

EQUIPMENT ANALYSIS: INDIA

DUMP TRUCKS

APRIL 2010

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INTRODUCTION

This is an update of the report on the rigid and articulated off-highway dump truck market in India, which was last published in September 2008. It assesses current trends in the market, examines the operations of local manufacturers and main suppliers, and forecasts market trends that are likely to emerge over the next five years.

Off-highway dump trucks find their major applications in the power sector, where they are deployed for coal mining and construction of hydroelectric projects. These machines are also used in large iron ore mines, limestone quarries, and those construction sites which require substantial earthwork to be carried out. These trucks are not permitted to operate on the highway owing to their large size and high axle loads.

Traditionally the contractors engaged in general construction, real estate and road sector have preferred to use relatively low priced locally manufactured on-highway dump trucks. These machines have smaller payloads, and are permitted to ply on the highways, but do not constitute a part of this study.

The findings in this report are based on the information collected during an interview programme conducted during January and February 2010, which included discussions with the leading manufacturers, importers, and distributors.

SUMMARY

The last 10 years have been a period of growth for rigid dump truck suppliers. Despite the recent global economic downturn, Indian demand for rigid dump trucks reached record levels in 2009 as the government owned coal companies, the major buyers of these machines, increased production to meet insatiable demand from the power sector. The articulated sector has also enjoyed a period of good sales in the last five years, and saw record levels in 2008.

On another positive note, production levels have risen over the last two years, helped by strong domestic demand and a steady rise in exports. Domestic producers, until recently, were highly

dependent upon the domestic market, and the recent surge in exports if sustained, will ensure that there will be continued growth in production.

Table 1. India: Statistical Summary of Dump Trucks, 2009

	Rigid	Articulated
Number of Suppliers	6	5
Number of Domestic Manufacturers	4	-
Market Leader	BEML	Volvo
Production (Units)	1,026	-
Sales (Units)	808	11
Importers' Penetration (%)	-	100
Population (Units)	12,000	99
Sales Forecast 2014 (Units)	1,150	60

Source: Off-Highway Research

India is now a major producer of rigid dump trucks, although the number of manufacturers has declined in the last five years. The market has witnessed a steady consolidation in favour of the three domestic suppliers. While **BEML** continued to dominate demand with over half the market in its control in 2009, **Komatsu** and **Caterpillar** split the remaining market evenly between them, leaving little less than three per cent share for the other suppliers, namely **Telcon** and **Terex**. The structure of the market is very unlikely to change significantly in the near future, except for the entry of **Bucyrus** (which recently acquired Terex Mining) as a supplier of large trucks.

The number of companies marketing articulated dump trucks has also increased in 2010 with the entry of **Doosan** into this market. The company is now offering the Moxy range of trucks built in Norway.

The market for rigid dump trucks has always been skewed overwhelmingly in favour of locally produced machines, and in 2009 the import penetration of these machines declined to less than half of one per cent. Meanwhile, all articulated dump trucks are imported.

The level of exports of dump trucks will largely depend on the strength of global demand, and enough capacity has been created in the country to meet additional requirements. Caterpillar and Komatsu, historically the predominant global suppliers are likely to face increasing competition from BEML that has of late increased its focus on exports.

The population of rigid machines is increasing as the number of potential sites is on the rise due to the development of new coalfields. Demand from the construction and cement sectors also remains buoyant. The articulated truck population has also risen during the last three years and is relatively young, and with significant expansion of new projects in the next few years, their population is likely to rise.

In the short term, future demand for both rigid and articulated dump trucks will remain strong as construction and mining activity in the country displays no signs of abating. The market in all likelihood may reach 1,150 units by 2014.

ECONOMIC TRENDS

Table 2. India: Basic Economic Indicators, Fiscal 2005-2009*

	2005	2006	2007	2008	2009
GDP Growth (%)	9.5	9.7	9.2	6.7	7.2
GDP at Factor Cost (Rs Bn)	32,491	35,646	38,934	41,550	44,531
Exports (US\$ Bn)	103	127	163	185	118
Imports (US\$ Bn)	149	186	252	304	194
Trade Balance (US\$ Bn)	-46	-59	-89	-119	-76
Gross External Debt (US\$ Bn)	139	172	224	224	243
Foreign Exchange Reserve (US\$ Bn)	152	199	309	252	284
Average Exchange Rate (Rs/US\$)	44.3	45.3	40.3	46.0	48.0
Index of Industrial production Growth (%)	8.2	11.6	8.5	2.6	8.6
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
Gross Fiscal Deficit (% of GDP)	4.0	3.3	2.6	5.9	6.5

* Fiscal year starts from 1st April and ends on 31st March the following year

Source: Government Statistics

Major economic indicators point towards a rapid recovery in 2010, and despite grim predictions made earlier, GDP growth in the fiscal year ended March 2009 is most likely to remain above seven per cent. The corporate performance remains strong, the service sector has signalled a rapid recovery in the second half of the year, and the manufacturing sector is already touching a record growth rate of over 16 per cent. Overall, the economic fundamentals remain strong and growth in double digits has started to look imminent to several observers of the Indian economy.

A closer analysis of the parameters of economic growth in the fiscal year ended March 2009 point towards a strong recovery in the industrial sector, driven largely by mining and manufacturing, but the construction and real estate sectors continue to remain subdued.

Table 3. India: Quarterly Growth Rates for Origins of GDP, 2007-2009

(%)

	Oct-Dec		Jan-Mar		Apr-Jun			Jul-Sep		
	2007	2008	2007	2008	2007	2008	2009	2007	2008	2009
Agriculture, Forestry and Fishing	8.1	-0.8	2.2	2.7	4.3	3.0	2.4	3.9	2.7	0.9
Mining and Quarrying	4.2	4.9	4.7	1.6	0.1	4.6	7.9	3.8	3.7	9.5
Manufacturing	8.6	0.9	6.3	-1.4	10.0	5.5	3.4	8.2	5.1	9.2
Electricity Gas and Water Supply	3.8	3.5	4.6	3.6	6.9	2.7	6.2	5.9	3.8	7.4
Construction	9.7	4.2	6.9	6.8	11.0	8.4	7.1	13.4	9.6	6.5
Trade, Hotels, Transport, Communications	11.7	5.9	13.8	6.3	13.1	13.0	8.1	10.9	12.1	8.5
Finance, Insurance, Real Estate, Business Services	11.9	8.3	10.3	9.5	12.6	6.9	8.1	12.4	6.4	7.7
Community, Social and Personal Services	5.5	22.5	9.5	12.5	4.5	8.2	6.8	7.1	9.0	12.7
Gross Domestic Product	9.3	5.8	8.6	5.8	9.2	7.8	6.1	9.0	7.7	7.9

Source: Government Statistics

Agriculture remains a cause for concern as the sector faces the double onslaught of a failed monsoon and lack of adequate investment. This sector supports the largest section of the population and the government has taken many measures to rejuvenate it. However most of these measures in the past were driven more by political considerations with little economic rationale, and it is no surprise that the returns from these measures have always been well below expectations.

