EQUIPMENT ANALYSIS: CHINA
BACKHOE LOADERS
OCTOBER 2008

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INTRODUCTION

This report examines in detail the Chinese market for backhoe loaders, or 'busy at two ends' as the machine is popularly referred to in Chinese. It is an update of the subject that was last covered in Off-Highway Research's Chinese Service in September 2006, and is based on a detailed interview programme that was conducted with the leading manufacturers and importers in the third quarter of 2008.

The product covered in this report includes both rigid and articulated types of backhoe loader. However, the machines built on a tractor chassis are not covered by the current study, although the traditional manufacturers of this type of machine that once existed in this industry are mentioned, and the pricing features of the currently available products of this type are offered.

Some notes regarding Chinese size classifications might be useful to readers unfamiliar with the domestic industry. A high percentage of backhoe loaders produced by the domestic manufacturers all have the same model designations, with two letters, 'WZ', which refer to the digging and loading functions, followed by two numbers; the first of these indicates the backhoe bucket capacity while the second specifies the minimum rated lifting force of the front loader. For example, the WZ30-25 model refers to a backhoe loader with a backhoe bucket of 0.3 m^3, and a lifting force of over 25kN.

SUMMARY

In comparison with the predominant types of construction equipment, such as wheeled loaders, mini excavators and hydraulic excavators, backhoe loaders constitute a very small market. However in 2007, in spite of the product's relative historical unpopularity, demand doubled to 590 units, the highest volume on record. There were two drivers behind this substantial growth: the road and highway sector increased their purchases for maintenance purposes, and more importantly, all of the major suppliers have intensified their marketing activities in this niche market.

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

Number of Suppliers	17
Number of Domestic Manufacturers	11
Market Leader	
– Rigid	JCB
– Articulated	XCMG
Production (Units)	956
Sales (Units)	
– Rigid	286
– Articulated	304
Importers' Penetration (%)	20
Population (Units)	2,350
Sales Forecast 2012 (Units)	1,850

Source: Off-Highway Research

There are currently 17 suppliers, including 11 domestic manufacturers. Although the number of manufacturers appear to be fewer than three years ago, the industry has seen a rise in the performance of the major manufacturers, while the smaller suppliers have either shown less interest in the product or have left the sector altogether. The current market is almost equally split between the articulated type that was developed on a wheeled loader chassis, and the more advanced rigid type; however, there are signs that market preference is moving towards the latter. As public institutions constitute the main customer sector, the market is not as price sensitive as it is in wheeled loaders and hydraulic excavators, both of which are dominated by private buyers.

The market leader of the rigid type of machine is **JCB**, which has recently established a manufacturing operation in Shanghai; **XCMG** is the market leader of the articulated type, but it has also broadened its range to include rigid models. **Case** remains an important force on the market, while **Lingong** has expanded very rapidly with its low-spec articulated machines. It is notable that major Chinese wheeled loader manufacturers such as **Changlin**, **Xiagong** and **Liugong** have all been penetrating the market recently, and there are still others that are developing products and will probably make market entries in the next 12 months. Other international suppliers such as **Volvo** and **Caterpillar** have been actively promoting the backhoe loader concept through their distributors, and their combined marketing efforts have resulted in an expansion of the market as a whole.

The forecast is optimistic. The size of the domestic market is expected to grow to the region of 1,500-2,000 units a year in the next five years, while exports are now becoming increasingly important to the local manufacturers. However, given the overwhelming presence of mini

excavators and compact loaders in the market, future demand for backhoe loaders will always remain a very small percentage of the total compact equipment market.

ECONOMIC TRENDS

Table 2. China: Key Economic Indicators, 2003-2007

(Annual % Change)

	2003	2004	2005	2006	2007
Real GDP Growth	10.0	10.1	10.4	11.6*	11.9*
Industrial Output	12.8	11.5	11.6	12.9	13.5
Construction Output	12.1	8.1	12.6	13.7	12.6
Gross Fixed Investment	27.7	26.6	26.0	23.9	24.8
Exports	34.6	35.4	28.4	27.2	25.7
Imports	39.9	36.0	17.6	20.0	20.8
Consumer Price Index	1.2	3.9	1.8	1.5	4.8

* Latest updates

Source: National Bureau of Statistics (NBS)

Although at the beginning of 2007 most economists forecast a slowdown in GDP growth rates, in the event it accelerated to 11.9 per cent, the fastest rate of growth since 1995. This extraordinarily high rate of growth has once again put the Chinese economy in danger of overheating, as reflected by the significant escalation of the Consumer Price Index (CPI). Industrial output remained the most important contributor to GDP growth, recording an increase of 13.5 per cent while construction output remained very high. The expansion of domestic consumption saw acceleration in investment growth, and accounted for the greatest portion of economic growth among the three major driving factors of consumption, investment and exports.

Fixed investment grew by 24.8 per cent and amounted to RMB13,723.9 billion, or 55.6 per cent of total GDP. This has been accompanied by resumption of major new projects, from a negative growth rate at the beginning of the year to 28.7 per cent increase for the 12 months ending December 2007.

Foreign trade, which continued its huge growth, was characterised by a slowdown in export growth but greater imports. The strengthening of the RMB/USD exchange rate might have contributed to this slow down, although it is believed that the government's efforts to restrict export growth, coupled with increased costs of production, played more important roles.

The rapid growth of the economy has led to a significant increase in the CPI, an unwelcome feature of the economy that is continuing in the first quarter of 2008, particularly in food prices. It has now become the top priority of the government to control inflation and maintain economic stability.

In the light of the downturn in export growth due to the slowdown of the global economy, and the concern about possible inflation, for which the central government in December 2007 announced the need to tighten money supply, economic growth is expected to have peaked in 2007 and there should be a reduced growth rate in 2008. In fact, growth appeared to have already slowed down in the fourth quarter of 2007. Economists forecast that the GDP growth rate may fall to around 10 per cent in 2008, while the CPI would continue to be in the region of four to six per cent. Policy makers are now faced with a dilemma: although a policy of fiscal tightening is necessary for controlling the risk of inflation and preventing the economy from overheating (if it is not already), the government does not want to see the economy stagnate due to excessive controls. With the huge production capacity that has built up over the recent years, any drop in demand would be an economic disaster. As a result, the current policy is to attempt to regulate the structure of the economy without putting a brake on growth.

CONSTRUCTION AND MINING ACTIVITIES

In 2007, the second year of the current 11th Five Year Plan, construction and mining activity continued at a very high level, as reflected by the resumption in growth of total fixed investment. Although the central government has expressed serious concern about the overheating of the economy as a whole, the plans for construction expenditure at various administrative levels appear to be even more ambitious than before. In fact, the total investment in new projects launched in the 12 months ending December 2007 was 28.7 per cent higher than the same period in 2006, and has continued to accelerate since the fourth quarter of 2007. The increased demands from industry and construction, along with the continually growing aspirations of the people, have pushed the output of mining and quarrying to unprecedented levels.

