** class managed only four per cent, but **over 250 horsepower** machines accounted for 11 per cent of the total sales.

BEML and **Telcon** are the only local manufacturers, while all others sell imported machines. **Komatsu**, the market leader, increased its share from 31 per cent in 2008 to 38 per cent in 2009. After a peak of 38 per cent in 2007, **Caterpillar**'s share declined to 30 per cent in 2008, and again to 24 per cent in 2009. **Volvo** gained substantially as its market share increased from seven per cent in 2008 to 17 per cent in 2009.

BEML's sales declined in 2009, but its market share remained stable at nine per cent. Amongst the Chinese suppliers, **Sany** accounted for six per cent of the market, while **Liugong** managed four per cent. **Changlin**, **Telcon** and **XCMG** sold a few units in 2009.

The future potential for the motor grader market is bright on account of the large planned investment in roads, power, irrigation and mining projects. The market is expected to recover strongly to reach 600 units in 2010, followed by a steady growth to peak at 950 units by 2014.

Rigid Dump Trucks: The market is almost exclusively confined to the mining sector with some machines being sold to large hydro-electric projects. Demand peaked at 784 units in 2005, and has since stabilised in the range of 750-800 units with the exception of 2007, when it declined to 594 units due to delayed orders from Coal India. The market increased to 771 units in 2008, and witnessed yet another year of growth in 2009 with sales of 808 units.

The market for dump trucks has been undergoing a gradual shift in the preference of buyers towards the use of bigger machines. The share of small, **21-30 tonne** machines declined from 31 per cent in 2004 to a mere three per cent in 2008 and no sales in 2009. The **31-50 tonne** sector continues to be the main part of the market, although its share also declined from 73 per cent in 2006 to 56 per cent in 2008, and remained at 55 per cent in 2009.

Machines in the **51-60 tonne** category were not in demand until 2006, but this segment gained a five per cent market share in 2007, and rose to 13 per cent in 2008, but declined to nine per cent of the total sales in 2009. The majority of these machines are used by cement manufacturers. Demand for **61-80 tonne** capacity trucks has also declined from 68 units in 2006 to eight units in 2009, as their users have graduated to larger machines.

The **81-100 tonne** capacity machines are primarily used by large coal, iron, copper and zinc mines. It is the fastest growing segment that has grown from one unit in 2004 to 192 units in 2008, and peaked at 236 units in 2009 with 29 per cent share of the rigid dump truck market. In 2009, 39 units of very large trucks in the **231-240 tonne** payload class were sold for the first time in the country.

Most of the rigid dump trucks sold are locally manufactured, with **BEML** being the market leader with 55 per cent share, followed by **Komatsu** and **Caterpillar**, each with 21 per cent. **Telcon** accounted for two per cent of the market in 2009 with sales of 18 units and **Terex** retained its presence in the market by selling four units.

The uninterrupted growth of the mining sector, spurred by the growing economy, makes India one of the best potential markets for rigid dump trucks in the world. The market is expected to reach 900 units in 2010 and 1,150 units in 2014, and the shift towards the purchase of bigger machines may also become more pronounced.

Rough Terrain Lift Trucks: The availability of competitively priced pick-and-carry cranes on building and construction sites, and cheap manual labour in the farming sector, has always made things very difficult for rough terrain lift trucks. It is estimated that the total market for these machines in 2009 was 15 units, comprising sales by **Manitou** and **Genie**. Manitou, which was earlier being distributed by Godrej, appointed ECEL as its distributor towards the end of last year, and Genie is distributed by Maco Corporation.

JCB launched these machines in 1993 only to withdraw from the market in 1999 due to their continued weak performance. The company re-launched them in 2006 and sold 11 units in 2007 for railway, port and industrial applications. This was followed by the sale of six units in 2008 but no sales in 2009.

Future demand for these machines is likely to remain subdued until palletisation of construction material gains popularity. Additionally, greater mechanisation at construction sites, decreasing availability and the increasing cost of manual labour may help create a more substantial market for such products. The market is expected to increase to 35 units in 2010 and 200 units by 2014.

Skid-Steer Loaders: The market for skid-steer loaders was only 35 units in 1999, and fluctuated in a narrow range from 65 to 76 units from 2000 to 2004 except in 2002, when 93 units were sold. The real growth began in 2005, when total sales increased by 55 per cent to 118 units over the previous year. The growth continued in 2006 and 2007, and in 2008 the market increased by 79 per cent when a large order from the army provided a major boost to the industry. The market, however, declined by 40 per cent in 2009 to 290 units.