Inflation remains high and this may continue for some time to come, as the prime focus of the policy makers is towards the growth and creation of new jobs. Domestic consumer demand for all types of goods and services continues to remain high, and this is being turned into the major driver of future economic growth.

Exports remain sluggish as the global economy struggles to find its feet, and the trade balance continues to remain unfavourable. However, the present economic conditions are favouring the influx of increased foreign investment and gross domestic savings also remain well above 30 per cent of GDP. These two parameters provide ample fuel for future economic growth. Conscious of this, the government is now openly exploring the possibility of containing the fiscal deficit by rolling back its stimulus package, a sure sign of its confidence in the present state of the economy.

CONSTRUCTION AND MINING ACTIVITY

Power

The power sector has grown from an installed capacity of 2,300 MW in 1952 to 156,784 MW in 2010, but the country continues to face acute power shortages. Scarcity of power has long been identified as being a major infrastructure bottleneck by the government, and it has strived to improve the situation through its five year plans. Despite enhancement in the total installed capacity after each five year plan, demand always remained ahead of supply.

Table 4. India: Installed Capacity Addition, Five Year Plans, 1987-2011

	MW	% Increase
Seventh (1987-1991)	21,401	50.4
Eighth (1992-1996)	16,422	-23.3
Ninth (1997-2001)	19,015	15.8
Tenth (2001-2006)	21,180	11.4
Eleventh (2007-2011)*	78,700	251.6

* Planned

Source: Government Statistics

The government was left with no other alternative but to plan ambitiously, which it has done in the current eleventh plan (April 2007-March 2012). The additional capacity of 78,700 MW envisaged in the plan is more than the sum total of capacity enhancement in the four preceding plans.

Table 5. India: Planned Power Capacity Addition, 11th Five Year Plan, 2007-2011

(MW)

	Hydro- Electric	Thermal			Nuclear	Total	% Share
		Coal/Lignite	Gas	Total			
Central	8,654	23,350	1,490	24,840	3,380	36,874	46.9
State	3,482	19,985	3,316	23,301	-	26,783	34.0
Private	3,491	9,515	2,037	11,552	-	15,043	19.1
Total	15,627	52,850	6,843	59,693	3,380	78,700	100.0
% Share	19.9	67.1	8.7	75.8	4.3	100.0	-

Source: Government Statistics

Reliance on thermal energy remains high at 75.8 per cent of total planned capacity enhancement in the five year plan, of which nearly 89 per cent is coal and lignite fired plants. Not a very favourable piece of information for the advocates of a cleaner environment, but for suppliers of dump trucks, these figures guarantee an assured market for several years.

The hydroelectric power constitutes 19.9 per cent share of additional planned capacity, with nuclear power making up for the remaining 4.3 per cent share. Of this, 47 per cent is planned through the central government, 35 per cent through state governments, and the remaining 19 per cent through the private sector.

Table 6. India: Installed Capacity – 11th Five Year Plan Status, 31st December, 2009

	Planned		Commissioned		Ongoing	
	MW	%	MW	%	MW	%
Central	36,874	47	4,990	6	16,232	21
State	26,783	34	9,112	12	12,243	16
Private	15,043	19	4,990	6	14,807	19
Total	78,700	100	19,092	24	43,282	55

Source: Government Statistics

Project execution has trailed the plan despite several downward revisions in targets during the past three years. By the end of December 2009, only 24 per cent of the total planned projects were complete, and work was in progress on another 55 per cent of the projects. Work had yet to start on the remaining 21 per cent of the planned projects. The government has identified several reasons for the failure to meet deadlines and is taking suitable countermeasures, which include better coordination and monitoring at various levels.

Table 7. India: Annual Per Capita Consumption, 2004-2008

(KwH)

2004	2005	2006	2007	2008
592	613	632	672	704

Source: Government Statistics

Despite a growth in the installed capacity every year, per capita consumption in the country has not increased substantially, and remains at just about a quarter of the average global consumption. The government has little alternative but to plan more ambitiously for the future.

The long term plans for the period 2013 to 2017 are underway for an additional capacity enhancement of around 82,000 MW, out of which 40,000 MW is expected to be thermal, 30,000 MW hydroelectric, and the balance under the nuclear category.

Mining

India is a leading producer of minerals in the world, important among them are mica, coal, barite, bauxite, iron ore, manganese and aluminium. Of nearly 90 minerals produced in the country, four are fuel minerals, 11 metallic, 52 non-metallic and remaining 23 are other minor minerals. These are excavated from nearly 3,000 small and large mines, of which around 20 per cent are for coal, 20 per cent for metallic minerals and the balance 60 per cent mines produce non-metallic minerals such as lime stone, steatite, silica sand, chalk, kaolin, dolomite and quartz.

The mining sector, without doubt, has performed well in 2009. Though less than a three per cent contributor towards the country's GDP, mining is the single most important sector for the suppliers of dump trucks. It recorded over 8.5 per cent growth in the first half of the fiscal 2009, a growth not witnessed during the recent past.

Coal

The production of coal in India is managed by the three public sector companies under the control of the coal ministry, and the private sector owns only around 10 out of the 562 active coal mines. Coal India Limited (CIL), the largest coal producing company in the world, has eight subsidiary companies which together account for around 85 per cent of total national coal production. Neyveli Lignite Corporation (NLC) and Singareni Collieries (SCCL), other major producers, are joint ventures between the central government and the state of Andhra Pradesh in Southern India.

Table 8. India: Coal and Lignite Production, 2000-2009
(Million Tonnes)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Coal	304	314	328	341	361	383	407	431	457	493
Lignite	22	24	25	26	28	30	30	31	34	32
Total	326	338	353	367	389	413	437	462	491	525
% Change	1.8	3.7	4.4	4.0	6.0	6.2	5.8	5.7	6.3	6.9

Source: Government Statistics

The consumption of coal, driven by the increasing demands of the power sector (which normally consumes around 72 per cent of total production) has grown every year, and so has its production. It increased from 304 million tonnes in 2000 to peak at 493 million tonnes in fiscal 2009. The production of lignite also increased from 22 million tonnes to 32 million tonnes during this period.