Roads

Road investment has continued to grow and has reached the highest level on record. However, as most major projects have relied heavily on bank loans, and many highway projects have seen low financial returns after being opened as toll roads, the banks have become cautious in financing road projects. The road sector has therefore intentionally limited investment growth in a bid to reduce the future risk of bad debts. After continued growth over the last decade, road

investment now appears to have stabilised at a level with which the sector can cope, given its existing resources.

Table 3. China: Investment in Road Construction, 2003-2007

	2003	2004	2005	2006	2007
RMB Bns	371	470	548	623	645
% Growth	+16	+27	+17	+14	+4

Source: Ministry of Communications

Nevertheless, motivated by the policy to support the rural economy, investment in rural road improvement continued to grow by 15 per cent to RMB184 billion in 2007, and central government added further financial aid with revenues from the automobile purchase tax.

Table 4. China: Road System Development, 2003-2007

('000 Kilometres)

	2003	2004	2005	2006*	2007
Total Length	1,810	1,871	1,930	3,457	3,584
– Expressways	30	34	41	45	54

* In 2006 the length of village roads, totalling 1,532,000 kilometres, was included in the statistics for the first time.

Source: Ministry of Communications

In 2007 the nation's road network was extended by 126,700 kilometres and reached 3,583,700 kilometres. The expressway network was extended by 8,600 kilometres, and its total length had reached 53,900 kilometres by the end of the year. The main spines of the National Trunk Highway System, which totals about 35,000 kilometres, have now been completed, and a number of major bridges were finished during the course of the year. In the countryside, with the support of government financing, 423,000 kilometres of rural roads were either built or upgraded, a 63 per cent growth over the length completed in 2006.

In the next few years, the construction of main highways will continue at a similar rate, with the new plans for the National Expressway Network being implemented. Road development in remote areas is now a central government priority, while in developed areas local governments are continuing to increase the road network with their own financial resources. Rural road improvement will continue to receive financial aid from central government. In addition, with increasing concerns about safety, around 6,000 suspect bridges across the country will be

upgraded in the next three years. Therefore, road construction is anticipated to remain a very strong sector, and with the increase in road length and the need to upgrade the existing network, demand for road machinery will remain at very high levels.

Real Estate Development and Urban Construction

Table 5. China: Real Estate Development, 2003-2007

	2003	2004	2005	2006	2007
RMB Bns	1,010.6	1,315.8	1,591.3	1,938.2	2,528.0
% Change	+30	+28	+21	+22	+30

Source: National Bureau of Statistics

Real estate development, which has become a focus of economic regulation, registered a high rate of growth in 2007, and accounted for 18 per cent of total gross fixed investment. Housing projects made up over 70 per cent of total investment in real estate development. Due to concern about surging house prices and the excessive acquisition of farmland, priority is to be given to the supply of affordable housing projects to meet the needs of those on low incomes, while luxury developments are to be strictly controlled. Given the consistent trend of urbanisation, real estate development is expected to grow gradually over the mid to long term, for this also constitutes an important part of the policy for increasing domestic consumption.

Table 6. China: Key Statistics of Urban Utilities, 2003-2007

	Developed Area (Km^2)	Length of Urban Roads ('000 Kms)	Area of Urban Roads (Mn m^2)	Length of Gas Pipelines ('000 Kms)	Length of Sewer Pipelines ('000 Kms)
2003	28,308	208	3,156	130	199
2004	30,406	223	3,530	148	219
2005	32,520	247	3,922	162	241
2006	33,660	241*	4,114*	189	261
2007	35,000	246	4,240	na	292

* There was a change in the road statistical accounting in 2006.

Source: National Bureau of Statistics

The boom in real estate has been accompanied by the construction of urban infrastructure, including roads, bridges, water supply, sewage systems, telecom conduits and energy pipelines, as well the underground railways that are being developed in the central cities. Developed urban area expanded by 50 per cent from 2000 to 2006. With the strong trend towards urbanisation and the pursuit of better living conditions, there will be an increasing emphasis on the development

of urban utilities in future. The unprecedented heavy snows that occurred in the southern provinces at the beginning of 2008 highlighted the need for improvement in the quality and disaster handling capabilities of these urban infrastructures.

MARKET SIZE AND TRENDS

Table 7. China: Sales of Backhoe Loaders, 2003-2007

	Units	% Change
2003	347	88
2004	364	5
2005	352	(3)
2006	295	(16)
2007	590	100

Source: Off-Highway Research

Before 2003 demand for backhoe loaders was very small. After doubling in 2003, the market ceased growing but at least remained steady at around 300 to 360 units per year until 2006. However, in 2007 demand doubled again to a historic high of 590 units. This is still a niche market and much smaller than that of the mini excavator, but the very positive recent outcome has been the result of the strong combined promotional efforts to promote the concept by all suppliers. The increasing number of major manufacturers offering this product is thought an important reason for the substantial growth experienced in 2007, and should prove to be the catalyst for future growth.

Applications in road and highway maintenance are the main driver of demand. While the implementation of new projects has been slowing down, as indicated by the moderate growth of road investment, the network of roads is now very large indeed following substantial investments over the past 10 years. The older roads and highways are now beginning to require greater maintenance, and as a result road authorities have been increasing their machine fleets. A backhoe loader is considered as offering great flexibility, in terms of its manoeuvring ability on the roads, and its multiple functions are much appreciated by the road authorities. Therefore there have been a growing number of tender projects that call for the provision of the unique functions offered by the backhoe loader.

In addition, the traditional applications of utility works, such as cabling, tree planting and oilfield development have remained important to growth of this market sector, and those machines bought earlier have now seen very diversified applications on different jobs. When an operator

has acquired the skills required to maximise the range of applications offered by a backhoe loader, he automatically looks for more jobs. He seeks to capitalise on the investment in his machine that might have appeared to offer very limited applications at the time of purchase. This process of education has greatly helped the popularisation of the concept.

In comparison with a crawler mini excavator, a backhoe loader offers better manoeuvrability either in a built up area or on rough terrain. With the escalation of fuel prices, its roadability saves the cost of a truck transporting it between job sites, while its ability to access difficult terrain has proved to be very effective in recent disaster rescue operations.

