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Southern  
frica

# Southern Africa—A Region with a Wealth of Natural Resources

Investment in mining, which plunged after the financial crisis following the Lehman collapse, is expanding again along with the recovery of market demand. While global mining investment remained under the 100-billion dollar mark in 2010, it is estimated to reach 140 billion dollars in 2011. Increasing demand for rare earth elements and metals worldwide coupled with soaring prices of copper, iron ore, coal and other mineral resources are spurring this investment rebound, and Southern Africa, where natural resource superpowers are concentrated, is currently attracting great attention.



"We know a large amount of mineral resources exist in Africa"—This is what many mining businesspeople say. But various circumstances unique to Africa have warded off investment.

For example, in Zambia, where democratic administrations have been in power since its independence, the wealth of mineral resources is largely untapped due to an undeveloped foreign investment environment. The greatest problem is lack of a transportation route. To export mineral resources, the country needs a port. However, because Zambia is located deep inland, the route to the closest port is extremely long, resulting in excessively high transportation costs.

Mozambique, Zambia's neighboring country, is also rich in natural resources. Although unlike Zambia, the country faces the Indian Ocean to the east, and its resources are not able to be fully uti-

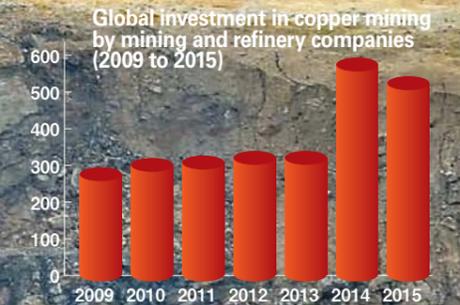
lized due to a prolonged civil war which has destroyed railways, roads, and other infrastructure, and stripped young people of educational opportunities.

However, circumstances are changing. The soaring prices of mineral resources caused by high demand in China and other emerging countries have allowed investors to generate a satisfactory return on their investments in natural resources in Africa.

According to Bloomberg, a US financial news provider, the amount of investment by the mining industry in Africa and the Middle East more than doubled in 2010 compared with the previous year. Southern Africa in particular, where significant deposits of mineral resources exist, is attracting active investment of major foreign mining companies.

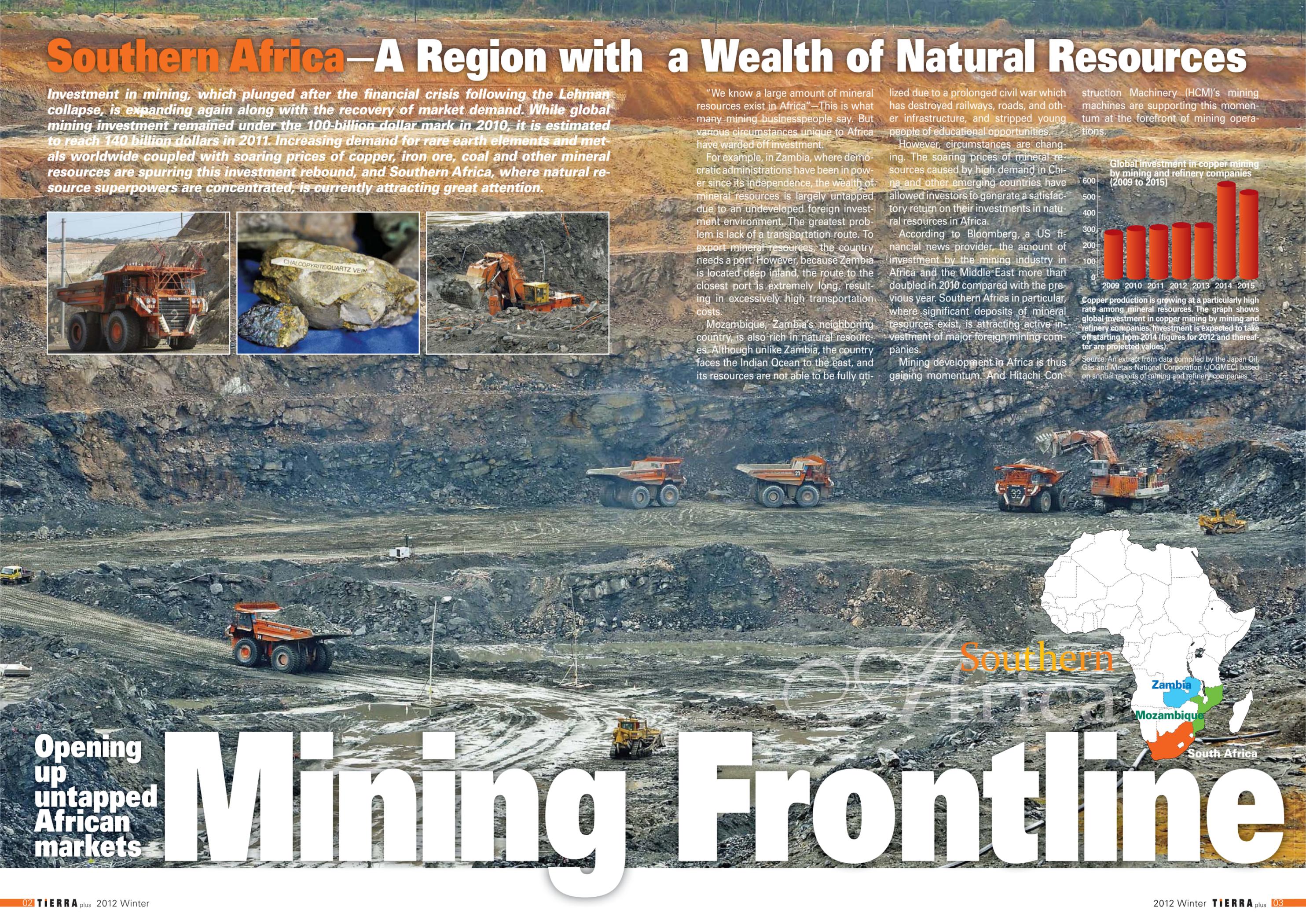
Mining development in Africa is thus gaining momentum. And Hitachi Con-