Table 9. India: Imports of Coal and Coke, 2000-2009

(Million Tonnes)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Coal	19.7	20.9	20.5	23.3	21.7	29.0	38.6	43.1	49.8	59.0
Coke	2.4	2.4	2.3	2.3	1.9	2.8	2.6	4.7	4.2	2.0
Total	22.1	23.3	22.8	25.6	23.6	31.8	41.2	47.8	54.0	61
% Change	0.8	5.4	-2.1	12.2	-7.8	34.7	29.6	16.0	13.0	13.0

Source: Government Statistics

The domestic production of coal is not sufficient enough to meet demand, and the balance is made up by imports. Steel plants, cement plants, captive power plants, industrial consumers and coal traders are the major importers and this demand has clearly increased in the last five years.

The consumption of coal is expected to grow at a cumulative average growth rate (CAGR) of around 10 per cent in next five years, and demand by 2012 is projected at 731.1 million tonnes. The government is working towards increasing production to 680 million tonnes by March 2012, and the remaining gap of 51.1 million tonnes will continue to be bridged by imports.

Table 10. India: Allocation of New Coal Blocks, as on 31 March 2009

(Million Tonnes)

	Power		Others		Total	
	Blocks	Reserves	Blocks	Reserves	Blocks	Reserves
Public	56	20,283	45	8,665	101	28,948
Private	33	7,109	67	11,283	100	18,392
Total	89	27,392	112	19,948	201	47,340

Source: Government Statistics

The government is now working towards establishing transparent and efficient management systems to ensure the uninterrupted supply of coal to all its consumers. To increase production, it has allocated new coal blocks with estimated reserves of 47,340 million tonnes. The private sector is now allowed greater participation in coal exploration and mining, as is evident from the

table above. Nearly half of the total of 201 coal blocks allocated until March 2009 were assigned to the private sector.

89 blocks with reserves of 27,392 million tonnes were reserved for power generation. Steel and cement industries are other major institutional consumers.

Iron Ore

Table 11. India: Iron Ore Production, 2000-2009

(Million Tonnes)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Production	77.6	80.6	86.2	99.1	120.6	145.9	154.4	187.7	213.2	215.4
% Change	10	4	7	15	22	21	6	22	14	1

Source: Government Statistics

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 the 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.

Cement

Table 12. India: Cement Production, 2000-2009

(Million Tonnes)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Production	100.2	99.2	99.8	123.5	117.0	125.3	140.5	154.7	167.6	181.4
% Growth	13.9	-1.0	0.6	23.7	-5.2	7.1	12.1	10.1	8.3	8.2

Source: Government Statistics

Cement production increased from 100.2 million tonnes in 2000 to 181.4 million tonnes in 2009, a cumulative average growth rate of nine per cent. Demand for cement is projected to exceed 285 million tonnes by 2012, which in turn will take the requirement for limestone excavation of more than 430 million tonnes in 2012.

Unlike coal and iron ore, the cement industry India is privately owned and the share of public sector is below 1.5 per cent. Over the last one decade it has undergone major structural changes and technological advances, and is now poised for a major expansion that will doubtless generate additional future demand for off-highway dump trucks.

MARKET SIZE AND TRENDS

Dump truck demand around the world is almost exclusively confined to the mining sector and major civil engineering projects, and India is no exception. Most sales in the country are made to the mining sector, and particularly to Coal India; hence the sales trend of these machines is essentially a reflection of the buying pattern of Coal India and its associated coal mining companies.

These companies tend to cluster their requirements of several years and invite periodic tenders for the machines that take several months to process. Often the actual delivery of machines is spread over a number of years. Therefore sales in any particular year does not necessarily represent that year's demand, so the growth of the market can therefore be best understood by their movements over a longer time period.

Table 13. India: Sales of Dump Trucks by Type, 2000-2009

Year	Rigid		Articulated		Total
	Units	%	Units	%	Units
2000	529	100	1	-	530
2001	172	100	-	-	172
2002	245	100	-	-	245
2003	455	99	3	1	458
2004	681	100	-	-	681
2005	784	99	5	1	789
2006	749	98	19	2	768
2007	594	98	13	2	607
2008	771	96	33	4	804
2009	808	99	11	1	819

Source: Off-Highway Research

As is evident from the table above, even over a longer time span, sales of off-highway dump trucks, when expressed in unit terms, present a very erratic picture of the market. Sales display no specific trends, and vary substantially each year. From a high of 700 units in 1998, sales dipped to 172 units in 2001 to peak again at 789 units in 2005. They dipped again to 607 units in 2007, only to reach a new peak of 819 units in 2009.

The mining, power, and the cement sectors in the country are without doubt expanding, and this growth stimulates sales of dump trucks. Another major factor distorting the trend is the continuous shift of demand towards the larger size classes of machines. Yearly sales of dump trucks, when expressed as the cumulative payload capacity sold each year, should therefore provide a clearer picture of the growth of this market.

Table 14. India: Dump Trucks – Sales by Cumulative Payload Capacity, 2000-2009

(Tonnes)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Capacity	31,500	6,700	11,200	24,800	25,450	29,250	30,550	27,550	41,450	51,750
% Growth	48	-79	3	22	3	15	5	-10	50	25

Source: Off-Highway Research

As can be inferred from the table above, barring 2007 when Coal India postponed its purchase decision, demand for dump trucks has increased each year after 2001, and especially so in the last two years. In 2009, demand in terms of cumulative payload capacity was nearly eight times the level of 2001. Sales in 2000 were abnormally high because of a large one-time order of 160 units of 120 tonne trucks by Coal India.

Rigid Dump Trucks

Table 15. India: Sales of Dump Trucks by Payload Capacity, 2005-2009

Tonnes	2005		2006		2007		2008		2009	
	Units	%	Units	%	Units	%	Units	%	Units	%
Under 30	200	26	108	14	44	7	-	-	-	-
31-40	352	45	358	48	322	54	377	49	324	40
41-50	160	20	184	25	72	12	73	9	125	16
51-60	-	-	4		30	5	94	12	76	9
61-80	65	8	68	9	41	7	35	5	8	1
81-100	7	1	27	4	85	15	192	25	236	29
Over 100	-	-	-	-	-	-	-	-	39	5
Total	784	100	749	100	594	100	771	100	808	100
% Growth	15	-	-4	-	-21	-	30	-	5	

Source: Off-Highway Research

Historically, the market for rigid dump trucks has been dominated by machines up to 32 tonne payload capacity, and as late as 2004 this class of machines constituted nearly 93 per cent of the total market. The share of smaller, **under 30 tonne** payload rigid dump trucks began to decline

from a peak of 32 per cent in 2004, and these machines ceased to exist in 2008 altogether with the demise of Caterpillar-Hindustan's 1025 model, the last machine to survive in this class. The market for the rigid dump trucks has now shifted decisively well above the 30 tonne class.

On the basis of payload capacity, application and market segments, current sales of rigid dump trucks can be categorised into three broad categories. Each group can be further subdivided into two segments.