However, the main buying force still lies in the public sector, while the large number of private buyers still regard the mini excavator as being a much more profitable tool than the backhoe loader. The total market for backhoe loaders has been very small compared with that of the mini excavator, where demand has quadrupled in recent years to more than 17,000 units a year. Most of the private operators find jobs in major civil works, and they are trained in the operation of an excavator or a wheeled loader; as a result they are more interested in the machine's working capacity rather than its multiple functionality. Indeed, the general opinion about the backhoe loader is that it is not as powerful as either a mini excavator or a wheeled loader, partly because most operators still do not know how to operate a backhoe loader sufficiently well to tap its full capabilities. From a different viewpoint, an experienced backhoe loader operator can command a wage premium of 30 per cent over an operator of a wheeled loader or excavator, something that must be taken into account when the purchase of a backhoe loader is being considered.

The average price of a backhoe loader is now roughly equivalent to that of a high specification 220 horsepower wheeled loader, or a 5.5 tonne mini excavator, in the case of the articulated type, or 30 to 50 per cent higher in the case of a rigid machine. With more suppliers now marketing backhoe loaders, the competition is increasing, and to lower the price certainly helps develop sales. However, as it is the public sector that dominates the buying, this market is by no means price sensitive and merely to lower prices may not result in correspondingly larger volumes of sales.

Developments by Type and Horsepower Category

The backhoe loader market has always featured a mixture of the rigid and articulated types. All the international suppliers offer the rigid type, while Chinese manufacturers have traditionally supplied the articulated type, which is cheaper but not as stable, particularly when using the

digging function. On the other hand, many domestic OEMs have recently developed their range of rigid machines, and most of these are exported.

Table 8. China: Sales of Backhoe Loaders by Type, 2003-2007

	2003		2004		2005		2006		2007	
Type	**Units**	**%**	**Units**	**%**	**Units**	**%**	**Units**	**%**	**Units**	**%**
Rigid	169	49	172	47	161	46	141	48	286	49
Articulated	178	51	192	53	191	54	154	52	304	51
Total	**347**	**100**	**364**	**100**	**352**	**100**	**295**	**100**	**590**	**100**

Source: Off-Highway Research

The ratio between rigid and articulated machines has been relatively steady, with the articulated type taking a slight advantage over the rigid. No matter whether it is from an international or domestic supplier, a rigid machine is priced at a minimum of RMB350,000, while an articulated machine is in the region of RMB250,000. Such a price difference does not really affect sales of rigid machines, for with an increasing number of suppliers offering them they seem to be attracting an increasing preference over the articulated type.

Table 9. China: Sales of Backhoe Loaders by Horsepower Category, 2003-2007

	2003		2004		2005		2006		2007	
Horsepower	**Units**	**%**	**Units**	**%**	**Units**	**%**	**Units**	**%**	**Units**	**%**
50-59	25	7	2	1	-	-	-	-	-	-
60-79	151	44	136	37	150	43	104	35	156	26
Over 79	171	49	226	62	202	57	191	65	434	74
Total	**347**	**100**	**364**	**100**	**352**	**100**	**295**	**100**	**590**	**100**

Source: Off-Highway Research

Recently the market has shown a marked preference towards more powerful machines. The **under 60 horsepower** products that are built on tractor chassis have now been completely abandoned by the construction equipment manufacturers. Although suppliers of agricultural machinery have continued to offer the so-called 'economic' products, which are priced in the region of RMB70,000-120,000 per unit, these machines are of little interest to the buyers of standard backhoe loaders, and so are not included in the statistics above.

The **60-70 horsepower** machines, featuring articulated bodies, have played a declining role in the market. Their sales have remained steady at a level of around 150 units a year, but their percentage of the total market has fallen from 44 per cent to under 30 per cent. In fact, although

Chinese manufacturers have continued their production of articulated backhoe loaders, most of them have increased power to the region of 80-90 horsepower, so that they can meet the demand for better performance.

The **over 79 horsepower** products, mostly falling in the range of 80-100 horsepower, have steadily increased their percentage of total sales. This sector is made up of both rigid and articulated machines, and is shared evenly between the international suppliers and domestic manufacturers. Of the 431 units sold in 2007, 53 per cent were in the range below 90 horsepower, and with the increasing demands of road maintenance and utility works, the 80-100 horsepower machines are now very much at the heart of the market.

Regional Sales

Table 10. China: Sales of Backhoe Loaders by Region, 2007

Region		Units	%
East	Anhui, Jiangsu, Shandong, Shanghai, Zhejiang	190	32
Northeast	Heilongjiang, Jilin, Liaoning	170	29
North	Beijing, Hebei, Inner Mongolia, Shanxi, Tianjin	90	15
Central	Henan, Hubei, Hunan	60	10
South	Guangdong, Guangxi, Hainan	30	5
Southwest	Chongqing, Guizhou, Sichuan, Tibet, Yunnan	20	3
Northwest	Gansu, Ningxia, Qinghai, Shaanxi, Xinjiang	20	3
Southeast	Fujian, Jiangxi	10	2
Total		**590**	**100**

Source: Off-Highway Research

As indicated by the regional sales results of the various suppliers in 2007, the most important market areas were the eastern and northeast provinces, while the northern and central regions have both experienced an increase in demand.

The regional pattern of sales reflects the applications of backhoe loaders in the various provinces. In the eastern and northern provinces demand has largely been from the road and utility works, and in the northeast provinces there are also steady demands from oilfield development. Central provinces such as Hubei have increased the buying of backhoe loaders for road maintenance. Xinjiang is a potential market as reflected by the good sales in previous years, although it was rather quiet in 2007. The level of regional sales also depend on the level of promotion the distributors might have carried out in specific areas, with the eastern provinces seemingly being very well educated in the product and its potential applications.

PRODUCTION

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

	2003		2004		2005		2006		2007	
	Units	%	Units	%	Units	%	Units	%	Units	%
XCMG	35	11	75	25	65	26	70	27	300	31
Changlin	14	4	26	9	19	8	30	12	150	16
JCB	-	-	-	-	-	-	-	-	119	12
Foton Lovol	-	-	-	-	1	-	2	1	112	12
Lingong	2	1	5	2	15	6	17	7	100	10
Xiagong	-	-	-	-	1	-	5	2	100	10
Yangong	50	16	35	12	50	20	60	23	40	4
Liugong	-	-	2	1	-	-	-	-	20	2
Chaogong	65	21	60	20	55	22	40	16	10	1
SEM/Weimeng	82	26	80	26	39	16	28	11	5	1
Others*	66	21	19	6	6	2	6	2	-	-
Total	**314**	**100**	**302**	**100**	**251**	**100**	**258**	**100**	**956**	**100**

* Xin Bei Jian, SBM, Auswillow, and Degong.