struction Machinery (HCM)'s mining machines are supporting this momentum at the forefront of mining operations.



Copper production is growing at a particularly high rate among mineral resources. The graph shows global investment in copper mining by mining and refinery companies. Investment is expected to take off starting from 2014 (figures for 2012 and thereafter are projected values).

Source: An extract from data compiled by the Japan Oil, Gas and Metals National Corporation (JOGMEC) based on annual reports of mining and refinery companies.



Opening up untapped African markets

# Opening up untapped African markets

# Mining Frontline



Mr. Maiko, an EX5500E-6 operator, and a former nurse. "This machine is more agile and versatile than diesel-driven machines. The cab is air-conditioned and comfortable."



# Southern Africa Zambia



## Machines Never Stop! HCM's mining machines working tough at Africa's largest copper mine

*The world's largest gold producer, Barrick Gold, takes on a new challenge: copper mining in the Copperbelt*

"Copper is special for us among mineral resources produced in Zambia. The annual output of copper is larger than that of any other countries in Africa, helping our country to build its social infrastructure," said Mr. Kennedy M. Shepande, the Counsellor of the Zambian Embassy in Japan.

Mr. Shepande also expressed his great expectations for the Lumwana Mine, Africa's largest copper mine, which is located in the Copperbelt, a zone of extensive copper deposits. The annual output of the Lumwana Mine, which began operations in 2009, was 150,000 tons in 2010. That amount is expected to double to 300,000 tons in 2012.

It is not only the government that has high hopes for the mine. Barrick Gold Corporation, the owner of the mine and

the world's largest Canadian gold producer with 27 gold mines worldwide, is showing even greater expectations. The company acquired the mine and its staff from an Australian mining company in June 2011. This is Barrick Gold's first copper mine.

Mr. Bevan Jones, Barrick Gold's site manager, explains the high potential of the mine. "We position the copper business as the second pillar of our global strategy after gold. This is Africa's largest copper mine and one of the 10 largest copper mines in the world. The production efficiency is high due to the high quality and large amount of ore. Mining at this site is expected to last for more than 20 years; a very attractive mine. Output may be quadrupled by enhancing efficiency of the machinery and plant operations."

One of the lifelines for the Lumwana Mine is HCM's hydraulic excavator EX5500 and other ultra-large mining machines.



A cable used for supplying power to EX5500E-6 electric loading shovels



An EX5500E-6 loading shovel, which can accomplish its task comfortably even in extremely muddy conditions, and an EH4500AC electric-driven dump truck

The single most important requirement that mining companies impose on machinery manufacturers is simple: the ability to load and haul minerals efficiently. This requirement is not unique for the Lumwana Mine, but is applied to all mines worldwide, where around-the-clock operations are a common practice. "Machines never stop" is the basic rule.

For this reason, it is often the case that an availability guarantee is required

to be incorporated into a contract. The machine availability standard required is very tight at around 90%.

Mr. Jones explained, "If machines stop working for one hour here, we'll lose 30,000 dollars. So machines must never fail. We are using machines from different companies at Lumwana, but we very much trust Hitachi's machines. Compared with other companies' machines of the same class, Hitachi's are

more durable and productive."