- **Small:** 31-50 tonnes
- **Medium:** 51-80 tonnes
- **Large:** Over 80 tonnes

Small (31-50 Tonnes): Traditionally, the small category has accounted for the largest share of the total rigid dump truck market. Its share increased from 61 per cent in 2004 to peak at 72 per cent in 2006, as demand from the under 30 tonne machine segment shifted towards it in a major way. However, since 2006 the share of this category has declined steadily each year to reach 56 per cent in 2009. The annual demand for this category of machines is now apparently stabilising at around 450 units.

The present range of small rigid off-highway dump trucks effectively starts with the **32 tonne** machines represented by the BEML BH35, Caterpillar-Hindustan 1035 and Telcon EH600 models. Water sprinklers built on the chassis of these trucks, which have a tank capacity of around 28,000 litres, are also included in this segment.

These machines remain popular with some contractors on account of their low cost and suitability across the entire spectrum of the mining industry, and a variety of construction sites. They also find a readymade replacement market in the existing limestone quarries which have traditionally used these machines. In 2009, these machines constituted 72 per cent of total sales in the small category, and demand for them is likely to emanate from this niche segment for several years to come.

The **41-50 tonne** segment is currently represented solely by BEML's BH50M model, which accounted for the remaining 28 per cent of the small category sales in 2009. This segment has regained its customer base in 2009 with sales of 125 units, and as a result its share improved to 15 per cent.

Medium (51-80 Tonnes): The share of this category has remained at around 10 per cent for many years, although it did peak in 2003 and 2008, at 18 per cent and 17 per cent respectively. During the last five years, the size of this category has varied from 45 units in 2004 to 129 units in 2008.

At the lower end, the category is represented by the Komatsu HD465-7 and Caterpillar 773D models in the **53-55 tonne** segment, as the BH60 model from BEML has been phased out. This segment has emerged as the preferred choice of cement manufacturers that have graduated from 45 to 54 tonne dump trucks. Within the category, the share of this segment has increased from six per cent in 2006 to 90 per cent in 2009.

The **77-78 tonne** segment, traditionally represented by BEML's BH85-1 model is on the decline, as most buyers have graduated up to the next weight class. The share of this segment dropped from 18 per cent of total machine sales in 2003 to one per cent in 2009, when sales reached an all time low of eight units.

Large (Over 80 Tonnes): Though some large machines were sold intermittently in past, the category was practically non-existent until a decade ago. Demand for this class of machines started to pick up from 2005, and the share of the large category reached double digits for the first time in 2007. Sales have grown phenomenally thereafter to reach 275 units in 2009, which constituted 34 per cent of total machines sold during the year.

The segment of the **91-92 tonne** class machines is currently the most vibrant and the fastest growing, and here Komatsu's HD785-7 model is the undisputed leader, followed by the BH100 from BEML and Caterpillar's 777D. Terex has also promoted its imported 91 tonne TR100 model in this segment, albeit in small numbers. Sales in this size class increased from seven units in 2005 to 236 units in 2009, making it the second largest weight category in 2009, with an all time high share of 29 per cent.

Demand in this size class is mainly being driven by the large coal mines, and the decision of the government to promote ultra-mega power projects in the vicinity of collieries is certain to keep demand for these machines at high levels. Another factor favouring this segment is the proposed privatisation of coal mines where the use of this class of machines is preferred.

The market for rigid dump trucks in the over **100 tonne** segment started to develop in 2009 with the sale of 39 units. Of these, Caterpillar sold 22 units of its 240 tonne 793C model, followed by Komatsu with 17 units of its 830E-AC model. In its first year, the share of this segment reached

five per cent and could well rise in the future. BEML had originally geared up for licensed manufacturing of Terex machines in this class, but the acquisition by Bucyrus has now complicated matters. It is now left with no other alternative but to renegotiate with Bucyrus, seek alternate technology, or to develop these machines by itself in-house.

Articulated Dump Trucks

Not much has changed in this sector of the market since the publication of Off-Highway Research's last report in 2008. Their sales peaked at 33 units in 2008, only to drop again to 11 units in 2009, while the total population of these machines will soon reach 100 units.

Articulated dump trucks, despite their sophistication, do not offer any major advantages in the mining sector, where the purchasing decisions are made exclusively on a 'cost per tonne' basis. The rigid dump trucks score on this account due to their simplicity and their ability to carry a greater payload at a relatively lower cost.

On the other hand, the entry of articulated dump trucks into the construction sector is severely restricted by local on-off highway dump truck manufacturers who have a very strong production base, marketing network and product support structure. They have also been very agile in the past to ward off competition by adapting to the latest technology, and improving their quality through in-house research and development.

Nevertheless articulated dump trucks will continue to sell in India, albeit in small numbers, for niche applications. Their future demand may increase if they are produced locally and offered at an attractive price, but this would be unlikely for the foreseeable future.

Table 16. India: Sales of Articulated Dump Trucks by Payload Capacity, 2005-2009

Tonnes	2005		2006		2007		2008		2009	
	Units	%	Units	%	Units	%	Units	%	Units	%
25-30	-	-	2	11	-	-	-	-	-	-
31-35	5	100	17	89	13	100	33	100	11	100
Total	5	100	19	100	13	100	33	100	11	100

Source: Off-Highway Research

Articulated dump trucks are currently available in the 23 to 46 tonne payload capacities, but the 32-33 tonne payload class is the most popular, and has accounted for all of the sales in four of the five years since 2005. The only other size to register its presence in the market was the

27-28 tonne payload capacity machine in 2006, and with sales of two units it gained an 11 per cent share of articulated dump truck market. Historically some machines have been sold in the under 25 tonne payload class, but now this size of machine is not in demand due to the competition from low priced on-off highway trucks.

PRODUCTION

Table 17. India: Production of Rigid Dump Trucks by Manufacturer, 2005-2009

(Units)

Manufacturer	2005		2006		2007		2008		2009	
	Units	%	Units	%	Units	%	Units	%	Units	%
BEML	360	41	365	50	395	52	486	47	484	46
Caterpillar	356	41	305	42	253	37	393	38	370	36
Komatsu	-	-	-	-	75	10	155	15	171	16
Telcon	10	1	10	1	10	1	5	-	20	2
Tatra	150	17	49	7	-	-	-	-	-	-
Total	876	100	729	100	733	100	1,039	100	1,045	100

Source: Off-Highway Research

After a brief decline in 2006 and 2007, production of rigid dump trucks rose sharply in 2008 to exceed 1,000 units for the first time. It retained its momentum in 2009, with production increasing marginally to 1,045 units. Besides growing domestic demand, the rise in production was supported by sustained exports, especially by Caterpillar.