Source: Off-Highway Research

Table 12. China: Production of Backhoe Loaders by Manufacturer and Horsepower, 2007

	60-79 Hp		Over 79 Hp		Total	
	Units	%	Units	%	Units	%
XCMG	-	-	300	37	300	31
Changlin	-	-	150	18	150	16
JCB	-	-	119	15	119	12
Foton Lovol	-	-	112	14	112	12
Lingong	100	71	-	-	100	10
Xiagong	-	-	100	12	100	10
Yangong	40	29	-	-	40	4
Liugong	-	-	20	2	20	2
Chaogong	-	-	10	1	10	1
SEM/Weimeng	-	-	5	1	5	1
Total	**140**	**100**	**816**	**100**	**956**	**100**

Source: Off-Highway Research

A number of manufacturers have entered the sector in the recent past. There are now 10 that are actively engaged on a full time basis. In addition, there are other major manufacturers of earthmoving equipment, such as Chenggong and Shantui that have included backhoe loaders in their portfolio of product development, but have yet to commit themselves to the sector in a wholehearted way. Meanwhile some other manufacturers, such as Xin Bei Jian, Shantui Building Machinery and Auswillow, have left the sector, while others such as Degong and Yuchai, have suspended production for the time being.

Total production amounted to 956 units in 2007, more than treble the level the previous year, and levels have been stimulated by growth in both the domestic and export markets. XCMG leads the industry with its articulated backhoe loaders, JCB's Shanghai factory is now a major force in the sector, while Chinese manufacturers such as Foton Lovol and Xiagong have come from nowhere in the last two years to achieve a significant presence in the industry. Due to the growth of JCB and the export incentives available to Chinese manufacturers, the production structure of the industry has featured a rise in the rigid type, which accounted for around 10 per cent three years ago but rose to 53 per cent in 2007; an estimated 85 per cent of production now falls into the range of 80-100 horsepower.

XCMG Compact was founded in August 2002 and in line with the strategy of XCMG to develop a compact equipment operation, has since then focused on the manufacture of compact loaders and backhoe loaders. It has also extended its range to include skid-steer loaders and telescopic handlers. It used to have a mini excavator model, but this has now been transferred to the newly established Excavator Machinery Company of XCMG. It is now a leading domestic manufacturer of backhoe loaders, achieving success in both its domestic and export markets.

Its traditional design features an articulated body and in this type it now focuses on the model WZ30-25, having recently stopped producing the smaller WZ20-18 model. The XT860 model is a cheaper version of the articulated machine, and is now targeted at the Indian market where the leading suppliers offer prices considerably cheaper than those of Chinese manufacturers. In addition, in 2006 it developed the rigid XT870 model utilising imported key components and offering a centre post backhoe; most recently it has launched a side-shift version of this machine, the XT876. Therefore, its strategy is offer a full range of machines to capitalise on all types of demand. This strategy has resulted in substantial growth in output, reaching 300 units in 2007 of which 180 units were exported.

Production takes place in a factory that is located in the west of Xuzhou City, and is integrated with other types of compact equipment. This factory was expanded on the same site in 2005 and the production capacity was raised to 2,400 units a year. But a new factory for this company has been planned in Jinshanqiao Development Zone, located in the eastern outskirts of Xuzhou, and this will have an area of 175,000 m^2. The move is scheduled to take place in October 2009, so that the compact equipment operation will join the other XCMG companies on a single site with a production capacity of 10,000 units a year. In addition, XCMG Compact has been put into the portfolio of the restructuring plan of the Group, and will become a part of the listed company on the Shenzhen Stock Exchange.

Changlin launched in 2002 a rigid model, the WZ30-25 that is based heavily on Case's styling, and was the first Chinese manufacturer to focus on the rigid type. Now the machine has been upgraded to 95-101 horsepower, of which there are two main versions: the WZ30-25 with a Cummins engine, principally for export, and the WZ30-25C with a Weichai engine for the domestic market. Changlin's backhoe loaders feature centre post, and are also offered through a side shift model, the WZC20 that has yet to see much success.

Production takes place in its Special-Purpose Vehicle Division that is located separately from the main factory of Changlin. This division focuses on the new product lines of the manufacturer and the capacity for backhoe loaders is in the region of 500 units a year. In recent years, Changlin has significantly improved the reliability of its backhoe loaders by utilising internationally sourced key components, and a thorough re-engineering of the product. Thus it has seen steady growth in output, although the volume of 150 units in 2007, with 80 units being exported, is still modest. As a part of its strategic development, Changlin regards backhoe loaders as its fourth most important product after wheeled loaders, compaction equipment and motor graders, and gives equal priority to local and overseas markets.

JCB opened its factory in Pudong, Shanghai in 2006, the first of its kind for an international backhoe loader manufacturer. The plant is located on a prime 16.2 hectare site and consists of a covered area of 25,000 m^2. Over the last two years the factory has seen steady expansion and now has 100 employees. It currently produces backhoe loaders and mini excavators, but additional products are being planned.

Backhoe loader production consists of the 3CX model, which is available in two and four wheel drive. Output was 130 units in 2007, and is scheduled to grow to about 200 units in 2008. The localised production features the import of key components through the global sourcing system of JCB, and the sourcing of low-technology fabrications from local suppliers.

JCB has a well known name in the backhoe loader sector, and its localised production allows it to keep the selling price down to about RMB450,000, a level that allows it be competitive with domestic manufacturers. However, it is still unknown as to what extent local demand for backhoe loaders can be stimulated by lower prices, but it is evident that the current modest volumes need to be improved upon. As a result there is every likelihood that additional products will be added to the factory, but the promotion of the backhoe loader will continue as a priority.

Foton Lovol is a leading domestic manufacturer of agricultural machinery, and entered the construction equipment industry in 2004. Since then it has prioritised the production of wheeled

loaders and has done well in that sector, but has struggled to achieve much success in other product lines. Backhoe loaders were introduced in 2006 with two models: the FL468 featuring a centre post backhoe, and the FL468A with a side shift. After market trials, it has since been decided to focus on the side shift design.

As a new face in the industry, Foton has not been able to integrate this product into its existing domestic dealer network, and therefore its production relies wholly on its success in export markets. In spite of its poor performance in its domestic market, it still managed to achieve respectable production levels of over 100 units in 2007, its first full year of operation. To differentiate itself from other Chinese suppliers, it sources all key components from international sources, except that its engines come from Tianjin Lovol, formerly Tianjin Perkins. As a result, its products are priced more expensively that its Chinese rivals, and this will do little to expand its growth in the domestic market.