In order to ensure that machines do not stop scheduled maintenance, parts replacement, and overhaul need to be conducted in an appropriate and timely manner. Therefore, Hitachi Construction Machinery Southern Africa (HCSA), which undertakes full maintenance support, built a yard specifically for maintenance of Hitachi's dump trucks, as well as a warehouse that can stock 4,000

### Enhancing motivation of workers is a key to bringing out the best machine performance

Ockie Barnard, an HCSA employee stationed at the Lumwana Mine, serves a double role as Maintenance & Acting Site Manager and Repair Construct Manager.

Both positions require highly skilled accuracy and advanced knowledge to ensure that the machines demonstrate their best performance.

Sometimes, there are even cases in which Mr. Barnard will make requests and proposals to the mining company in order to bring out the best performance of the machines. For example, he proposed to improve traction under wet and muddy mine site conditions by discussing the issue and proposing a solution along with the customer.

"The performance of the machines changes according to the site conditions. Hitachi's machines are known for their high performance, and it is my duty, as the site manager, to think about how to bring out their full performance potential. This does not only apply to the machines. The same thing can be said about our workers as well."

For example, at the Lumwana Mine, workers are operating in three shifts of 12 hours.

"Workers will be scheduled for four day shifts followed by four night shifts, and then four days off. This work style is suitable for this site. I'm also thankful for the support of the HCM Head Office personnel, who devised various improvement programs when we began operations here."

Currently, Barnard's greatest concern is training for his enthusiastic workers. The program encompasses site training and acquiring skills, both general and computer, and other training features, however, Barnard considers maintenance training to be the most important of all.

"This is because the training is directly connected with machine availability, and above all, it will help enhance worker motivation. We will work hard on this training so that our machines will never stop at the site."



HCSA Ockie Barnard



types of spare parts, right on the mine's premises in order to provide around-the-clock maintenance service.

Some mining companies have their own maintenance staff. However, as machines become increasingly complicated and parts supply chains stretch across the world, it is now the norm that manufacturers undertake full maintenance services by deploying their staff.

At the Lumwana Mine, some 150 HCSA maintenance staffs are working in three shifts. By stationing staff on-site, HCSA can meet the needs of the mining company, which range from maintenance, parts replacement and education of human resources, in a timely manner.

Mr. Jones appreciates this service, commenting that, "Because Hitachi does all the jobs necessary for maintenance, we don't have to worry about the machines. Machines are working with-

out any problems."

Ockie Barnard, the Maintenance & Acting Site Manager of HCSA who supervises the stationed staff at the mine, expresses his amazement at the effects of full maintenance. "Because Lumwana is a new mine, the unexpected can happen at any moment. But compared with when we started operations here, both the lead time for parts supply and the down time for inspection and repair have been reduced. This is because we are working hard to address any needs quickly."

In addition to ensuring that machines never stop working at the site, it is also important to adopt machines that are constructed in such a way that they almost never fail.

One of the solutions for accomplishing this is to use electric machines rather than engine-driven machines. At the



## Southern Africa Zambia

Lumwana Mine, four EX5500E-6 electric loading shovels (operating weight: 516 t) and 32 EH4500 AC-driven dump trucks with trolley assist (operating weight: 226 t; total weight with load: 480 t) are currently being operated.

Compared with engine-driven machines, electric-driven machines excel in environmental performance such as quietness and achieving low emissions. Furthermore, electric machines, and dump trucks in particular, have a lower risk of breakdown because they do not need a transmission and other complicated mechanisms and their structure is simpler, requiring fewer parts. Should something go wrong, fewer parts means lower costs and shorter maintenance time, resulting in minimum down-time.

The structure of electric machines has become even simpler since the 1990s thanks to the technological innovation that has opened the door to the powerful AC drive in replacing the traditional DC drive.

Dump trucks with trolley assist require initial investment for incidental facilities, such as power sources and overhead power lines, but their acceleration under the power lines when climbing slopes while carrying a load is nearly double that of HCM's engine-driven trucks. Also, fuel consumption per operation cycle can be almost halved.

Fuel costs required for each ultra-large dump truck generally amount to 100 million yen annually. So a 50% lower fuel consumption means a savings of 50 million yen. For a mine that uses several dozen dump trucks, the cost advantage is enormous. The electrification of mining machines is therefore a technology that allows the mining company to increase their profits. Needless to say, whether or not machines are electrified is a major factor that determines a mining company's evaluation of a manufacturer.



An EH4500AC mining dump truck with trolley assist. Power is collected from overhead lines via the pantograph.

## Made by Hitachi Collaboration

### AC-driven large dump trucks with trolley assist—the result of collaboration with the Hitachi Group

The majority of ultra-large dump trucks used in mines around the world are electric-driven. The EH4500AC dump truck operated in the Lumwana mine is one such example, and is mounted with two AC drive motors made by Siemens, a German engineering company. The EH3500AC II, a next-generation AC-driven dump truck that has been introduced to the Kansanshi Copper Mine in Zambia, is another example of an electric-driven truck, but this one is made through collaboration with the Hitachi Group. This model was developed with a combination of HCM dump truck technology, large AC motor technology from Hitachi, Ltd., and pantograph technology from Hitachi Engineering & Services—in other words, it is a product of the integrated strengths of the Hitachi Group.