BEML is a leading public sector company established in 1964 under the ministry of defence to manufacture heavy construction equipment, and its present business is split into construction and mining, defence, railways, technology, international business and trading divisions. Its manufacturing facilities are located in Bangalore, Kolar Gold Mines and Mysore in the state of Karnataka. Its dump trucks are manufactured in its Mysore plant along with the motor graders and diesel engines. It manufactures the largest range of rigid dump trucks in the country, with all its major components and systems being produced in-house.

Caterpillar began selling its machines in India in the 1930s, and appointed its first dealer as early as 1944. However the local production of its machines started five decades later through a licensing agreement with Hindustan Motors in 1985, followed by the production of its engines in 1989. In 2001 Caterpillar acquired the earthmoving equipment division of Hindustan Motors, including the brand “Hindustan”, and in 2006 made it a global source for rigid dump trucks. Currently it is the largest manufacturer of dump trucks in the country after BEML, producing

five models in the range of 35 to 95 tonnes. Its smallest, 32 tonne model Hindustan 1035 is based on erstwhile Terex technology, whereas the other models have its own technology.

Komatsu started selling its machines in 1958 and subsequently started production in collaboration with BEML in late 1960s. It parted ways with BEML in the mid 1990s to start production of its hydraulic excavators in joint venture with Larsen & Toubro. **Komatsu India Private Limited** was incorporated in 2005, and in January 2007 it launched the production of rigid dump trucks at its new plant located 35 kilometres south of Chennai. Currently the 55 tonne HD465-7 and 91 tonne HD785-7 models are assembled in this plant, with over 60 per cent of its components being imported from Japan.

Telcon was incorporated in 1999 as a joint venture between Tata Motors (formerly known as Tata Engineering and Locomotive Company Limited) and Hitachi Construction Machinery Company Limited. The company has a long history of manufacturing trucks and locomotives, and is a leading manufacturer of hydraulic excavators. Its manufacturing facilities are located in Jamshedpur and Dharwad. The company started the production of its only rigid dump truck model in 2002, based on the Hitachi-Euclid design, at its Jamshedpur plant.

Table 18. India: Production of Rigid Dump Trucks by Payload Capacity, 2005-2009

Tonnes	2005		2006		2007		2008		2009	
	Units	%	Units	%	Units	%	Units	%	Units	%
Under 30	238	27	63	9	47	6	-	-	-	-
31-40	396	45	337	46	337	46	398	38	341	33
41-50	131	15	107	15	127	17	236	23	137	13
51-60	-	-	57	8	57	8	207	20	189	18
61-80	97	11	94	12	94	13	45	4	21	2
81-100	7	1	71	10	71	10	153	15	357	34
Over 100	7	1	-	-	-	-	-	-	-	-
Total	876	100	729	100	733	100	1,039	100	1,045	100
% Growth	28		-17		-1		42		1	

Source: Off-Highway Research

The decline in the production of the **under 30 tonne** category is clearly visible in the table above. From a peak of 257 units in 2004, which constituted over 37 per cent of all dump trucks produced, this segment ceased to exist in 2008.

Traditionally the majority of machines produced locally were in the **31-40 tonne** size class, but the size of this category fell to second place for the first time in 2009. Its share of total

production also declined sharply from a peak of 54 per cent in 2007 to 33 per cent in 2009. Production in the **41- 50 tonne** category has remained largely stable in the last five years, ranging from 85 to 137 units, and the share of this category has averaged around 15 per cent during this period.

The production in the **51-60 tonne** category improved significantly from 4 units in 2006 to 207 units in 2008, only to decline marginally to 189 units in 2009. Led by demand from the cement industry, production in this segment is likely to grow, but the **61-80 tonne** segment is clearly on the decline with production falling to 21 units in 2009.

The **81 to 100 tonne** category has demonstrated the sharpest rise in production volumes, from one unit in 2004 to 357 units in 2009. Buoyed by domestic and overseas demand, the share of machines produced in this segment increased from one per cent in 2005 to 34 per cent in 2009, making it the largest segment for the first time. Though BEML has produced a few machines of **over 100 tonne** class in the past, regular production of machines in this category is yet to start.

Table 19. India: Production of Rigid Dump Trucks by Payload Capacity, 2009

Tonnes	31-40		41-50		51-60		61-80		81-100		Total	
	Units	%	Units	%	Units	%	Units	%	Units	%	Units	%
BEML	244	72	137	100	-	-	21	100	82	23	484	46
Caterpillar	77	23	-	-	137	72	-	-	156	44	370	36
Komatsu	-	-	-	-	52	28	-	-	119	33	171	16
Telcon	20	5	-	-	-	-	-	-	-	-	20	2
Total	341	100	137	100	189	100	21	100	357	100	1,045	100

Source: Off-Highway Research

In 2009, BEML retained production supremacy in the **31-40 tonne**, **41-50 tonne**, and **61-80 tonne** categories, while Caterpillar, helped by good export orders, retained a 72 per cent share in the **51- 60 tonne** category and 44 per cent share in the **81-100 tonne** category. Komatsu has strongly followed Caterpillar in the two categories where it has a presence.

COMPONENT SOURCING

Today India provides a favourable structure for the manufacture of all types of construction equipment including dump trucks. BEML has a strong and diverse production base which enables it to manufacture almost all major components in-house, and Caterpillar has also developed a strong network of some 400 component suppliers.

Table 20. Caterpillar India: Component Sourcing for Dump Trucks, 2010

	BEML	Caterpillar	Komatsu	Telcon
Diesel Engines	Cummins	Caterpillar (India) 777: Caterpillar (USA)	Komatsu	Cummins
Transmissions	Komatsu	Avtec, Caterpillar (USA)	Komatsu	Allison
Axles	In-House	In-house	Komatsu	In-house
Hydraulics	In-House	Wipro, Usha Telehoist, Caterpillar	Komatsu	Hitachi
Cabs	In-House	Super Springs, Srvs-Kumbakonam	Komatsu	In-house
Chassis	In-House	In-house	In-house	In-house
Steelwork	In-House	In-house	In-house	In-house
Tyres	Various	Various	Various	Various

Source: Company Information

Komatsu has around 60 per cent import content in its dump trucks, as major components are still being imported from Japan with localisation being limited to the chassis and steel fabrications. On the other hand, Telcon has achieved a high degree of localisation and imports only a few critical components from Japan.

FOREIGN TRADE

Exports

Table 21. India: Exports of Dump Trucks by Manufacturer, 2005-2009

(Units)

	2005	2006	2007	2008	2009
BEML	6	25	9	41	31
Caterpillar	-	30	121	219	220
Komatsu	-	-	15	-	10
Total	6	55	145	260	261

Source: Off Highway Research

In the last five years, India has emerged as a major export base for off-highway rigid dump trucks. Exports increased from six units in 2005 to 261 units in 2009, and the share of exports during this period increased from one per cent of total domestic production in 2005 to 25 per cent in 2009.