Lingong is a major manufacturer of wheeled loaders, now 70 per cent owned by Volvo Construction Equipment. The production of backhoe loaders began in 2003, with an articulated model similar to that of Yangong, a traditional supplier of backhoe loaders in the same province. In the last two years, it has made strong progress and has won considerable market share from Yangong, thanks to its extensive domestic distribution network and its focus on exports. Production peaked at 100 units in 2007, and the backhoe loader operation continues for the time being as part of the wheeled loader division.

It offers different engines, including those from Yuchai, Yituo and Weichai; however, the 79 horsepower model is thought to have lost some ground, as a result of the inroads made by the larger models developed by other local manufacturers.

Xiagong is another major wheeled loader manufacturer that has recently entered the backhoe loader industry. Its first products were developed in 2005, and are now produced by the subsidiary **Xiagong Compact Machinery Co. Ltd** in the huge manufacturing facilities of Xiagong. The company has prioritised the development of compact equipment to reduce its reliance on the traditional wheeled loaders. The production of backhoe loaders, which are equipped with Cummins engines and feature a rigid body design, has mostly focused on exports, and the 100 units that were produced in 2007 is thought to represent a good start in the sector.

Yantai Engineering Machinery, or **Yangong** as an abbreviation of its Chinese name, began to produce backhoe loaders in 1985 with a model based on the chassis of a compact loader, and is one of the original domestic manufacturers. In 1999 it introduced a larger model which is

powered by Chaoyang diesel engine, and there are two versions: a smaller 68 horsepower model aimed at the domestic market and a larger 75 horsepower model for export. The company used to be a member of the Shandong Construction Machinery Group, but as a result of severe financial losses, it was privatised in 2003 and is now controlled by Yantai Fuye, a local gear manufacturer.

Yangong was one of the earliest domestic suppliers of backhoe loaders, and its machine features an articulated chassis and centre-post backhoe. Since it was privatised it has continued to promote its traditional product, but few engineering improvements have been made, except for a recent plan to improve the hydraulic drive of the arm. Production takes place at a site of eight hectares that has a covered area of 30,000 m^2. In 2007 the company produced a total of 36 backhoe loaders and 420 wheeled loaders, and during the year launched two midi excavators, at 6.9 and 8.2 tonnes.

Liugong, the largest wheeled loader manufacturer in China, was once in co-operation with Case for production of backhoe loaders, an agreement that was terminated in 1999. It launched its own backhoe loaders in 2004, when Jiangsu Liugong was opened in Zhenjiang, a factory that specialises in the production of compact equipment. After two years of development, full production commenced in 2007 and in that year output was 20 units. Although it might appear that Liugong had slipped behind the progress of other Chinese manufacturers, Liugong has in the meantime been working hard on its component sourcing, manufacturing technology and distribution, and is now well prepared for a period of substantial growth. There should be little doubt that Liugong intends to be a major participant in this sector.

Liugong now offers two models: the CLG766 with a centre post, and the CLG777 with a side shift backhoe, both of which are offered with options of Weichai, Cummins or Perkins engines, to suit different markets. In view of the small size of the domestic market, exports have been made a priority. As a result the machines are designed to international standards, and use key components from international sources. Production takes place in Jiangsu Liugong in Zhenjiang. The current covered area of the factory is 22,000m^2, but this will be doubled with the completion of the factory expansion that is due to be completed by the end of 2008. The annual production capacity for backhoe loaders is 300 units, but this will be substantially improved when the new workshop is put into production.

Chaogong has been a traditional leading domestic producer of backhoe loaders. The company was privatised in 2002 but continued its strategy to focus on compact equipment. At the end of 2007, it was moved to a new 120,000 m^2 factory in the Longcheng Industrial Park in the west of

Chaoyang City. Here it produces in a 24,000m^2 manufacturing facility, which has an annual capacity of 3,000 units.

The production of the old WZ25-20 model was phased out in 2007, and it now focuses on the larger WZ30-25 model that has been under development since 2005. The new model remains an articulated type, but offers greater working capacity. Production was only 10 units in 2007 as it was keen to run down stock, and as a result has been heavily reliant on its wheeled loader operations. However, it has been actively developing its traditional backhoe loader range, and is assessing the possibilities of launching a rigid model. In addition, the company is seeking co-operation with other manufacturers, in a bid to improve both its product engineering and distribution network.

SEM, a wheeled loader manufacturer that is now wholly owned by Caterpillar, first launched an articulated backhoe loader in 2001, and this was followed by a rigid model based on a John Deere design but which was never put into full production. Early production took place in the factory of **Weimeng Engineering Machinery**, an operation that acted as a company subsidiary. When Caterpillar fully acquired SEM, Weimeng became independent in April 2008 and now continues to produce backhoe loaders, while SEM has withdrawn from the sector altogether.

Production has focused on the articulated model that features side shift and hydraulic drive. The original model was called the SEM3025, but was changed to the more traditional WZ30-25 once Weimeng became independent from SEM. While the machine was originally equipped with Yituo diesel engines, the current model had been using a more powerful Weichai engine for the last two years.

Output amounted to 30 units in 2007, with 20 units being exported. To promote domestic sales, Weimeng had originally intended to launch another version featuring power shift transmission in 2008, thus adapting popular technology from the wheeled loader sector. However, the current priorities of this privately owned manufacturer are wheeled loaders and industrial forklift trucks, and it is these products that will receive priority in the allocation of production priorities.

COMPONENT SOURCING

The component sourcing policies for backhoe loaders show a clear difference between the traditional articulated type and the more advanced rigid type. Articulated machines almost completely rely on domestic sources for such key components as engines, axles, transmissions and hydraulic parts, while rigid machines are invariably made up of components from

international sources. However, in both cases, the low-technology fabrications are made either in house or sourced locally.

Table 13. China: Component Sourcing for Backhoe Loaders, 2008

Articulated Machines

	Chaogong	SEM	XCMG Compact	Yangong
Engines	Yituo	Weichai	Yuchai	Chaochai
Axles	Feicheng	Feicheng	In-house	Feicheng
Transmissions	Hangzhou Gear	Qingzhou	Shantui	In-house, Dalian
Pumps and Valves	Jining Eaton	Jinan, Qingzhou	Qingzhou, Linhai	Xuzhou Keyuan
Cylinders	Changjiang Hydraulic	Changjiang Hydraulic	Zhangjiakou	Parker
Undercarriages	In-house	In-house	In-house	In-house
Buckets	In-house	In-house	In-house	In-house
Seats	Local	Tiancheng	Local	Tiancheng
Tires	Henan	Weihai, Henan	Local	Local source
Cabs	In-house	In-house	In-house	Xuzhou Metal Fabrication
Booms and Arms	In-house	In-house	In-house	In-house
Steelwork	In-house	In-house	In-house	In-house