Hitachi's AC motor technology adopted for the driving unit of the dump truck, which has been refined continuously over many years through its use in Shinkansen bullet trains, in particular is expected to boost the truck's performance and reliability in the mines.

One particular anecdote illustrates the high reliability of Hitachi's AC motor technology. At the end of 2009, when Europe was hit by a severe cold wave, a Eurostar train with about 500 passengers and crew became stranded in the Channel Tunnel linking the U.K. and France. While all trains using motor systems made by other companies could not be mobilized, only the Javelin, a new British high-speed train mounted with Hitachi's AC motor, was able to reach the Eurostar and rescue the passengers. This case clearly demonstrated Hitachi's superior technological level to the world.

Apart from AC motors, Hitachi has also built up locomotive technologies over many years and possesses a wide range of know-how regarding electronic

control gained through technological development partnerships with automobile makers.

"These electrical technologies represent an area that Hitachi has always been strong in. As the progress in the Hitachi Group's collaborations continues, the pace of technological development will accelerate," said Tomohiko Yasuda, General Manager of HCM's Development Design Center. The successor model currently under development plans to incorporate a stability control system that is usually used for automobiles.

"The system will control skids and minimize pitching when braking in order to help realize smooth driving," said Yasuda.

Yoji Akaike, President of Hitachi Construction Machinery Zambia (HCMZ), believes the simple fact that everything is developed solely by the Hitachi Group will be a great advantage to their operations.

"In the case of models that incorporate non-HCM components or units, even when we requested the related companies to provide technical documents, it sometimes didn't go smoothly (due to their information management point of view). Many constraints also exist regarding obtaining non-HCM remanufactured parts. Development solely within the Hitachi Group will eliminate all these constraints, and even this alone is a great advantage."

Yasuda commented enthusiastically on the possibility of this collaboration opening up new markets.

"By taking advantage of our collective strengths, we may be able to receive orders for installing overhead trolley cables as well as those for dump trucks with trolley assist. If we sell these all in one package, we will be able to deliver superb performance and reliability to customers."

Then waves of "Made by Hitachi" may sweep the world.



An EH3500AC II dump truck with trolley assist immediately before delivering to the Kansanshi Mine in Zambia, owned by the Canadian-based First Quantum Minerals (FQM) Ltd.





An HCMZ advertisement with the catch phrase "Global Quality," erected on the road running in front of the remanufacturing factory construction site



## Establishing a remanufacturing parts factory directly operated by HCM in Lusaka, the capital of Zambia, to enhance service performance

### Parts supply base located near the mines, providing logistic support for mining machines

The parts used in mining machines, which are generally operated 24 hours a day, wear down very quickly, and it is often said that replacing them over a period of three to four years costs almost the same as a new machine.

To increase machine availability under these harsh conditions, conducting of periodical maintenance, replacement of consumable parts, and appropriate overhauls are essential. Parts that are



The remanufacturing factory is being constructed at an amazing pace. The color of the reception on the first floor of the office building is based on Hitachi's corporate color.

not supplied in a timely manner may result in serious events such as breakdown.

Consumable parts and other parts used by the Lumwana mine and other mines in Southern Africa are currently delivered from Hitachi Construction Machinery Africa, while crucial component parts are sent from Japan. However, this method requires that the products pass through customs in several countries, making it difficult to expect exact dates of delivery and posing a major hindrance to scheduled parts supplies.

In this context, and to enhance service performance for mining machines operating in Southern Africa, HCM is working extremely hard to complete a remanufacturing parts factory in Lusaka, the capital of Zambia, which will begin operations in the spring of this year.

The mission of this factory is to collect end-of-life parts removed from mining machines and restore them through remanufacturing so that they can be installed again and mining operations can continue. With such a facility, parts replacement can be scheduled accurately and the time required for parts delivery will be shortened, making it possible for workers at each site to make effective use of their limited time for maintenance. HCM already possesses two other remanufacturing factories in Indonesia and Australia.

HCM established Hitachi Construction Machinery Zambia (HCMZ), which will take charge of operating the remanufacturing factory in Zambia, the first factory built by Japanese companies. Yoji Akaike, the President of HCMZ, stressed the importance of the role played by the factory, saying, "We needed a remanufacturing factory in Africa as well to ensure a timely supply of parts so that we can conduct maintenance work and parts replacement as scheduled and gain the trust of our customers."

The factory is advantageous for mining companies as well because being able to supply parts from within Zambia means a shortened lead time and lower transportation costs. Parts procurement costs are also expected to be reduced because the parts supplied will come from remanufacturing.

