

# Digging for Gold:

Trends and challenges in China's mining equipment industry

INDUSTRIAL MARKETS



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## Key findings



China's appetite for minerals and metals will ensure sustained interest in the market for mining equipment over the coming decade. Most of this demand will continue to be met by domestic manufacturers, but there are a number of trends that are creating growth opportunities for foreign companies. These include the following:

- The mining industry is witnessing an ongoing restructuring process that will ultimately result in fewer, bigger companies. This should encourage companies to upgrade their mining equipment and create demand for greater durability and reliability.
- Foreign companies are continuing to move manufacturing operations to China and upgrade the equipment produced in the country.
- China's own ambitions for its equipment industry mean that the market will be fiercely contested, especially if foreign companies look to acquire domestic manufacturers.
- As safety and environmental concerns are given greater emphasis, foreign companies may be able to position themselves advantageously in the short term. However, domestic companies should be incentivised to raise their standards over time, while continuing to compete fiercely on cost.

In short, the mining equipment industry will provide many opportunities and challenges for both its Chinese domestic and multi-national participants. With increasing demand for natural resources comes a significant need for China to develop its mining capabilities and address structural, regulatory and operational concerns. Much will depend upon how far and how fast such development will go.

## Introduction



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China is home to one of the world's largest mining industries, in terms of numbers of people employed and overall volumes of production. The country depends on coal to generate nearly 70 percent of its energy, and requires massive supplies of other minerals and metals, including iron ore, copper and bauxite, to feed its vast manufacturing base.<sup>1</sup>

This scale is illustrated by Shenhua Energy, China's biggest coal mining company. When it listed on the Shanghai Stock Exchange in early October 2007, it became one of the country's highest value stock flotations, raising RMB 66 billion (USD 8.8 billion) in capital.<sup>2</sup>

Shenhua has earmarked the money it raised to upgrade technology and equipment, acquire assets and provide the company with working capital. Clearly, this development is good news for mining equipment makers, both Chinese and foreign. In 2006, Shenhua announced it had signed an agreement with a China joint venture of the US's Terex Corp to spend USD 150 million on buying 53 heavy duty trucks for an open-pit coal mine near Hohhot in Inner Mongolia.<sup>3</sup>

A growing number of foreign mining equipment companies are looking to China to drive the growth of their businesses. Caterpillar, for example, one of the world's biggest manufacturers of heavy duty equipment for use in the mining and construction industries, sold more than USD 1 billion worth of its products in China in 2006; its current target is to increase that figure to USD 4 billion by 2010.<sup>4</sup>

There have been some important changes in China's mining industry. The government is encouraging the emergence of a relatively small number of large mining companies to replace the many thousands of companies that are currently active across the country. This process of consolidation should create opportunities for equipment manufacturers to agree far larger contracts and, at the same time, generate the impetus for further product development and innovation.

While there is an opportunity for foreign vendors, they must also bear in mind the aspirations of China's own mining equipment makers. These companies already produce most of the machinery used in the country's mines, and the government has explicitly committed to promoting further their development. At present, domestic companies struggle to match their international rivals in terms of scale and reliability, but the gap is closing fast, driven by increasing demand for 'top-end' equipment within China.

We hope that this report will provide you with new and useful insights into the mining equipment sector in China, and also help you better understand China's central role in shaping the global industry in the years to come.

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<sup>1</sup> Business Monitor International, *China Power Report*. See: <http://www.businessmonitor.com/power/china.html>

<sup>2</sup> "US Investors, Business Eye China Coal", Associated Press, 28 October 2007.  
Available at: <http://washingtonpost.com/wp-dyn/content/article/2007/10/28/AR2007102800783.html>

<sup>3</sup> Terex Corp., "Terex Corporation awarded \$150 million order to supply mining trucks to China's Shenhua Group", 6 April 2006;  
available at: <http://sec.edgar-online.com/2006/04/06/0000097216-06-000114/Section5.asp>

<sup>4</sup> Andrew Batson and Jason Dean, "China Begins to Fulfill Its Potential for Big Profits", *The Wall Street Journal*, 19 October 2007.