Caterpillar continued to be the strongest exporter with 60 per cent of its production going overseas in 2009. In 2007, Caterpillar exported around 121 dump trucks, mainly its 773D and 777D models, to Indonesia, Myanmar, Russia and CIS countries followed by the export of 219

machines in 2008, and 220 machines in 2009. Komatsu exported 15 units in 2007, followed by 10 units in 2009.

BEML has also been exporting its dump trucks in small numbers since 1983 to Morocco, Syria, Brazil, Myanmar, Ethiopia, Indonesia, and Afghanistan, and has exported around 500 units up to 2007. The company has dealerships in 42 countries and international offices in China, Morocco and Singapore. Its exports peaked at 41 units in 2008, only to decline to 31 units in 2009.

Imports

Table 22. India: Imports of Dump Trucks by Source, 2005-2009

(Units)

	2005	2006	2007	2008	2009
United Kingdom	4	3	-	3	4
Japan	-	28	28	-	17
Sweden	5	17	13	-	11
USA	-	-	-	-	22
Total	9	48	41	3	54
% of Domestic Market	1	6	7	-	7

Source: Off Highway Research

The number of imported dump trucks has traditionally been low with import volumes varying wildly from year to year. After a peak of 48 units in 2006, and a further 41 units in 2007, imports declined to three units in 2008, only to peak again to 54 units in 2009.

Since demand for machines up to 95 tonnes payload capacity is being catered to by local production, imports are now generally restricted to very large trucks with the latest technology, for deployment at new mines that are being planned with large sized equipment. Though few in numbers, these machines provide an indication of things to come, and represent new technological trends in the industry.

In 2009, Caterpillar imported 22 units of its 240 tonne 793D model from the USA, and the machines sold to South Eastern Coalfields are the largest ever to work at an Indian mine. Not to be left behind, Komatsu imported 17 units of its 830E-AC electric model, which has a 228 tonne payload capacity, from Japan. The machines will operate at the Rampur Agucha mines of Hindustan Zinc Ltd, the largest zinc producer in the country.

Terex imported four units of the TR100 rigid dump trucks from the UK. Volvo, the traditional articulated dump truck supplier imported 11 machines from its Swedish plant.

MARKET SHARES

Rigid Dump Trucks

Table 23. India: Suppliers of Rigid Dump Trucks and Their Market Shares, 2005-2009

	2005		2006		2007		2008		2009	
	Units	%	Units	%	Units	%	Units	%	Units	%
BEML	351	45	348	46	376	64	445	58	443	55
Komatsu	-	-	26	3	62	10	155	20	173	21
Caterpillar	277	35	324	43	149	25	163	21	170	21
Telcon	2	-	3	1	7	1	5	1	18	2
Terex	4	1	3	1	-	-	3	-	4	-
Tatra Vectra	150	19	45	6	-	-	-	-	-	-
Total	784	100	749	100	594	100	771	100	808	100

Source: Off-Highway Research

BEML has remained the largest supplier, but its market share fell from 64 per cent in 2007 to 55 per cent in 2009. **Komatsu's** market share increased strongly from three per cent in 2006 to peak at 21 per cent in 2009, and this increase for the first time has promoted the company to second position after BEML. **Caterpillar** maintained a market share of 21 per cent, less than half of what it had attained in 2006, while Telcon improved its share marginally to reach two per cent.

Traditionally BEML and Caterpillar have jointly accounted for around 75 per cent of the total rigid dump truck market. Their cumulative share peaked to 90 per cent in 2006, the period when Tatra Vectra was on its way out and Komatsu was entering the market. The decline of their cumulative share to 76 per cent in 2009 clearly indicates that within three years Komatsu has occupied the entire sector of the market that has been vacated by Tatra Vectra.

Despite a wide range of dump trucks being offered by suppliers, the customers have narrowed down their choice to a few specific models. In total, 14 models of rigid dump trucks were sold in 2009, and of these, five constituted over 76 per cent of the sales. Three of these machines were from BEML, and one each from Komatsu and Caterpillar.

Table 24. India: Sales of Rigid Dump Trucks by Supplier and Payload Capacity, 2009

Tonnes	31-40		41-50		51-60		61-80		81-100		Over 100		Total
	Units	%	Units	%	Units	%	Units	%	Units	%	Units	%	Units
BEML	229	71	125	100	-	-	8	100	81	34	-	-	443
Komatsu	-	-	-	-	50	66	-	-	106	45	17	44	173
Caterpillar	77	24	-	-	26	34	-	-	45	19	22	56	170
Telcon	18	5	-	-	-	-	-	-	-	-	-	-	18
Terex	-	-	-	-	-	-	-	-	4	2	-	-	4
Total	324	100	125	100	76	100	53	100	236	100	39	100	808

Source: Off-Highway Research

Under 50 Tonnes is the category that is traditionally the largest segment of rigid dump trucks, and represented 56 per cent of total units sold in 2009. In this segment, **BEML** is the clear market leader with a 79 per cent share. Its 31.8 tonne BH35 model, now upgraded to the BH35-2, has been the most popular rigid dump truck for over three decades, and still continues to sell well. The machine is simple, rugged, easily serviceable, and is also sold as a water bowser. This is the largest selling model and accounted for a little over 28 per cent of the total rigid dump trucks sold in 2009.

BEML also sold 125 units of its 45.5 tonne BH50 model, the second highest selling model with over 15 per cent share in 2009, and the only machine to be represented in the 41-50 tonne class.

Caterpillar offers its 31.8 tonne Hindustan 1035 model in this range, the upgraded version of the Terex dump truck that Hindustan Motors produced for over two decades before its takeover. It is Caterpillar's most popular model in the domestic market, and is the reason why the company continues to produce it until now. However, it is gradually ceding ground on account of technological obsolescence, and its sales in 2009 declined to 77 units. **Telcon** sold 18 units of the only model, the EH600 that it manufactures, capturing two per cent market.

The total share of the **51-80 tonne** category has remained largely unchanged as it has grown at the lower end, while demand at the higher end has gradually shifted upwards to the next segment. The 55 tonne HD465-7 model from **Komatsu** is the market leader with a 60 per cent share in this category.

Caterpillar offers its 53.3 tonne 773D model in this class of which it sold 26 units in 2009 and accounted for 31 per cent of the category. At the higher end of the segment, sales of the 78 tonne BH85-1 model from **BEML** declined to eight units in 2009, accounting for nearly 10 per cent of the market.