"In addition to consumable parts, the plant is also expected to eventually be able to supply key components such as hydraulic cylinders, for about 100 machines operating in Zambia and Mozambique," said Akaike.

Even for Siemens' AC units, the factory has arranged to repair and remanufacture them under the license of the German engineering company. "We still need to send engines to the engine manufacturer, but in the near future, we want to undertake their re-



Equipment used in parts remanufacturing is being delivered, one after another, into the building. Many of these are imported from a vendor in South Africa.

Inside the remanufacturing factory designed based on the model of the factory in Indonesia. When operated at full capacity, the factory will cover about 100 machines operating in Zambia and Mozambique. The Zambian government is expecting the factory to create employment as well. The former President of the country attended the groundbreaking ceremony.



Remanufacturing work is divided into several processes, each of which is carried out in its respective air-conditioned booth. On the left is an assembly/disassembly booth for hydraulic pumps and motors. Finished parts are stored in the dedicated warehouse on the right.

manufacturing as well. Because the engine costs are the most expensive part of maintenance, we want to realize that as soon as possible. We have already acquired a site for this purpose," said Akaike enthusiastically about his company's future plan.

The remanufacturing factory will also serve as the supply hub for remanufactured parts in Southern Africa and will deliver these parts to mines in Congo, Namibia, and other neighboring countries.

Kotaro Tokuno, the factory's Work-



The workshop has a shower room for workers. Water is supplied from both pipe lines and a well.

shop Manager, talks about this move. "We will meet those needs sooner or later." "But we must maintain our quality. No matter whether they are new parts or remanufactured parts, or whether they are made in Indonesia or Zambia, all are Hitachi's products. We need to maintain global "Made by Hitachi" quality. The only difference between remanufactured parts and new parts is that we can obtain various data on mining machines from the parts that are sent to us. It is also our responsibility to utilize these data effectively."



Workshop Manager  
**Kotaro Tokuno**

President, HCMZ  
**Yoji Akaike**

Ensuring that the cycle of parts removed from machines and remanufactured parts delivered to mines will keep rolling

## HCMZ

Hitachi Construction Machinery Zambia

"Preparations for construction are being carried out at a high pace in cooperation with local staff," said a smiling Akaike, President of HCMZ. The remanufacturing factory's workshop building looked nearly completed. The only building not completed was the office building across from the workshop.

"We kept telling the construction company that the workshop must be built first. A stable provision of service is only possible when the workshop begins its operations."

In his previous position, Akaike was responsible for the support of ultra-large machines operating in mines in Thailand.

"It is about time that the components of machines used in the Lumwana mine are replaced. If they are not replaced, their availability will fall. And if the machines are forced to continue their operations, they will break down. We might fall into a vicious circle."

The remanufacturing factory has been built as the stronghold to prevent such an occurrence. The chief of the stronghold is Tokuno, who is originally from Yamanashi Hitachi Construction Machinery. Before he was appointed to the position, he worked in minefields around the world in demining equipment maintenance.

"This is the first time I've been appointed manager of a remanufacturing factory. But I got intensive training at the factory in Indonesia and the Remanufacturing Center in Tsuchiura, Japan. I also developed a good relationship with local people around the world and can talk to them in a "heart-to-heart" way, which I think is one of my strengths," said Tokuno.

"There are many things to do. But our most important mission is to maintain the cycle of removing parts from machines and delivering remanufactured parts to the mines. Our factory must ensure that this cycle goes smoothly."

Tokuno is also pleased that he could hire more skilled local workers than expected. Mining-rich countries like Zambia have a good pool of workers to choose from.

"But the supervisor-class personnel are selected from among Filipinos that have gotten training in Indonesia. The factory in Indonesia is our model. Our target for the time being is to catch up with the factory in Indonesia."

On the other hand, Akaike is also responsible for customer development as head of the HCMZ sales force. "As a company located close to local mines, we want to cultivate new mining customers here," said Akaike.



An EX5500 shovel deployed for open-cut excavation at the Phase 1 site



Mr. Fernando became an EX5500 operator after a three-month training period. "I'm proud of my work as an operator of this big machine. The cab is also comfortable—actually more comfortable than my home!"



# Southern Africa Mozambique



## Providing support to maintain a high availability in extremely hot environments in excess of 50°C

### Africa's largest and only high-quality coking coal mine

Mozambique, which neighbors Zambia, is also known for its wealth of mineral resources. Here, a large new mining project is attracting great attention from around the world.

The name of the mine is the Moatize Mine, and is the country's first large-scale coal mine. This mine produces high-quality coking coal that can be used in the production of steel. High steel demand worldwide has accelerated the development of coking coal mines in various regions around the world, but is basically limited to Russia, China, the U.S.A, and Australia. In Africa, however, the Moatize Mine is the largest and only major coking coal mine.