Rigid Machines

	Changlin	Foton Lovol	JCB (Shanghai)	Liugong
Engines	Cummins, Weichai	Tianjin Lovol	JCB	Weichai, Perkins, Cummins
Axles	Carraro	Carraro	JCB	Carraro
Transmissions	Carraro	Carraro	JCB	Carraro
Pumps and Valves	Parker	Permco	Parker, Husco	Permco, Husco
Cylinders	Hyundai	Wuxi Hengli	JCB	Wuxi Hengli
Undercarriages	In-house	In-house	In-house	In-house
Buckets	In-house	In-house	Local source	In-house
Seats	Tiancheng, Grammer	Tiancheng	JCB source	Tiancheng
Tires	Local	Guizhou, Tianjin	JCB source	Guizhou, Tianjin
Cabs	In-house	Local source	JCB	In-house
Booms and Arms	In-house	In-house	Local source	In-house
Steelwork	In-house	In-house	Local source	In-house

Source: Off-Highway Research

Weichai's 226B engine, which is licensed from Deutz, is most popular among the domestic manufacturers, and it chosen for those rigid machines that are to be used in the domestic market. Engines from Cummins or **Perkins**, on the other hand, are used for those products that are destined for export.

Carraro, although it has a factory in Qingdao, tends to supply axles and transmissions for this sector from its plant in Italy. The main domestic suppliers of axles and transmissions are **Feicheng**, and a number of other companies that are mostly based in Shandong.

Parker and **Husco** are important suppliers of hydraulic parts, and both have manufacturing operations in China. **Cylinders** are mostly sourced from domestic suppliers.

It is notable that **JCB (Shanghai)**, the only localised international manufacturer, relies on its parent company's international sourcing system for key parts, while it has been busy localising the sourcing of steel fabrications from domestic suppliers.

FOREIGN TRADE

Table 14. China: Exports of Backhoe Loaders by Manufacturers, 2003-2007

(Units)

	2003	2004	2005	2006	2007
XCMG Compact	-	-	24	30	180
Foton Lovol	-	-	-	-	112
Changlin	1	12	-	5	80
Xiagong	-	-	-	-	50
SEM	10	-	-	5	20
JCB	-	-	-	-	20
Yangong	-	-	10	2	18
Liugong	-	-	-	-	16
Others*	-	1	8	3	14
Total	**11**	**13**	**42**	**45**	**510**
% of Domestic Production	**4**	**4**	**17**	**17**	**53**

* Lingong, Chaogong and others.

Source: Off-Highway Research

Exports have been the main, and in certain cases the most important, driver behind the growth in Chinese production, for the domestic market itself has still proved to be reluctant to fully accept the concept of the backhoe loader. When the major Chinese manufacturers decided to broaden their product lines to include backhoe loaders, they placed the greatest priority on exports, and paid scant attention to their domestic potential. This has resulted in an even faster growth in exports than in domestic sales in 2007. In fact, there was already a sign of export growth in 2006, as part of output in 2006 was exported in 2007.

Exports tend to be deliveries to Chinese contractors working on overseas projects, or delivered to the overseas dealers of the Chinese manufacturers. The main destinations have been the Middle East, Central Asia, Russia and Africa. India is thought to be a promising market but there the Chinese exporters are faced with the strong domination of international suppliers and a wariness of Chinese products by end-users.

45 per cent of exports were made up of the articulated type in 2007 and the balance by rigid machines. What is very evident, though, is that Chinese manufacturers are actively developing the more advanced rigid type, in a bid to meet their potential in international markets.

Imports used to dominate the domestic market, but now with the localised production of JCB, import penetration was reduced to 20 per cent of total domestic sales in 2007, with the principal source of origin being the United States. However, this does not necessarily imply that local producers are able to compete with a lower marketing price; at least for the time being, the modest volumes of domestic production can hardly help local manufacturers reduce their sourcing costs, especially if they intend to manufacture products to international standards. On the other hand, international manufacturers can still take advantage of their economies of scale through their large production volumes worldwide.

The import tax on backhoe loaders is the same as that of hydraulic excavators, which is eight per cent (MFN).

MARKET SHARES

Table 15. China: Suppliers of Backhoe Loaders and Their Market Shares, 2003-2007

	2003		2004		2005		2006		2007	
Manufacturer	**Units**	**%**	**Units**	**%**	**Units**	**%**	**Units**	**%**	**Units**	**%**
JCB	28	8	23	6	35	10	60	20	110	19
XCMG	28	8	55	15	33	9	40	14	110	19
Case	92	27	119	33	104	30	60	20	92	16
Lingong	-	-	-	-	2	1	12	4	90	15
Changlin	5	1	12	3	12	3	25	8	60	10
Chaogong	60	17	46	13	35	10	35	12	37	6
Yangong	28	8	20	5	44	13	42	14	36	6
Xiagong	-	-	-	-	-	-	2	1	20	3
SEM/Weimeng	51	15	57	16	39	11	7	2	10	2
Others*	55	16	32	9	48	14	12	4	25	4
Total	**347**	**100**	**364**	**100**	**352**	**100**	**295**	**100**	**590**	**100**

* Volvo, Caterpillar, Liugong, New Holland, Terex, Xin Bei Jian, SBM, Degong, Auswillow

Source: Off-Highway Research

The market was led in 2007 by JCB and Case, two international suppliers that manufacture rigid frame machines, and XCMG and Lingong, two Chinese manufacturers offering the articulated type. Together these four companies control nearly 70 per cent of the market, and as indicated by their market shares, domestic sales are equally divided between the articulated and the rigid

types. However, with the rise of most Chinese manufacturers developing rigid designs, together with increased penetration by other importers, there are signs that the rigid machine is becoming the preferred option.

Table 16. China: Sales of Backhoe Loaders by Manufacturer and Horsepower Category, 2007

	60-79 Hp		Over 79 Hp		Total	
Manufacturer	**Units**	**%**	**Units**	**%**	**Units**	**%**
JCB	-	-	110	26	110	19
XCMG	-	-	110	26	110	19
Case	-	-	92	21	92	16
Lingong	90	58	-	-	90	15
Changlin	-	-	60	14	60	10
Chaogong	30	19	7	2	37	6
Yangong	36	23	-	-	36	6
Xiagong	-	-	20	5	20	3
SEM/Weimeng	-	-	10	2	10	2
Others*	-	-	25	6	25	4
Total	**156**	**100**	**431**	**100**	**590**	**100**

* Volvo, Caterpillar, Liugong, New Holland

Source: Off-Highway Research

JCB made a good start after launching production in Shanghai in 2006, taking market leadership with a 19 per cent share in 2007. Its localised production helps in it being able to offer international quality at a more affordable price than importers, and it has made substantial efforts in developing its distribution and educating the market into the advantages of the backhoe loader. However, the company realises that this achievement understates its potential, and further investment will be needed to expand the still very small Chinese market.