## Industry overview



China's mining equipment and machinery industry is growing strongly — building on the traditional strengths of many of the country's key sectors previously developed under central planning, especially in the areas of metallurgy and engineering.

While equipment markets exist for iron ore, bauxite and copper, and more specialised ones for gold (where China is now the world's second biggest producer)<sup>5</sup> and other precious metals, its mining industry is dominated by coal. As the table 1 shows, China mined nearly 2.4 billion tonnes in 2006, up 8 percent on 2005, and measured by weight more than four times as much as the iron ore it extracts. It is easily the world's biggest miner of coal, accounting for just under 40 percent of the mineral dug up last year.<sup>6</sup>

According to estimates by the US Commercial Department, the Chinese coal mining equipment industry has been valued at USD 3 billion a year in recent years, with imported equipment accounting for just 10 percent of that total. Most of the equipment made in China is produced by domestic companies, with a small part coming from Sino-foreign joint ventures or wholly-owned operations.<sup>7</sup>

**Table 1: China's mine output (Mine production, '000 tonnes)**

	2003	2004	2005	2006
Iron ore, million tonnes	261	280	420	520
Bauxite, million tonnes	13	15	18	20
Copper, '000 tonnes	610	620	755	760

Source: US Geological Survey<sup>8</sup>

This report considers the factors that will influence the growth and development of China's mining equipment sector. The main focus is on the coal industry, due to its size and importance to the economy as a whole. The issues facing suppliers of coal mining equipment are very similar to those in other mining sectors, be they for precious or base metals, minerals or rare earths. In all of these sectors, the forces of consolidation, government policy and foreign investment will have a role to play.

### China and the global market

The global mining machinery industry is valued at more than USD 18 billion per annum, according to industry forecasters Freedonia. Driven by rising demand for commodities such as iron ore, copper and coal, plus rising prices for silver and gold, much of which has been attributed to China's increasing need for these materials, Freedonia predicts that total global demand for mining equipment will grow by around 9 percent annually through to 2009.<sup>9</sup> China already represents the second biggest single market, after the United States.

<sup>5</sup> See: Bloomberg, "Golden dream: China beats US"; 7 November 2007.

available at: <http://www.smh.com.au/news/business/golden-dream-china-beats-us/2007/11/06/1194329223906.html>

<sup>6</sup> BP Statistical Review of World Energy 2007; see: <http://www.bp.com/productlanding.do?categoryId=6848&contentId=7033471>

<sup>7</sup> BP Statistical Review of World Energy 2007; see: <http://www.bp.com/productlanding.do?categoryId=6848&contentId=7033471>;

US Commercial Department, "Coal Mining Equipment Market in China," No date;

available at: [commercecan.ic.gc.ca/scdt/bizmap/interface2.nsf/vDownload/ISA\\_2750/\\$file/X\\_2606339](http://commercecan.ic.gc.ca/scdt/bizmap/interface2.nsf/vDownload/ISA_2750/$file/X_2606339)

<sup>8</sup> [www.usgs.gov](http://www.usgs.gov).

<sup>9</sup> Freedonia, *World Mining Equipment to 2009*, April 2006.



“With mines in such a hurry to invest to meet demand, most of them are using local equipment suppliers.”

Executive from a European inspection agency

Official statistics suggest that China is far outstripping this global growth rate, with sales revenues of domestic mining machinery makers rising 44 percent to RMB 28.3 billion (USD 3.8 billion) in the first five months of 2007. This reflects the huge demand from mines looking to expand output to meet the needs of industry.<sup>10</sup>

From the standpoint of global equipment manufacturers, however, growth in the Chinese mining equipment market is tempered by the fact that most demand — around 90 percent in the coal sector, for example — is met by domestic suppliers. The world's big manufacturers of mining equipment — among them the US's Caterpillar, Bucyrus International and Joy Mining Machinery, Japan's Komatsu, Sweden's Sandvik and Atlas Copco and Germany's DBT — all sell equipment in China, either imported or manufactured via joint ventures or wholly-owned enterprises. However, it remains to be seen how successful these companies will be, in terms of capturing market share compared to domestic manufacturers, despite their impressive growth and significant China sales.