The owner of the Moatize Mine is Vale, a Brazil-based mining company that is also the world's largest iron ore producer. By expanding into the coal mining business, the company intends to secure two important steelmaking resources in order to strengthen their foothold in the steel market.

Vale acquired an interest in the mine in 2004 and site construction began in 2010. The first shipment of coal was made last year in September. In Phase 1, the mine is expected to produce 11 million tons annually by 2013, with planned annual output eventually increasing to 40 million tons.

Mr. Gildeny Tavarez, the Mining Manager, explained the importance of the mine to their company. "Vale has coal mines in other countries, but Moatize is

the first mine that we have developed from scratch. For us, as we aim to become the world's top mining company in the area of steelmaking resources, this mine is extremely important."

When HCM delivered two EX5500 shovels to the Moatize Mine, the company founded Hitachi Construction Machinery (Mozambique) (HCMQ), the first local subsidiary established by a Japanese company in Mozambique. Thirty-six workers are stationed at the mine, working in three shifts to provide around-the-clock maintenance for the shovels.

Total operating hours for the EX5500 shovels have exceeded 10,000, but according to Mr. Tavarez, their condition is still "very good."

"We are using HCM's machines in

Brazil as well, and know about their high quality. But the support service for this mine is particularly good. We can get parts and components within a short timeframe. We are very satisfied. The availability exceeds the guaranteed rate of 89% and thanks to this, the entire project is going well," said Mr. Tavarez.

Mr. Terutora Urano, Manager of the Construction & Mining Equipment Project Unit, Mitsubishi Corporation, who is in charge of sales of HCM's products to Vale, believes that the Moatize Mine will become a model for all large coal mines in Africa.

"Mining companies are always interested in the reputation of new mines. Their interest in the Moatize Mine is particularly high, and there are many inquiries about HCM's mining machines. We sometimes show mining company personnel around the mine, and receive a very high opinion about HCM's machines from them."

The Moatize Mine is actually located in one of Africa's harshest environments, where the temperature can exceed 50°C in the summer. According to Mamoru Sawabe, the President of HCMQ, the engine room can get as hot as nearly 90°C.

Skilled human resources are also scarce. The civil war ended only 20 years ago, and young people in their 20s and



Mr. Gildeny Tavarez, the Mining Manager of the Moatize Mine. "Hitachi also has a good education program, including training for operators. This is very helpful."

30s lack sufficient education and working experience.

In this situation, it is no easy task to maintain a high availability while hiring and providing training to local workers. To make matters worse, the local language is Portuguese.

EX8000 shovels are planned to be introduced to the mine in March of this year. "We will request the engine manufacturer to establish a local subsidiary and provide mechanical support. However, in any case, the key is the education of local workers. Fortunately, because we have some Japanese Brazilian staff who have gotten on-the-job training in Japan, we are planning to have these staff support local workers to develop their skills. Things will probably not go smoothly, but if we are patient, good results should follow. The three keys to success in Africa are 'Don't get angry,' 'Don't be hasty,' and 'Don't give up,'" said Sawabe.

## Developing the "Kenkijin spirit," while valuing Mozambican culture and spirit

### HCMQ

Hitachi Construction Machinery Mozambique Co., Ltd.

Hitachi Construction Machinery (Mozambique) (HCMQ), founded in October 2010, is the first local subsidiary established by a Japanese company in Mozambique. Mamoru Sawabe, the President of HCMQ, had been specializing in the maintenance service area in Japan since he joined HCM until he was appointed to his current position, which is actually his first assignment abroad. In amazement at this bold assignment, one employee of Mitsubishi Corporation, HCMQ's partner company, commented "This position requires the highest level of toughness among all the jobs available for Japanese expatriates."

While bewildered by the African environment, which is totally different from that of Japan and Asia, Sawabe has steadily increased HCMQ's presence in the market.

HCMQ will introduce EX8000 shovels into the Moatize Mine in the spring of this year. Support operations must be further strengthened.

"If we can establish a good reputation during the current Phase 1 operations, it will lead to the introduction of more machines in Phase 2. The biggest issue is human resources," said Sawabe.

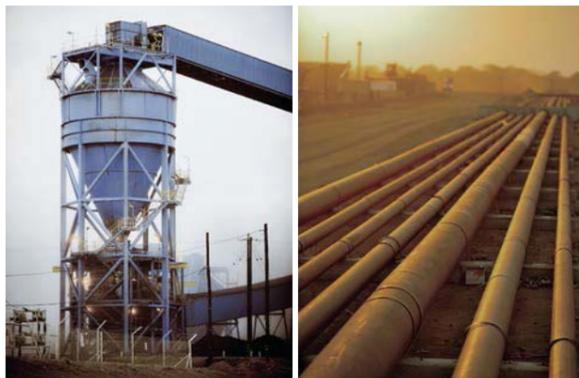
"It's very difficult to train young people who were not able to receive education or who had no job experience due to the civil war. It's a trial-and-error process. However, I really respect local workers who work in stifling heat exceeding 50°C, but yet do not complain. I don't think Japanese workers can replace them."