Bobcat pioneered the concept of skid-steer loaders in India in 1995, and led the market until 2007. In 2008, however, it accounted for only 30 per cent of the market as a result of a large army order awarded to Terex Vectra, although led the market again in 2009 with a 50 per cent share. **JCB**, which saw its share decline from 22 per cent in 2007 to 10 per cent in 2008, regained ground in 2009 and sold 50 units, equating to a market share of 17 per cent.

The army order helped **Terex Vectra** to increase its market share to 15 per cent in 2007, and to 53 per cent in 2008 with sales of 254 units of its locally manufactured machines, but it sold only 45 units in 2009 with a market share of 16 per cent. **Gamzen** started selling its locally manufactured machines in mid-2007 and captured a nine per cent share with sales of 24 units. The company increased sales to 31 units in 2008 and 40 units in 2009 with a market share of 14 per cent. **L&T-Case** sold nine units in 2009.

Despite its versatility, the market for these machines is limited due to the popularity of backhoe loaders and the availability of cheap labour. However, with increased mechanisation and increasing scarcity of manual labour, the market for these machines is expected to rise steadily. Sales are projected to reach 350 units in 2010 and 750 units by 2014.

Wheeled Excavators: These machines are not very popular because they do not offer any substantial advantage over crawler models apart from some limited scope for travelling between job sites. This small benefit does not make up for the substantial price difference of around 15 per cent between crawler and wheeled units. The availability of keenly priced backhoe loaders, which are used most often in an excavator mode and offer the same level of mobility, is the other major factor limiting the wheeled excavator's market potential.

Hyundai was the only supplier in 2007, selling five machines, and no machines were sold in 2008 and 2009. However, some machines may be specified for special applications, therefore Off-Highway Research forecasts sales of five units in 2010, which is expected to remain at the same level until 2014.

Wheeled Loaders: The demand for wheeled loaders increased rapidly from 1,312 units in 2005 to 2,540 units in 2008, but the market witnessed a decline of 25 per cent to 1,902 units in 2009.

100-150 horsepower class machines, normally fitted with a 1.7-2.0 m^3 bucket, accounted for 81 per cent of total sales in 2009, which remained unchanged when compared to 2008. The **151-200 horsepower** class, which accounted for four per cent of sales in 2008, increased to six per cent in 2009. This segment is followed by the fastest growing segment of **201-250 horsepower**, which accounted for nine per cent of the sales in 2009 as against 14 per cent in 2008. The **251-300 horsepower** and **over 300 horsepower** class machines witnessed a marginal increase in sales and accounted for two per cent of the market.

The market has traditionally been dominated by domestic manufacturers with **Caterpillar** retaining its leadership in 2009. The company increased its market share from 37 per cent in 2008 to 45 per cent in 2009, while **JCB** maintained its market share of 20 per cent. **Telcon**, which accounted for 17 per cent of the market in 2008, slid to 12 per cent in 2009. **BEML**, the fourth domestic manufacturer, also lost its market share from three per cent in 2008 to one per cent, and **Action Construction**, which entered the market in 2008 also sold a few units in 2009.

Out of 394 imported units, 281 units were sourced from China, and this segment was led by **Liugong**, which accounted for 10 per cent of the market in 2009 with its share remaining

unchanged over 2008. The company accounted for 50 per cent of the total imported machines and 70 per cent of equipment sourced from China.

Volvo sold 68 machines, of which 19 were from its SDLG subsidiary in China, and its market share increased from three per cent in 2008 to four per cent in 2009. **Komatsu** maintained its market share at two per cent, but **XCMG**'s declined from six per cent in 2008 to just one per cent in 2009. Other suppliers, which included **Changlin**, **Doosan**, **Greaves**, **Hyundai**, **Liebherr** and **Kawasaki** accounted for the remaining three per cent of the market.

The forecast for wheeled loaders is positive in the long term, and the market is expected to recover in 2010 to 2,500 units with a robust growth of 31 per cent. Large growth will continue in subsequent years, and Off-Highway Research forecasts sales to reach 4,700 units in 2014.