The **over 80 tonne** category has grown very strongly indeed from one per cent of the total market in 2005 to more than 34 per cent in 2009. The 91-100 tonne class mainly contributed to this growth, and accounted for 29 per cent of the total market, followed by the over 100 tonne class with five per cent.

Komatsu dominated this category with sales of 106 units of the 91 tonne HD785-7 model, and 17 units of its 228 tonne electric 830E-AC model. The company accounted for 45 per cent of the total market in this category.

BEML gained substantial ground with its 91.5 tonne BH100 model of which it sold 81 units in 2009. This machine had accounted for around a half per cent of the market in 2005, which increased to 10 per cent in 2009. Within the category, the machine achieved a share of nearly 30 per cent.

Caterpillar sold 67 units to retain 24 per cent share of this category. Of these, 45 units were of its 95 tonne 777D model, and 22 units of the 240 tonne 793D model, the largest rigid dump truck sold in the country. **Terex** also registered its presence in this category by selling four units of its 91 tonne TR100 model.

Articulated Dump Trucks

**Table 25. India: Suppliers of Articulated Dump Trucks
and Their Market Shares, 2005-2009**

	2005		2006		2007		2008		2009	
	Units	%	Units	%	Units	%	Units	%	Units	%
Volvo	5	100	17	89	13	100	33	100	11	100
Komatsu	-	-	2	11	-	-	-	-	-	-
Total	5	100	19	100	13	100	33	100	11	100

Source: Off-Highway Research

Volvo continues as the undisputed leader in the articulated dump truck market, and in the last five years the company captured 100 per cent market share each year barring 2006. Then, Komatsu sold two units of its HM300 model gaining an 11 per cent share, while Volvo retained the remaining 89 per cent share.

Lately the structure of the articulated dump truck market has started to change with the entry of Doosan with its Moxy range in to the market, as well as the increased marketing activities of

other suppliers, while 2010 began on an optimistic note for Komatsu with the company succeeding in selling six units of its HM300-2 model.

MARKETING AND DISTRIBUTION

Table 26. India: Distribution Networks of Dump Truck Suppliers, 2010

Supplier	Offices/ Branches	Dealers	Outlets
BEML	30	-	-
Bucyrus	4	-	-
Caterpillar	3	2	80
Doosan	5	13	13
Komatsu	1	1	31
Telcon	29	-	-
Terex	1	1	20
Volvo	11	11	41

Source: Off-Highway Research

Not much has changed in the marketing and distribution structure of domestic and international suppliers since the publication of Off-Highway Research's earlier report in September 2008. **BEML** sells its machines directly through its Bangalore head office, which is supported by 10 regional sales offices, 16 district offices and 10 other activity offices. The company has also established a dealer network to sell selected items of equipment, which do not include the dump trucks.

Bucyrus is planning to use its existing marketing network to promote the dump trucks that it has acquired from Terex Mining. It has its head office in Kolkata and three support offices in the country.

Caterpillar follows its global policy to distribute its products through its dealers that also provide product support. The two dealers in India are **TIL**, which covers the northern and eastern India, and **GMMCO** for the western and the southern regions. These two dealers together have 80 sales and service outlets.

Komatsu utilises the distribution network of **Larsen & Toubro (L&T)**'s Construction and Mining Business Unit located in Bangalore. L&T in turn has 29 offices nationwide to sell and support the full range of machines.

Telcon uses a similar operation for its larger equipment types including dump trucks that are sold directly through its 29 regional offices.

Terex dump trucks are marketed by the mining and construction equipment division of **Voltas** through its four regional and 16 branch offices, which also provide support. **Volvo** provides sales and technical support through a network of 11 authorised national dealers.

PRICING

The suppliers normally refrain from discussing their pricing policies which are tailored to suit various tenders. The market nevertheless remains extremely price sensitive despite the limited number of suppliers. The final price is always negotiated depending upon a number of factors, and can vary significantly based on the machine configuration and scope of the support package.

Current demand for rigid dump trucks is clustered around the five payload capacities tabulated above, along with their ex-works price exclusive of any taxes and transportation charges. The prices of various models offered in each category vary within a narrow band, as there are a limited number of buyers, and all suppliers compete strongly in securing orders. However pricing is also governed by hidden non tangible variables, which suppliers offer in terms of extended warranties, free spare parts, and special service offers.

Table 27. India: Average Transaction Prices of Dump Trucks, 2010

Type	Payload (Tonnes)	Price (\$'000)	Product Source
Rigid	32	165-170	Domestic
	45	295-305	Domestic
	53-55	390-410	Domestic
	77-78	470-490	Domestic
	91-92	620-650	Domestic
Articulated	32-33	360-380	Imported
	37-38	390-420	Imported

Source: Off-Highway Research

Many customers, especially mining companies, now prefer to opt for long-term maintenance and repair contracts (MARC), and evaluate the competitive offers accordingly at the time of purchase.

The pricing for standard articulated dump trucks in the popular 32 and 37 tonne payload capacities indicated above is on a CIF Indian port basis, as all suppliers sell imported machines,

and does not include import duty, inland transportation and other local taxes. Since demand for these machines is very low, the transaction price may vary widely depending on the scope and the size of the order.

POPULATION AND END-USERS

Off-highway dump trucks are normally purchased in significant numbers at a time, and so the ownership pattern changes every year. The population and share of end-users presented here is therefore an indicative assessment based on the long term sector-wide average demand for these machines.

The coal sector has always been the largest buyer of off-highway dump trucks, and currently accounts for around 60 per cent of the population, with around 7,800 machines currently operating. The remaining machines are almost evenly spread between the metal and non-metal mining, cement and construction industries.

Table 28. India: Population of Dump Trucks by End-User, 2010

	Units	%
<u>Rigid</u>		
– Coal Mines	7,800	60
– Limestone Cement	2,080	16
– Metal and Non-Metal Mining	1,820	14
– Construction	1,300	10
Sub-Total	13,000	100
<u>Articulated</u>		
– Construction	55	56
– Metal and Non-Metal Mining	35	35
– Coal Mines	9	9
Sub-Total	99	100
Total	13,099	100

Source: Off-Highway Research

Articulated dump trucks will continue to be sold into their niche markets, and they are very unlikely to enter the sectors where they have no obvious advantage. Their share of end-user deployment could vary considerably with every major order, as their population is still low. The share of the construction sector for example changed markedly from 39 per cent in 2008 to 55 per cent in 2010 as the major sales this period was made to a hydroelectric project.

In the past, a dump truck was normally used for around 4,000-4,500 hours every year and was expected to last for 10-12 years. However it is not uncommon to come across machines which have worked for over 20 years, and with increased privatisation and deployment of larger machines, the average utilisation may now increase. Stricter emission and safety norms, and increasing demands from operators for a better working environment is expected to limit their use to around 15 years in the future.