We are sending a few local workers each time for training at HCAF, but my hope is to have a training facility in Mozambique as soon as possible. We want to develop the "Kenkijin spirit" in local workers, while fully valuing their own spirit and culture."

The HCMQ office located on the Moatize Mine site. Japanese Brazilian staff, Japanese staff hired locally, and local workers cooperate with each other to provide maintenance service.



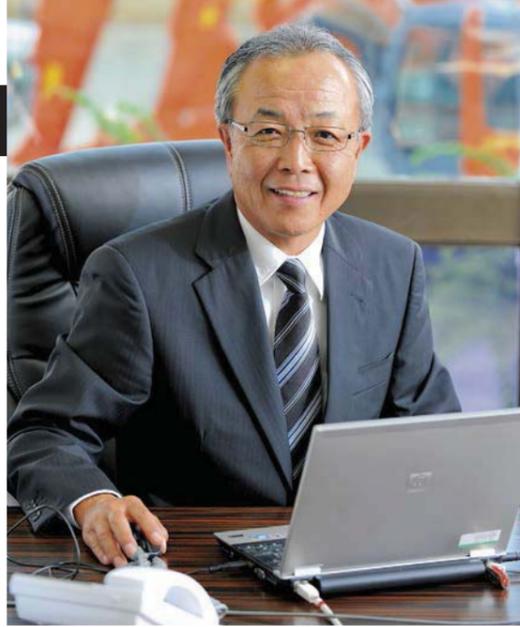
A coal plant at the Moatize Mine, built by opening up the wilderness. Coal excavated from the mine is washed with water supplied from a reservoir through a pipeline. The railway for the shipment had just been completed at the time of this visit.





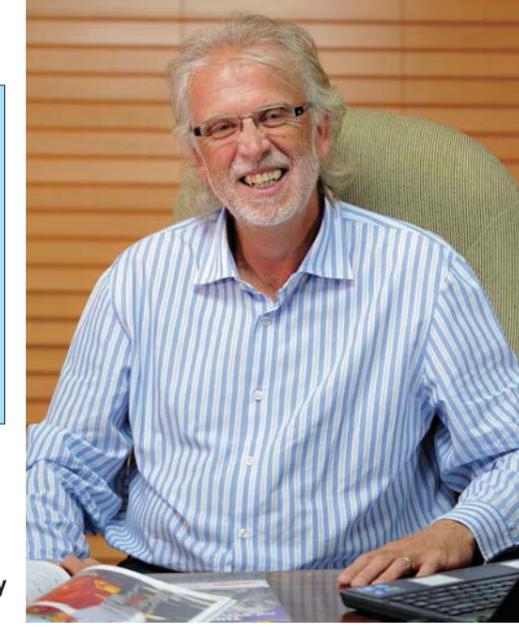
**HCAF**

Hitachi Construction Machinery Africa Pty. Ltd.



**HCSA**

Hitachi Construction Machinery Southern Africa Co., Ltd.



President **Hironori Okajima**

**Strengthening the organization across Southern Africa to cultivate the mining market**

**Interviewer:** Hitachi Construction Machinery Africa (HCAF) was established in October 2010 as the regional headquarters.

**Okajima:** The area previously exclusively managed by Hitachi Construction Machinery Southern Africa (HCSA) was divided into three zones, which are now managed by HCSA and two other new companies—Hitachi Construction Machinery Zambia (HCMZ) and Hitachi Construction Machinery (Mozambique) (HCMQ). As the headquarters of these companies, HCAF will cultivate the mining market in Southern Africa.

There are only about 10 countries in all of Africa where excavators demand is more than 100 units annually. In the Southern African region, South Africa has been the largest market, with over 1,000 units sold per year. However, we are now seeing increased demand for machines used for resource development and mining in neighboring countries. We therefore needed to establish an organization to meet this demand. In the mining business, full maintenance support is considered as a basic service manufacturers need to offer. It is therefore necessary for us to be on maintenance standby at a location that is as close to customers as possible.

**Interviewer:** So manufactures need to provide support directly to customers rather than through dealers?

**Okajima:** That's right. Mining companies also prefer communicating directly with

manufacturers. Of course, we sometimes need local dealers. They are important especially when it comes to small- to medium-sized machines, not just for technical support but also as a means of gathering market information. But as far as the mining business is concerned, direct support from manufacturers is more efficient.