Conversely, as domestic manufacturers improve their capabilities, there is a question as to whether or not they can be successful in developing export and international business. Right now, China exports some mining equipment, but not in huge volumes. In 2006, for example, its mining and related equipment exports to the United States totalled only USD 97 million.<sup>11</sup>

#### Key industry players

China's mining equipment manufacturers are concentrated in its principal mining areas, including Henan province in central China, Liaoning in the industrial north-east, Shanxi in the north-west and Shandong on the north China coast. Henan is home to the country's biggest single mining equipment manufacturer, Citic Heavy Machinery (see Table 2 below).

**Table 2: Leading mining equipment manufacturing locations**

	Number of mining equipment enterprises	Sales revenues Jan-May 2007 (RMB million)
Henan	103	5,569
Liaoning	113	4,133
Shanxi	29	3,573
Shandong	129	3,306

Source: Beijing Kang Kai Information & Consultancy Co.<sup>12</sup>

<sup>10</sup> “China Industry Statistics,” Beijing Kang Kai Information & Consultancy Co., 19 July 2007.

<sup>11</sup> Daniel Workman, “Top Chinese Exports & Imports”, 28 June 2007, available at [http://internationaltrade.suite101.com/article.cfm/top\\_chinese\\_exports\\_imports](http://internationaltrade.suite101.com/article.cfm/top_chinese_exports_imports)

<sup>12</sup> Beijing Kang Kai Information & Consultancy Co., “Industry Financials Analysis (E)”, 17 July 2007.

“There are still questions over the reliability of Chinese equipment — but I expect that to get better.”

Head of a Canadian mining company with operations in Northern China

The number of enterprises in the equipment sector is relatively small — numbering just over 800, according to official statistics.<sup>13</sup> The sector is dominated by state-owned machinery factories, such as Taiyuan Mining Machinery Group, Citic Heavy Machinery Co., Shenyang Mining Machinery, Shandong Mining Machinery and Zhengzhou Mining Machinery Manufacturing Co. These companies typically make all the equipment necessary for extracting and processing minerals and ores.

Domestic manufacturers have no problem in meeting the needs of most small and medium-sized mines. Where foreign companies have an advantage is in heavy machines and systems, and more environmentally-advanced equipment, such as clean coal technologies. Similarly, in the gold industry, China's refining technology can be as good as that made anywhere in the world, but in more recently developed processes, such as bioleaching — using bacteria to extract metals, including gold and silver, from ores — it still needs improvement.

Where suitable domestic equipment is available, it is typically far cheaper than that made overseas. One Australian based company bought a drilling rig in China: “It doesn't look so good, but it works fine,” said an executive with the company — and where it really won through was on price. In Australia, such a rig would have cost USD 400,000, but in China it was one-tenth of the price, at USD 40,000.

While low-cost products sell well in China, the potential for overseas sales is more limited. In many developed countries, reliability and durability count for more than cost. According to one Western mining company operating in China, the far lower utilisation rates for domestic equipment — put at around three-quarters of that for equipment made in the United States or Europe — would have a significant impact on their financial results.

**Table 3: China's coal mining equipment market, USD million**

	2004	2005	2006*
Total market	3,174	2,943	3,311
– Local production (%)	88	90	92
Exports	258	304	403
Imports	624	591	675

\*Estimated.