XCMG, after many years effort in developing this sector, has achieved steady growth in this niche market, and is the only manufacturer that offers both articulated and rigid types. Although the traditional articulated machines still dominate its current sales, it has an important strategy to meet the demands of different customers and keep up with the changes in market preferences. One point in its favour is its extensive distribution network, which supports its ability to offer a range of products to a wide audience.

Case has always enjoyed a strong position in this market, and for the last five years has regularly achieved annual sales of around 100 units. However, with the increased penetration of other importers and in particular the recent localised production of JCB, it has suffered a fall in market

share. Its 580M model has won solid confidence among buyers in the road and utility sectors, and cannot be ignored by any customers when they select a rigid backhoe loader.

Lingong focuses on the articulated design that was adopted from other Chinese manufacturers. It first penetrated this market with a very competitive pricing policy, and finally achieved substantial growth in 2007. It has won considerable market share from other domestic manufacturers and has established a particularly strong presence in the 60-79 horsepower sector. However, with the changing market preference to ever larger engines it will need to upgrade its current product, so it will be interesting to see the stance taken by Volvo, its new owner, on the matter.

Changlin has achieved much improved sales over the last five years, winning a 10 per cent market share in 2007, largely as a result of its success with its new rigid designs. It has managed to upgrade its backhoe loaders in terms of their reliability, which has helped to improve the confidence of its distributors when marketing to end-users. As a result, other Chinese manufacturers that have recently penetrated this product area have tried to follow both the designs and the strategy of Changlin.

Among other Chinese suppliers, there are two directions of development. The traditional manufacturers like **Chaogong**, **Yangong** and **Weimeng** have continued to focus on the articulated type, but they have also offered more powerful machines in a bid to survive in this increasingly competitive market. On the other hand **Xiagong** and **Liugong**, which have been the most recent entrants with a long-term strategy and intensive engineering input, tend to focus on the more advanced rigid design. Their target is to compete against the international suppliers, and they might well represent the future trend in this market, even though their market share was still relatively small in 2007.

In view of the growing potential demand for backhoe loaders, other importers have intensified their marketing efforts. **Volvo** achieved initial success by winning two purchasing bids, and it began to require its distributors to start marketing backhoe loaders. **Caterpillar** has been promoting its backhoe loaders at various exhibitions for the last two years, and its machines are now available at the rental depots operated by its distributors.

Kobelco, after the dissolution of its relations with Case in Kobelco Case (Shanghai), began to offer **New Holland**'s backhoe loaders through its dealers in 2007. However, **Terex**, having had modest sales two years ago, has shown muted performance recently.

DISTRIBUTION AND MARKETING

Table 17. China: Distribution Systems of Backhoe Loader Suppliers, 2008

Suppliers	Sales Management	Local Branches	Independent Dealers
Case	Case Construction Machinery (Shanghai)	-	27
Changlin	Sales Company	26	120
Chaogong	Sales Department	19	20
JCB	JCB Construction Equipment (Shanghai)	-	12
Liugong	Sales Company	32	80
Lingong	Sales Company	20+	150
Weimeng	Marketing Department	60	100
XCMG Compact	Marketing and Distribution Company	31	40
Xiagong	Sales Company	29	117
Yangong	Sales Department	18	76

Source: Off-Highway Research

While international suppliers are all well experienced in the distribution of backhoe loaders, they still cannot be satisfied with their current levels of development of distribution in China. The Chinese manufacturers, on the other hand, have been challenged in how to integrate this niche product into their existing networks that include a much broader product folio, and which are geared to the sale of much higher volume products.

To develop a specialised network for backhoe loaders cannot be justified on the grounds of the current limited demand, and a specialised dealer cannot survive solely on the sales of backhoe loaders. Therefore, in the case of **XCMG Compact**, it has developed a network serving its products by utilising the local branches, as well as some of the 120 dealers of its parent company. In the case of **Changlin**, **Xiagong** and **Liugong**, they are all are trying to educate their existing domestic dealers of the advantages of the backhoe loader. Some distributors of international suppliers are required to take a certain number of backhoe loaders when they order other more popular products such as mini or standard excavators, but it is evident that for many of them to sell them is a genuine struggle.

In fact, sales of backhoe loaders are mostly achieved through tender procedures, offered by a variety of public institutions. As most local dealers are not experienced with the concept of the backhoe loader, the direct involvement by their suppliers has made a major impact on the market, even though the transaction itself may be completed through the dealers.

Education has been the main theme of all marketing activity. Distributors need to improve their knowledge with regards to the product's advantages, applications and relevant service skills, and having absorbed these they can then enhance their marketing efforts. The end-users must learn how to efficiently operate this multi-function tool, and so to build up the incentive to choose a backhoe loader instead of another type of compact equipment. This is an enormous challenge to all those manufacturers that regard the backhoe loader as being essential to their business, but it is evident that with their combined marketing expertise that customer awareness is now finally taking hold and the customer base is beginning to expand.

PRICING

Table 18. China: Retail Prices of Backhoe Loaders, 2008

Horsepower	Type	RMB'000	Product Source
60-79	Articulated	200-220	Local Manufacturers
80-100	Articulated	230-290	Local Manufacturers
	Rigid	270-500	Local Manufacturers
	Rigid	450-550	International Manufacturers

Source: Off-Highway Research

The old basic type of backhoe loader on a tractor chassis, and priced at RMB160,000, does not exist anymore, having been forced out of the sector by better technology. However, there are a number of local manufacturers that now offer the so-called 'economic' type of machines that are built on an agricultural tractor or a simple chassis featuring mechanical drive. They are not backhoe loaders in the sense that the Western markets know them, but they are a feature in the Chinese industry, and are priced very cheaply indeed at around RMB70,000-120,000. However, as these machines serve a different customer base, they are not included in this study. But it should be noted that these 'economic' type of machines cannot meet the needs of the general construction industry, and their inferior quality makes them very unreliable. Even the Chinese manufacturers that produce the low-spec articulated type of backhoe loaders do not take the economic type as a benchmark for their pricing policy.

The prices in the table above refer to two wheel drive machines. The price difference of a four wheel drive machine will be about RMB15,000 in the case of domestic manufacturers, and up to RMB50,000 for international suppliers.