**Interviewer:** Do we need to take a new approach towards those mining companies entering the African market?

**Okajima:** We already have a track record in delivering ultra-large mining machines in Australia and Indonesia. Our performance therefore is already known to major mining companies worldwide. They have a thorough knowledge of our products.

The single most important feature that mining companies want for their mining machines is reliability that ensures stable operations. Mining companies are willing to purchase reliable products even when the prices are slightly higher. We have also added AC-driven mining dump trucks to our lineup, in addition to mining excavators, allowing us to now deliver all the major machines in one package.

**Interviewer:** In addition to the remanufacturing parts factory in Zambia, are you planning to build other factories?

**Okajima:** When the number of delivered machines increases, we will need to open a second and third remanufacturing parts factory. Machine production capacity is currently not up to speed with the world's growing demand, and associated parts are also in short sup-

ply. The role of remanufacturing parts factory is therefore very important. If the remanufacturing parts factory is in another country, much time is required for transportation and customs clearance, so ideally speaking, we should build a factory in each country in which our machines are operating. To make this profitable, however, there needs to be a sufficient number of our products in operation in the country. In hopes of increasing the number of our machines in African countries that would need remanufactured parts, we will endeavor to expand sales on this continent.

**Interviewer:** When the number of our machines introduced to mines increases, we will need an even more efficient support system.

**Okajima:** The key for this is human resources development. When machines operate, we always need personnel who can take care of them. We are currently mobilizing supervisor-class personnel from Indonesia and Australia, and developing the capabilities of local workers is also an urgent requirement.

Because many workers we hire in Africa do not have experience working for a company, it takes time and effort to train them. Therefore, the first thing that we need to do is to improve our training program. Presently, local workers hired in Zambia and Mozambique are sent to South Africa to get training. I think we should provide ultra-large machine parts and facility for use in the program so that workers can be trained on how to handle them. We also want to improve our training center and promote tie-ups with local high schools and vocational schools to develop human resources.

President **Allen Brinkley**

**Developing a deeper relationship with customers and changing corporate culture with "Kenkijin spirit"**

**Interviewer:** When did HCSA enter the mining market?

**Brinkley:** When I became President of HCSA in 2004, I had discussions with directors regarding which market to expand into outside of the construction market. We decided that it must be mining as there are many large mining companies and many mining contractors in South Africa that we were sure were not using our equipment. This proved correct, and as a consequence we were able to increase our sales significantly since then.

Further to this and coming from our market research we identified the huge potential in copper resources in Zambia. Although the scale of the mines at that time was small compared with those in Indonesia and Australia, we foresaw promising market growth potential for mining equipment. Starting the business from scratch, we were able to sell 81 units over the past five years. Many ultra-large hydraulic excavators and shovels currently operating in the Copperbelt in Zambia are our products. Large dump trucks have also sold well.

In 2010, we approached Vale in Mozambique and after forming a partnership with Mitsubishi Corporation, succeeded in securing an order for four EX5500 Excavators/Shovels two of which are delivered.

Thanks to these overall efforts, our sales increased from 3.5 billion yen to 25 billion yen during the years between

2003 and 2010.

**Interviewer:** It is already known that there are huge deposits of copper in Southern Africa.

**Brinkley:** That's right. But copper prices were previously low, and it was difficult for mining companies to generate profit. However, after prices exploded improving the viability of mining copper, several small and mid-size mining companies sprang up. Since these were new companies many of which were in foreign territories and in remote places we realized we would be faced with many challenges. The main challenge was to ensure payment so we structured the transactions accordingly and moved forward and targeted these companies.

**Interviewer:** Moves by Korean and Chinese manufacturers in Africa are also a concern.

**Brinkley:** Initially, products from Chinese and Korean manufacturers were not of good quality, however, recently this has improved. As a result we believe that sooner or later they will pose a threat to our business. It is true that our products are not the cheapest and that we do not currently have a full product lineup, we are however proud to say that our maintenance service is at the highest in South Africa. We have over the years built and maintained good relationships with customers, and endeavor, at all times, to make new proposals and realize high-quality service. This in the main

is the reason why we have been able to maintain top market share for four consecutive years.

**Interviewer:** What do you think HCSA needs to do from now on to expand business in the market?

**Brinkley:** Our target focuses on mining contractors, as well as mining companies. This is because, even if we are not a preferred supplier to a large mining we will still have presence through the mining contractors.

Another important point is human resources development. We are aiming at improving worker training using country-specific training programs, and in addition growing our apprenticeship program.

We are also trying to change our corporate culture to further strengthen our relationship with customers. We want to make the company a place where every employee can feel they are valued and needed, and feel an increase in their own value every day. To realize this, we will create a program to instill the "Kenkijin spirit" among all employees. Japan and South Africa are very different countries, but we want to build a company that is open to the differences of both and that can take advantage of their respective strengths.