Source: US Commercial Service<sup>14</sup>

The fragmented nature of China's mining industry may be the largest single impediment to growth, for foreign as well as domestic manufacturers. In particular, there are an estimated 17,000 small coal mines operating in China. Other mining sectors are also highly fragmented. The gold mining sector, for instance, is composed of approximately 3,000 mines, mostly extracting just 15,000 to 50,000 ounces of gold a year.<sup>15</sup>

<sup>13</sup> Beijing Kang Kai Information & Consultancy Co., “Industry Financials Analysis (E)”, 17 July 2007.

<sup>14</sup> US Commercial Service, “Coal Equipment — China,” available at: <http://www.buyusa.gov/asianow/coalmining.html>

<sup>15</sup> This number is hard to gauge with any accuracy. The government put the figure at 17,000 in 2006, but also announced it intended to reduce this number to less than 10,000 by 2008. How far it has succeeded in meeting its goal is not clear. See: Xinhua, “China to close another 7,000 mines before '08,” 15 June 2006, available at: [http://www.chinadaily.com.cn/china/2006-06/15/content\\_618094.htm](http://www.chinadaily.com.cn/china/2006-06/15/content_618094.htm)

## Citic Heavy Machinery

Citic Heavy Machinery — formerly known as Luoyang Mining Machinery Works — is China's biggest mining equipment manufacturer. Based in the city of Luoyang in the central province of Henan, it was originally founded in 1954 and went into operation in 1958. After finding itself struggling in the 1980s, it became part of China International Trust and Investment Corp. (CITIC) in 1993, with CITIC's task being to reinvigorate the company with fresh investment and management.<sup>16</sup>

After a hesitant period in the second half of the 1990s, the company's production jumped in value as China boomed in the 2000s. The company's total sales revenues in 2006 were RMB 5.2 billion, up from RMB 4.3 billion the year before.<sup>17</sup>

Among the mining equipment it manufactures are shaft hoists, crushers, drills and various types of grinding mills. One of its key focus points in recent years has been increasing the scale of various of its mining products. In mid 2007, for example, it reported it had signed a contract to manufacture large-sized semi-autogenous mills and flow-type ball mills for use at copper mines, both types of products that China has had to import up until now.<sup>18</sup>

After signing a series of deals with companies around the world, to promote its goods, notably with South Africa's Bateman Engineered Technologies, its exports have started to rise rapidly. In 2005 it sold some USD 24 million worth of goods abroad; a sum which jumped to USD 75 million in 2006.<sup>19</sup>

As well as mining equipment, Citic Heavy Machinery also makes machinery for the construction, metallurgy and non-ferrous metals, power generation and chemical industries.



This, however, is changing. In October 2007, the National Development and Reform Commission, China's leading policy development body, submitted a draft policy on the coal industry to the State Council. According to reports, the document called for the industry's development to be focused on just six to eight very large mining companies, each producing around 100 million tonnes a year, supported by another eight to ten companies each producing around 50 million tonnes.

Between them, these 15 or so companies would be expected to produce more than half of all the coal mined in China — currently, the top ten companies produce around one quarter of all output.<sup>20</sup> Such a concentration would be a major boost to the more established equipment manufacturers.

### Policy and regulatory issues

On the regulatory front, mining equipment manufacturers face little difference in treatment from other kinds of industrial equipment manufacturers. However, with policy makers looking to promote the domestic machinery industry in general, measures have been introduced aimed at controlling what kind of equipment may be imported. The government is taking a harder line with proposals by foreign companies to buy out enterprises where it deems them to be of strategic importance.

<sup>16</sup> See Qin Xiao, *The Theory of the Firm and Chinese Enterprise Reform*, Routledge, London, 2004, page 148.