INTERNATIONAL PERSPECTIVES

Sales

Table 11. Regional Sales of Construction Equipment, 2009-2010*

(Units)

	China		Western Europe		North America		Japan		India	
	2009	2010*	2009	2010*	2009	2010*	2009	2010*	2009	2010*
Articulated Dump Trucks	53	50	700	960	1,140	1,150	35	20	11	20
Asphalt Finishers	1,520	1,350	883	903	725	700	125	100	920	1,150
Backhoe Loaders	400	500	4,508	4,825	8,700	9,000	2	-	16,001	23,000
Crawler Dozers	6,900	7,000	623	685	5,200	5,200	790	700	562	700
Crawler Excavators	80,388	96,000	13,685	14,120	9,600	9,600	10,100	8,000	7,944	10,500
Crawler Loaders	20	20	157	160	200	200	20	20	4	5
Mini Excavators	22,250	26,000	29,882	32,110	9,700	10,000	11,200	8,000	71	100
Motor Graders	1,967	1,900	213	242	2,600	2,700	120	100	342	600
Motor Scrapers	-	-	-	-	175	175	20	-	-	-
Rigid Dump Trucks	811	850	276	328	850	650	100	100	808	900
RTLTs – Masted	-	-	705	766	950	950	-	-	-	-
RTLTs – Telescopic	250	300	12,829	14,215	3,500	3,500	8	-	15	35
Skid Steer Loaders	375	400	4,383	4,715	22,300	23,500	680	600	290	350
Wheeled Excavators	1,120	1,350	4,995	5,410	450	450	50	50	-	5
Wheeled Loaders	137,870	145,000	12,208	13,085	10,450	10,700	6,060	6,000	1,902	2,500
Total	**253,924**	**280,720**	**86,047**	**92,524**	**76,540**	**78,475**	**29,310**	**23,690**	**28,870**	**39,865**
	+7	**+13**	**-47**	**+7**	**-48**	**+3**	**-49**	**-19**	**-11**	**+34**

* Forecast

Source: Off-Highway Research

China: While the global market was badly hurt by the economic crisis, sales in China sustained solid growth of seven per cent, so that the size of the market exceeded 250,000 units for the first

time. This is now by far the largest market area in the world, accounting for nearly half of the global sales in volume terms, or one third in value terms.

The market obviously benefited from the government's stimulus package, directing almost RMB3.5 trillion ($512 billion) to construction. Sales began growing strongly from the second quarter and buying confidence (so lacking in other parts of the world) improved. Prospects for the future market continue to be buoyant.

Machines that are indispensable to infrastructure projects like roads and railways saw the best growth. Examples are crawler dozers, motor graders and asphalt finishers. The application of hydraulic excavators became even more popular in new projects, and are now replacing wheeled loaders in some of their traditional roles. On the other hand, the market for wheeled loaders was impacted by the slower demands from the coal mines and real estate development. In compact construction equipment mini excavators did very well, while backhoe loaders slumped as buyers opted for other products.

With the number of existing projects in progress or about to be implemented, and the promised continuity of the current fiscal and monetary policy, the total demand for construction equipment is set to continue to grow in 2010.

Further detailed analysis can be found in the Chinese Annual Review that is now available.

Western Europe: From the autumn of 2008 the demand for construction equipment was in steep decline everywhere with slight differences by country. Apart from the general tightness in the supply of credit that affected all machines, there was an especial weakness in compact construction equipment. Contractors, especially small ones, lost the confidence to buy backhoe loaders, skid-steer loaders and small articulated loaders. Rental dropped out of buying mini excavators and crawler excavators slumped. Large machines suffered as company financial controllers forbade new purchases of all types of machinery.

In 2010 there may be some cyclical return to buying by the rental companies, which by mid-year will have bought little for 24 months. Agriculture may also offer support to the telescopic handler sector.

Further detailed analysis can be found in the European Annual Review that is now available.

North America: The market has been in trouble for longer than other regions and is still in great difficulty. It lost a third of the peak size seen in 2005 during the slide of 2006-2007 but astonishingly it shrank by another third in 2009. Everything is in trouble; mining, public works and especially private construction, the most potent source of distress. The contagion has spread to the rental industry. The market has therefore witnessed major declines in sales of all products, with only large wheeled loaders and motor graders being blessed with below average decreases since 2005.

Sales should stagnate at 2009 levels until late 2010 and no recovery will really be visible before 2011.

Japan: After a five year period of slow, steady climbing out of the trough that had its lowest point in 2003, the market turned abruptly down in 2008 and went into a nosedive in 2009. Sixteen years ago after the bursting of the 'bubble economy' sales fell to a level just below 100,000 units and it was labelled as a crisis. In 2009 sales were only one-third of the size of that crisis year. The motors were stagnation in public works volume, a massive deterioration in the private investment climate and difficulty for rental companies to get rid of their old machines via exports to Asia. The outlook for 2010 is better for the exporting part of the economy as restocking kicks in, but for construction equipment there is no good news at all. Public works are falling out of favour as a way to stimulate recovery, and should decline in volume by eight per cent, and a further five per cent in 2011. Private residential investment will still be sagging, so on balance the market could fall by 20 per cent, although the optimistic line of the trade association in Tokyo points to zero growth.