FORECAST

Table 29. India: Forecast Sales of Off-Highway Dump Trucks, 2010-2014
(Units)

	2010	2011	2012	2013	2014
Rigid	900	1,000	1,050	1,100	1,150
Articulated	20	30	40	50	60
Total	920	1,030	1,090	1,150	1,210

Source: Off-Highway Research

In the last five years, strong demand from the power and the mining sectors have led to increased sales of **rigid dump trucks** and this demand is most likely to continue for the next five years. As is evident from the present trends, demand is shifting towards larger sizes of machines, and because of this move future growth rates of sales volumes are most likely to remain modest.

After a decade of sporadic growth, the forecast for the next five years looks relatively predictable. Political stability will help the mining sector plan over a longer period, commencing with a period of stable growth. The thermal power sector is set to keep demand going and the government is already working towards increasing the production of coal. Activities in the new coal blocks with purchases of equipment will also give a major boost to future dump truck sales. Demand from other mining and construction sectors is also likely to display steady but modest growth.

Off-Highway Research forecasts that the market will improve to 900 units in 2010 and continue to rise thereafter to reach 1,050 units in 2012. The political uncertainty arising out of the impending elections in 2014 could stunt the growth rate to some extent, but demand for rigid dump trucks in 2014 is most likely to rise to 1,150 units.

Sales of **articulated dump trucks** are expected to remain very modest as their niche segments are very unlikely to grow at a rapid pace. The market for these machines is most likely to reach 60 units by 2014.

MACHINES AVAILABLE

Table 30. India: Rigid Dump Trucks Available, 2010

Manufacturer	Model	Payload (Tonnes)	Engine		Product Source
			HP	Manufacturer	
BEML	BH35	31.8	355	Cummins	India
	BH35-2	31.8	375	Cummins, BEML	India
	BH40	36.5	455	BEML	India
	BH50M	45.5	648	Cummins, BEML	India
	BH70	63.6	715	BEML	India
	BH85-1	78.0	883	Cummins, BEML	India
	BH90	85.0	923	Cummins India	India
	BH120E	113.0	1,140	Cummins, DDA	India
	BH100	91.5	983	Cummins India	India
	BH170E	172.0	1,860	Cummins	India
Bucyrus	MT3300AC	136.0	1,455-1,720	Cummins, Detroit	USA
	MT3700AC	186.0	2,100-2,350	Cummins, Detroit	USA
	MT4400AC	218.0	2,487	Cummins, Detroit	USA
	MT5500AC	326.0	2,478	Cummins, Detroit	USA
	MT6300AC	363.0	3,492	Detroit	USA
Caterpillar	Hindustan 1035	31.8	372	Caterpillar	India
	Caterpillar 773D	53.3	740	Caterpillar	India
	Caterpillar 777D	95.1	1,000	Caterpillar	India
	Caterpillar 785C	150.0	1,348	Caterpillar	USA
	Caterpillar 789C	195.0	1,770	Caterpillar	USA
	Caterpillar 793D	240.0	2,337	Caterpillar	USA
	Caterpillar 797B	380.1	3,370	Caterpillar	USA
Komatsu	HD405-6	40.0	488	Komatsu	Japan
	HD465-7	55.0	553	Komatsu	India
	HD785-7	91.0	879	Komatsu	India
	HD995	105.0	1,010	Komatsu	Japan
	830E-AC	228.0	2,360	Komatsu	Japan
Telcon	EH600	32.6	380	Cummins	India
Terex	TR35	32.0	355	Cummins	UK
	TR45	41.0	532	Cummins	UK
	TR60	55.0	659	Cummins	UK
	TR70	65.0	770	Cummins	UK
	TR100	91.0	1,005	Cummins	UK

Source: Company Information

Table 31. India: Articulated Dump Trucks Available, 2010

Manufacturer	Model	Payload (Tonnes)	Engine		Product Source
			HP	Manufacturer	
Caterpillar	725	23.6	309	Caterpillar	UK
	730	28.1	325	Caterpillar	UK
	735	32.7	406	Caterpillar	UK
	740	38.0	457	Caterpillar	UK
Doosan	MT26	24.1	310	Scania	Norway
	MT31	28.0	347	Scania	Norway
	MT36	32.7	400	Scania	Norway
	MT41	38.0	450	Scania	Norway
	MT51	46.3	510	Cummins	Norway
Komatsu	HM300-2	27.3	329	Komatsu	Japan
	HM350-2	32.3	389	Komatsu	Japan
	HM400-2	36.3	438	Komatsu	Japan
Terex	TA25	23.0	366	Cummins	UK
	TA27	25.0	335	Cummins	UK
	TA30	28.0	333	Cummins	UK
	TA35	34.0	388	DDC	UK
	TA40	38.0	437	DDC	UK
Volvo	A25D	24.0	298	Volvo	Sweden
	A30D	28.0	336	Volvo	Sweden
	A35D	32.5	389	Volvo	Sweden
	A40D	37.0	420	Volvo	Sweden

Source: Company Information

DOMESTIC MANUFACTURERS

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1 Taratolla Road
Garden Reach
Kolkata – 700 024

Tel: +91 (0) 33 2469 3732-36
Fax: +91 (0) 33 2469 3731
www.tilindia.in

Bucyrus

Bucyrus India Pvt Ltd
Mira Towers, Fourth Floor
Block DN 27, Sector V
Salt Lake City
Kolkata – 700 091

Tel: +91 (0) 33 4002 5909
Fax: +91 (0) 33 4004 0921
www.bucyrus.com

Doosan

Doosan Infracore Construction Equipment
3rd Floor, TNPL Building, No:67
Mount Road
Guindy
Chennai – 600 032

Tel: +91 (0) 44 4222 3900
Fax: +91 (0) 44 4222 3905
www.doosaninfracore.com

Komatsu

Larsen & Toubro Limited
Construction & Mining Equipment Business Unit
1st Floor, Laxminarayan Complex
10/1, Palace Road
Bangalore – 560 052

Tel: +91 (0) 80 2225 6982
Fax: +91 (0) 80 2225 0309
www.larsentoubro.com

Terex

Voltas Limited
Mining and Construction Equipment Division
Voltas House B, 3rd Floor
T.B Kadam Marg
Chinchpokli
Mumbai – 400 033

Tel: +91 (0) 22 666 5943, 6665 6666
Fax: +91 (0) 22 6665 6398
www.voltas.com

Volvo

Volvo India Private Limited
66/1 Bagmane Tech. Park
Block A, 2nd Floor, Lakeview Building
CV Raman Nagar
Bangalore – 560 093

Tel: +91 (0) 80 6691 4500
Fax: +91 (0) 80 6691 4653
www.volvoce.com