<sup>17</sup> See: <http://www.citchmc.com/gnxs.htm>

<sup>18</sup> China Daily, "Foreign monopoly broken", 19 June 2007; available at: [http://english.peopledaily.com.cn/200706/19/eng20070619\\_385586.html](http://english.peopledaily.com.cn/200706/19/eng20070619_385586.html)

<sup>19</sup> See: <http://www.citchmc.com/gnxs.htm>

<sup>20</sup> US Commercial Service, "Coal Equipment — China," available at: <http://www.buyusa.gov/asianow/coalmining.html>





For example, in a set of regulations released by the State Council in February 2006, titled “The Enforcement Regulations for Speeding up Vital Machine Building Industry,” it noted specifically that the industry’s mission should be to ensure that “large scale integrated underground coal mining, lifting, and washing equipment, and large scale open pit mining equipment...is domestically-produced.”<sup>21</sup>

As part of a programme to raise standards of domestically-manufactured equipment in general, the Chinese government has issued several policies banning imports of polluting or obsolete equipment, while offering tax incentives for imports of technologies and key components that have yet to be developed domestically.<sup>22</sup>

### Foreign companies

A key opportunity for foreign companies in China lies in adding value through improved reliability, efficiency and safety, and providing end-to-end solutions that can enhance productivity. For China’s biggest mining companies, these are increasingly important considerations.

The US’s Terex Corp, in a joint venture based in Baotou in Inner Mongolia, has been making heavy duty trucks for use at mines in China for two decades. It recently upgraded its operations to include manufacturing 360-tonne class dump trucks — among the biggest in the world (and some of which are part of the USD 150 million deal with Shenhua Energy mentioned in this report’s introduction).<sup>23</sup>

Caterpillar, one of the world’s biggest machinery and equipment makers, is expanding the number and scope of its operations in China. It sees its total equipment sales in the country — much of which is mining or mining-related — rising from USD 1 billion this year to USD 4 billion by 2010.<sup>24</sup>

Sweden’s Sandvik likewise expects the importance of the China market to grow. Last year it reported annual sales of more than USD 320 million in the country. Among its various China operations, it has an assembly and service plant for crushers and other mining equipment in Shanghai and a tool-producing factory just south of Beijing.

As the country’s mining industry becomes more sophisticated, the uses for mining equipment will increasingly extend beyond simply extracting minerals and ores in a more productive and safer manner. For example, among the equipment Caterpillar is supplying to Chinese mines are a series methane-gas-powered generator sets for use at the Sihe coal mine in the city of Jincheng in north-west China’s Shanxi province. Capable of generating 120 megawatts of power, this facility is the world’s largest coal methane power plant.

<sup>21</sup> See “Q: What is the status quo on the mining equipment M&A in China,” available at <http://envisionchina.org>

<sup>22</sup> See “Policy factors to boost machinery industry,” Xinhua News Agency, 25 September 2007.

<sup>23</sup> Terex Corp., “Terex Corporation awarded \$150 million order to supply mining trucks to China’s Shenhua Group,” 6 April 2006; available at: <http://sec.edgar-online.com/2006/04/06/000097216-06-000114/Section5.asp>; Diesel Progress, “Once on shaky ground, Terex Corp. now enjoying fruits of well managed turnaround,” September 1997.

<sup>24</sup> Andrew Batson and Jason Dean, “China Begins to Fulfill Its Potential for Big Profits,” *The Wall Street Journal*, 19 October 2007.

## Caterpillar in China

US heavy equipment manufacturer Caterpillar Inc is expanding its China-based manufacturing capacity to meet demand from the country's heavy investment in infrastructure, construction and mining.

It runs a total of 14 operations and 5,000 staff in China<sup>25</sup> — roughly double the size of its presence just three years ago — producing a range of heavy equipment including hydraulic excavators, tracked machinery, motor graders and large diesel engines for sale both within China and elsewhere in Asia, and offering financial leasing services.<sup>26</sup>

Its current annual sales in China stand at around USD 1 billion, or just 2.5 percent of Caterpillar's global sales. Last year, Rich Lavin, then the company's vice president of Asia Pacific manufacturing, said this share was expected to rise to 10 percent of global sales.<sup>27</sup>

The company has not disclosed the total value of its investments in China, but at the end of 2006, it announced it was moving its Asia-Pacific headquarters from the Japanese capital, Tokyo, to Beijing, underscoring both its commitment to the country and its long-term expectations for the market there.<sup>28</sup>

## Done deals

Foreign companies can succeed in China by providing equipment and services that domestic companies are, as yet, unable to produce.