As indicated in the table above, the articulated type of backhoe loader is priced in the range of RMB200,000-RMB290,000, or around a third of the price of an imported machine. Due to the escalating costs of purchasing steel and component sourcing, major manufacturers such as XCMG have increased their list price by RMB20,000, or about eight per cent higher than two years ago. However, the smaller suppliers are still trying to win contracts with prices even lower than this. It is interesting to note that the average margin on a backhoe loader is thought to be better than that of a wheeled loader, but it is apparent that the lowest price does not necessarily win the order.

In the context of rigid machines, domestic manufacturers are not particularly competitive in price. Although their machines are built with locally sourced components and can very keenly priced, they are quite similar in price to the international manufacturers when they use a high proportion of internationally sourced key components, as they need to have in export markets. Given the relatively small volumes of their production and their priority on exports, they would rather be profitable than be competitive on price. However, undoubtedly price competition will become more of a feature if the market expands, and economies of scale can be achieved.

On the other hand, with its localisation of production in China, JCB is now able to offer a significantly lower price than those offered by the leading importers. This may to a certain extent explain the reason for its strong growth in 2007, but a more decisive feature is thought to be the improvements in marketing and distribution that it has been able to achieve recently.

Instalment payments or financing is not popular in backhoe loader tenders, as the order is usually decided through a tendering procedure. In addition, financing is not advantageous for the limited volume of sales.

POPULATION AND END-USERS

Table 19. China: Population of Backhoe Loaders by End-Users, End 2007

	Units	%
Roads and Highways	1,200	50
Utility Works	800	34
Rental	150	6
Others	200	8
Total	**2,350**	**100**

Source: Off-Highway Research

In this market the backhoe loader is used not as intensively as a wheeled loader or a hydraulic excavator. The average service life of a backhoe loader might be between eight and 10 years; most of the poor quality machines built by the local manufacturers in the past having long since been scrapped. On these assumptions, the population is estimated to be 2,350 units at the end of 2007, and over 50 per cent of them have been purchased in the last three years.

Utility works, such as the laying of water pipes, telecom cables, and the planting of roadside trees, used to account for the largest portion of the machines in use, and they still make up an important portion of the machine population. However, the **road and highway** sector that operates the maintenance works has gradually become the principal buying force in recent years, and this sector now owns the largest number of machines.

Rental is not yet popular in this sector. A rental operator, very often a private machine owner, could never find regular work that would be suited for a backhoe loader, and most of them tend to invest in wheeled loaders and mini excavators which guarantee a better return. However, those machines that were earlier purchased for special applications are now increasingly used for diversified applications by rental. In addition, some manufacturers have begun to offer backhoe loaders through their rental depots.

Others comprise a number of specialist users working on such projects as oilfields, power transmission facilities and disaster rescue, usually in remote areas where a backhoe loader is needed for its versatility. The army is also an important buyer of backhoe loaders.

FORECAST

Table 20. China: Forecast Sales of Backhoe Loaders, 2008-2012

(Units)

2008	2009	2010	2011	2012
720	870	1,100	1,400	1,850

Source: Off-Highway Research

Demand peaked in 2007, and with more suppliers taking a greater interest in the sector their combined marketing presence resulted in a doubling of demand after a long period of stagnation. The major suppliers believe that the market will return to a lower, but still very acceptable, rate of growth in 2008, and strong demand is anticipated up to 2012. The forecast shows the market growing steadily to just under 2,000 units a year during the period under review.

The ageing road and highway system, and consistent demand from urban construction will continue to be the two main driving forces behind the market growth, while economic development will encourage the use of compact equipment to replace manual labour. Indeed, the increased understanding and appreciation of the advantages of the backhoe loader should help customers justify their investment in this new concept.

Therefore, the increased marketing efforts of all suppliers will play a decisive role in the development of the market. An optimistic sign is that there are now more major manufacturers, both local and international, that are taking the sector seriously. Even though the emerging Chinese manufacturers are now prioritising exports, they will definitely intensify the popularity of the machines in their home market.

However, there is still a question as to what extent the backhoe loader can realistically be expected to replace other types of compact equipment. In China, wheeled loaders and excavators play an overwhelming role, and even the most ardent supporter of the backhoe loaders realises that a living cannot be made out of selling only them. The existing market for the 'economic' backhoe loaders may eventually move towards to the more sophisticated type, but the overwhelming popularity of both wheeled loaders and mini excavators amongst private contractors will always limit the backhoe loader's potential.

Demand, therefore, should show growth rates of over 20 per cent a year, but in relative terms it is unlikely to be anything more than a niche sector.

MACHINES AVAILABLE

The table below shows the ranges available from established suppliers in China, and the types of machine in the table are as follows:

- A – Articulated chassis
- R – Rigid chassis

Table 21. China: Backhoe Loaders Available, 2008

Manufacturer	Type	Model	Engine		Operating Weight (Tonnes)	Product Source
			HP	Manufacturer		
Case	R	580M	85	Case	7.5	USA
	R	580 SM	97	Case	8.0	USA
	R	590SM	110	Case	8.9	USA
Caterpillar	R	420E	89	Caterpillar	7.0	USA
	R	430E	97	Caterpillar	7.3	USA
Changlin	R	WZ30-25	95	Cummins, USA	7.0	Jiangsu
	R	WZ30-25C	101	Weichai	7.4	Jiangsu
	R	WZC20	95	Cummins, USA	7.4	Jiangsu
Chaogong	A	WZ30-25	88	Yituo	7.6	Liaoning
Foton Lovol	R	FLB468A	93	Tianjin Lovol	8.3	Shandong
JCB	R	3CX-2T	92	JCB	7.0	Shanghai
	R	3CX-4T	92	JCB	7.0	Shanghai
	R	4CX	100	JCB	7.5	UK
Lingong	A	LGB680	79	Weichai, Yuchai, Yituo	8.5	Shandong
Liugong	R	CLG766	95	Weichai, Perkins, Cummins	7.2	Jiangsu
	R	CLG777	95	Weichai, Perkins, Cummins	7.2	Jiangsu
Terex	R	TX760B	86	Perkins	6.9	UK
	R	TX860B	100	Perkins	7.2	UK
Volvo	R	BL61 Plus	94	Volvo	8.2	Poland
	R	BL71 Plus	100	Volvo	8.6	Poland
Weimeng	A	WZ30-25	90	Weichai	7.5	Shandong
XCMG Compact	A	WZ30-25	88	Yuchai	9.5	Jiangsu
	A	XT860	82	Yituo	8.4	Jiangsu
	R	XT870	100	Cummins	7.3	Jiangsu
	R	XT876	100	Cummins	7.3	Jiangsu
Xiagong	R	XG765	80-97	Cummins, USA	7.5	Fujian
Yangong	A	WZ25-20	68-75	Chaoyang	6.4	Shandong

Source: Company Information

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