India: From 2003 to 2007 India enjoyed high growth rates in construction equipment sales, and growth was expected to continue unabated at around 25 per cent per annum. After the middle of 2008 the market took a sharp downturn. Finance was the big problem but also mining was affected to an extent, and real estate (especially), general construction and road building all declined.

2009 has turned much better than feared, thanks to economic recovery and easier finance. The year began with predictions of a 25 per cent decline, and in the first half the election process held up progress on public works. Then expectations moderated to a 17 per cent decline as industrial production rose well. Finally the year finished with a decline of only 11 per cent, largely due to firmness in backhoe loaders. This large volume market showed a mild decrease of four per cent, while excavators declined by 20 per cent. Wheeled loaders were significantly down, as the

recovery came too late in the year for buyers to react. Whilst the full year result was disappointing, it could have been much worse.

2010 is already demonstrating that the recovery can come quite quickly, for there is a huge pent up demand to complete the volume of future work. Backhoe loaders and excavators are set to break records and the whole market should be moving ahead briskly.

Production

China is once again the world's largest producer of construction equipment, both in volume and value terms. In the other three major regions, North America has done the least badly in the recession of 2007 to 2009, in the sense that its production has slumped by only 71 per cent, as against 73 per cent in the other two. China, in contrast expanded its production by two per cent in that period.

Table 12. Production, by Type and Region, of Construction Equipment, 2009

(Units)

	China	Western Europe	Japan	North America	India
Articulated Dump Trucks	2	700	500	200	-
Asphalt Finishers	1,545	883	140	740	850
Backhoe Loaders	810	4,508	-	8,000	16,100
Crawler Dozers	8,787	623	2,135	4,020	280
Crawler Excavators	71,554	13,685	20,930	6,340	6,350
Crawler Loaders	50	157	50	-	-
Mini Excavators	21,872	29,882	22,630	2,000	40
Motor Graders	3,759	213	800	2,550	65
Motor Scrapers	-	-	-	175	-
Rigid Dump Trucks	765	276	650	2,330	1,045
RTLTs – Masted	-	705	-	900	-
RTLTs – Telescopic	300	12,829	-	2,800	-
Skid-Steer Loaders	618	4,383	1,650	17,700	90
Wheeled Excavators	1,406	4,995	220	215	-
Wheeled Loaders	146,920	12,208	6,880	8,035	1,475
Total	**258,388**	**86,047**	**56,585**	**56,005**	**26,295**

Source: Off-Highway Research

China: Supported more in 2009 by its particularly strong domestic market, with export sales sagging because of the recession, production declined by only five per cent. Growth of 15 per cent was visible in crawler excavators as local manufacturers ramped up their output, while domestic sales growth balanced export sales declines in mini excavators. Others, such as

wheeled loaders (147,000 units) declined, as did backhoe loaders, now down to 810 units. Export problems affected the output of motor graders, skid-steer loaders and some better known wheeled loader producers.

Europe: In 2009 production volumes turned down, as a result of sharply decelerating demand seen since the latter part of 2008. The substantial decline in regional demand affected all sectors but so far no major facilities have closed permanently.

Japan: Production decreased dramatically because of collapsed export demand, so the products worst affected were those where the country has excelled in the past, specifically mini excavators and standard crawler excavators. No product, however, was untouched, as pipeline stocks were slowly sold out by worried dealers all over world.

North America: Manufacturers cut the volumes shipped all round. Compact construction equipment was most under the spotlight, as it was vulnerable to trends in housing construction and rental. North American production was lower than domestic demand for many manufacturers.

India: Whilst the country cannot yet be regarded as a major source of construction equipment compared with the others included in this review, it is nevertheless becoming an increasingly important manufacturing base. Output grew from 15,800 units in 2005 to over 34,000 units in 2007, and while production declined in both 2008 and 2009 there is every likelihood that production will at least treble by 2014.

Already the world's largest producer of backhoe loaders by a considerable margin, major increases in output of crawler excavators, wheeled loaders and graders may be expected in the medium term. Production growth will be driven by rapidly growing domestic demand, as well as a very probable strong growth in export activity.