In 2006, for example, Germany's ThyssenKrupp signed an agreement with Huaneng Yimin Coal and Electricity Co. to supply a continuous coal-crushing and haulage system with a total value of 17.5 million euros for use at the Yimin coal mine in Inner Mongolia. The coal it produces is used by Huaneng Power International, one of China's biggest electricity generating companies.

Located at an open-pit mine, the equipment, as well as being the first continuous system to be installed in China, will also be used in an environment where the temperature falls to minus 40 degrees Celsius, handling up to 3,000 tonnes of coal an hour.<sup>29</sup>

Siemens is another German company that is a major supplier of mining equipment to Chinese mines. At the Tunliu mine in Shanxi province, one of six mines run by Lu'an Mining Group, which between them produce 6 million tonnes of coal a year, it has installed winding equipment that travels 700 metres down the mine's shaft, handling 12 cables and moving 200 tonnes of equipment.

Normally run in automatic mode, under the control of integrated power semi-conductors, the winders' electric engines can be handled more smoothly than manually controlled equipment, which in turn offers its operator the benefits of reliability, long life and low maintenance — all vital factors because winders play a key role determining the overall efficiency of a mine.<sup>30</sup>

On a smaller scale, Hydra Mining Tools International of the United Kingdom has formed a joint venture with Taiyuan Mining Machinery Group, one of China's largest mining equipment makers, to produce advanced coal cutters. Set up in April 2007, total investment is around RMB 13 million (about USD 1.75 million). Hydra Mining saw the opportunity after a global research programme conducted by the company found that coal shearing equipment used in China was about 20 years out of date compared with that used in the UK.

<sup>25</sup> Bloomberg News, "Komatsu looks to dominate Caterpillar in China", 4 July 2007; available at: <http://www.iht.com/articles/2007/07/04/business/sxasia.php>

<sup>26</sup> Caterpillar press release, "Cat's Chinese Diesel-Engine Plant to Target Asian Sales", 29 August 2007; available at: [http://www.asminternational.org/MSTemplate.cfm?Section=News\\_Releases2&Site=SMST&template=/PressRelease/PressReleaseDisplay.cfm&PressReleaseID=1150&News=1](http://www.asminternational.org/MSTemplate.cfm?Section=News_Releases2&Site=SMST&template=/PressRelease/PressReleaseDisplay.cfm&PressReleaseID=1150&News=1)

<sup>27</sup> Rental Equipment Register, "Caterpillar Predicts China Sales Will Quadruple by 2010", 22 November 2006; available at: <http://rermag.com/rerreports/internationalnews/caterpillar-china-2010>

<sup>28</sup> Xinhua, "Caterpillar moves Asia Pacific operations headquarters to Beijing", 11 November 2006; available at: [http://www.chinadaily.com.cn/bizchina/2006-11/22/content\\_739443.htm](http://www.chinadaily.com.cn/bizchina/2006-11/22/content_739443.htm)

<sup>29</sup> Source: <http://www.azom.com/details.asp?newsID=4998>

<sup>30</sup> For more information, see: [http://www.industry.siemens.com/metals/en/news/newsletter/mm\\_01\\_2005/art10.htm](http://www.industry.siemens.com/metals/en/news/newsletter/mm_01_2005/art10.htm)

## Key trends and challenges

“We imported the equipment for our mine in 12 containers. If we were to do it again now, we would build it in China.”

Executive from a Canadian mining equipment company



Looking to the future, the Chinese mining machinery industry is set to continue growing at faster than world average rates over the next few years. The nature of this growth, however, is likely to change, with straightforward demand for more equipment giving way to a need for more sophistication and scale in product offerings. Below are some of the specific challenges that may lie ahead.

### Quality and scale

Mining companies need to be incentivised to make greater up-front investment in new mining projects. Currently, the level of initial investment in most mines is determined by estimates of how much cash-flow can be generated immediately, and only if the mine proves profitable will further investment follow. This has direct implications for the demands placed on equipment manufacturers, particularly in terms of how they balance price, reliability and durability.

Attitudes towards maintenance are changing, with one executive suggesting that he saw a noticeable difference in outlooks between generations: for older managers, keeping costs low while emphasising immediate output were the general priorities; for younger ones, there was generally a longer-term outlook, with more interest in developing mines with better productivity and economies of scale.

### Capitalisation

Aside from the government's policy of consolidating China's mining industry into fewer, far bigger companies, one of the key factors that will change attitudes towards equipment purchases will be an improved understanding of the benefits of increased capitalisation of projects. With domestic banks flush with capital, money itself is not an issue; the main barriers are more often a lack of experience in putting together the appropriate packages, and the drafting of appropriate taxation regulations aimed at encouraging mining companies to invest more up-front, in order to realise a greater long-term gain.

A change of emphasis towards longer-term thinking is likely to result in a switch towards greater orders of more durable, reliable and larger-scale equipment. This is likely to benefit foreign manufacturers, though will also serve as an incentive for domestic manufacturers to improve the standards of their equipment.

### Research and innovation

Consolidation may also help to stimulate more long-term thinking in the mining industry, but it is unlikely to trigger large-scale investment in research and development (R&D). Sizeable initial gains in productivity and output may be realised through greater economies of scale coming from having fewer, larger mines and by buying existing technology from Europe or America, rather than looking to develop it domestically.

“Maintenance remains an issue in China. Miners here rely a lot on temporary solutions.”

Executive from an American mining equipment company



### Services and support

Servicing equipment, especially more sophisticated products, can be a problem in China. One mine operator described how when its German-made power equipment had problems, no one locally could fix it. The company had difficulties getting a technician from the equipment's manufacturer to come to China, although part of that problem could be attributed simply to the fact that with commodities booming worldwide, demand for such people makes it hard to get access to them.

Similarly, when considering whether to buy one large crusher or a series of medium-sized ones, the company opted for the medium ones. Despite being more inefficient to operate, maintenance equipment, including cranes capable of lifting them, is available in China, whereas there were question marks over whether or not availability of equipment capable of handling the larger machine would be available in a maintenance situation.

### Safety

The growing emphasis on safety is driven by the high number of deaths recorded each year in Chinese mines, and official demands that measures be taken to reduce this. The principal measure being proposed is the closure of small and inefficient mines. As they are being replaced by fewer, larger mines and mining companies, demand both for safety products from overseas and the establishment of joint ventures to manufacture safety equipment within China increases. iPackets International, Inc., for example, a Canadian developer and provider of wireless and communications products for the mine-safety industry, signed in October 2006 an agreement to set up a joint venture with the China Coal Information Institute and Henan YongAn Investment Guarantee Co to make, sell, install and support communications equipment for use in mines. The venture, in which Henan YongAn is investing up to USD 50 million, is to be based in the Jiaozuo city of Henan, China's second largest coal producing province. iPackets is supplying technology and know-how, with CCII overseeing sales and marketing.<sup>31</sup>

<sup>31</sup> See [http://findarticles.com/p/articles/mi\\_pwwi/fs\\_200610/ai\\_n16755232](http://findarticles.com/p/articles/mi_pwwi/fs_200610/ai_n16755232) for more information.

## Outlook



Foreign equipment companies are likely to see continuing demand from China's biggest mining companies for 'top-end' equipment as well as from the various international mining companies setting up joint venture operations in China.

Overall, however, as domestic companies close the gap between the quality of equipment they manufacture and that supplied by foreign companies, there is unlikely to be any major increase in foreign companies' share of the total equipment market. The consolidation of the mining industry will lead to an increase in demand for larger-scale equipment, but given that this process is likely to take many years, domestic manufacturers have the necessary time to upscale their products.

Similarly, government policy is currently aimed at encouraging domestic equipment makers. Foreign companies may find acquiring smaller businesses or taking minority stakes in joint venture operations relatively straightforward, but securing market entry by taking majority stakes in joint ventures with larger domestic companies is likely to prove difficult.

Prospects for sales could strengthen further if foreign mining companies were allowed greater freedom to invest in China, and also if tax rules related to mining were reworked to incentivise longer-term projects, which in turn would encourage the purchase of more efficient, durable and reliable equipment. Such hopes, however, should be tempered with caution. At present, the application process to establish any foreign-invested mine is lengthy and many parts of the country are effectively off-limits. Given the prospect of continuing strong demand for minerals and metals, many domestic mine operators will continue to find shorter term investments bringing immediate and high returns.

Where there are likely to be continuing opportunities for foreign companies is in the transfer of technology and expertise, and taking smaller stakes in Chinese manufacturers. In September 2007, for example, China's largest flexible metal hose manufacturer and exporter, Shanghai-listed Aerosun Corp., announced it was setting up a RMB 40 million joint venture with two Japanese companies, Mitsui Miike Machinery Co. and Aiconix, to make steam boring equipment used in tunneling machinery. The venture, Nanjing Aerosun Mitsui Miike Machinery Co., will be held 65 percent by Aerosun, 30 percent by Mitsui Miike Machinery and 5 percent by Aiconix. Coal mines will be one of the main targets of the new venture.<sup>32</sup>

In overall terms, the mining equipment market is expected to grow and develop, but much will depend on how fast and how far the mining industry itself restructures and how much foreign participation is allowed. However things unfold, significant opportunities should exist for both the domestic and international mining equipment manufacturers.

<sup>32</sup> "Aerosun Corp. to Set Foot in Tunneling Machine Industry", SinoCast China Business Daily News, 25 September 2007.

## About KPMG



KPMG is a global network of professional firms providing Audit, Tax, and Advisory services. We operate in 148 countries and have more than 119,000 professionals working in member firms around the world.

### **KPMG in China and Hong Kong SAR**

In 1992, KPMG was the first international accounting firm to be granted a joint venture licence in China, and our Hong Kong operations have been established for over 60 years. This early commitment to the China market, together with our unwavering focus on quality, has been the foundation for accumulated industry experience that is difficult to rival.

With our expanding number of offices and more than 7,000 professionals, our single management structure across China and Hong Kong SAR allows efficient and rapid allocation of resources wherever you are located. We have the largest audit market share, by market capitalisation, of the top 100 Hong Kong listed companies.<sup>33</sup>

### **Industrial Markets**

KPMG is organised by industry lines of business across our international network to provide in-depth industry knowledge and professionals highly experienced in their sector. We are committed to providing quality services to our clients. Our Industrial Markets line of business has a global network comprising the major practices around the world. This network gives us the ability to provide consistent services to our clients, share best practice and provide thought leadership, while always maintaining a strong knowledge of local issues and markets.

### **KPMG's Mining Centers of Excellence**

Our dedication to the Mining industry is evidenced by KPMG's Global Centers of Excellence for Mining. The Centers, based in Beijing, Toronto, Vancouver, Melbourne, Perth, Johannesburg, London, Denver, Phoenix and Santiago all play a role in developing a worldwide market focus, recruiting experienced personnel, staying abreast of issues affecting the global mining industry, developing products that add value to the mining industry, and thought leadership. The centers act as a point of access to the knowledge that our members firms' can offer locally and around the world. Our objective is to continue to develop a network of centers to help each other deliver the most effective services to our clients.

<sup>33</sup> Bloomberg, KPMG Analysis 31 October 2007.



www.kpmg.com.cn

www.kpmg.com.hk

#### Northern China

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##### Shenyang

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##### Shenzhen

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#### Special Administrative Regions

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##### Hong Kong

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