Global Business Plan of Construction Machinery Solutions

Hidekazu Nakakuro
Manabu Arami
Hongjuan Wang

GLOBALIZATION OF MANAGEMENT BASE

HITACHI Construction Machinery Co., Ltd. was established in October 1970 and since then has contributed to its customers' businesses through two different types of creativity, namely, the development of innovative technologies that satisfy customer needs and the creation of demand by supplying those customers with new value.

Meanwhile, driven by infrastructure investment and the associated expansion in resource development, the construction machinery market for both construction and mining machinery has experienced growth in demand in recent years from emerging economies. Since the global financial crisis (Lehman Shock), demand for construction machinery has changed to a 25%/75% split between developed and emerging markets respectively, with competition in emerging economies becoming stronger by the day. In terms of technology, growing environmental awareness is providing an impetus behind measures such as energy efficiency improvements and stricter exhaust gas regulations.

To respond flexibly to these changes in the business environment and achieve sustainable growth, it is necessary to make progress toward a more global business management base.

Looking ahead to 2020, Hitachi Construction Machinery has formulated its 2020 Vision that sets out where it wants to be in a decade's time, expressing its aim to be a "Close and Reliable Partner anywhere on the Earth with Best Solutions through Kenkijin Spirit[a]." To achieve this, the company has embarked on a three-year medium-term management plan running from 2011 to 2013 and entitled Go Together 2013.

The company's aim is to establish an overwhelming presence for itself in the global market for construction machinery by offering solutions and services that are one step ahead and based on superior technologies cultivated over many years.

(a) Kenkijin Spirit
An expression of the underlying values and standards of conduct that constitute the approach taken by employees of the Hitachi Construction Machinery ("Kenki") group.

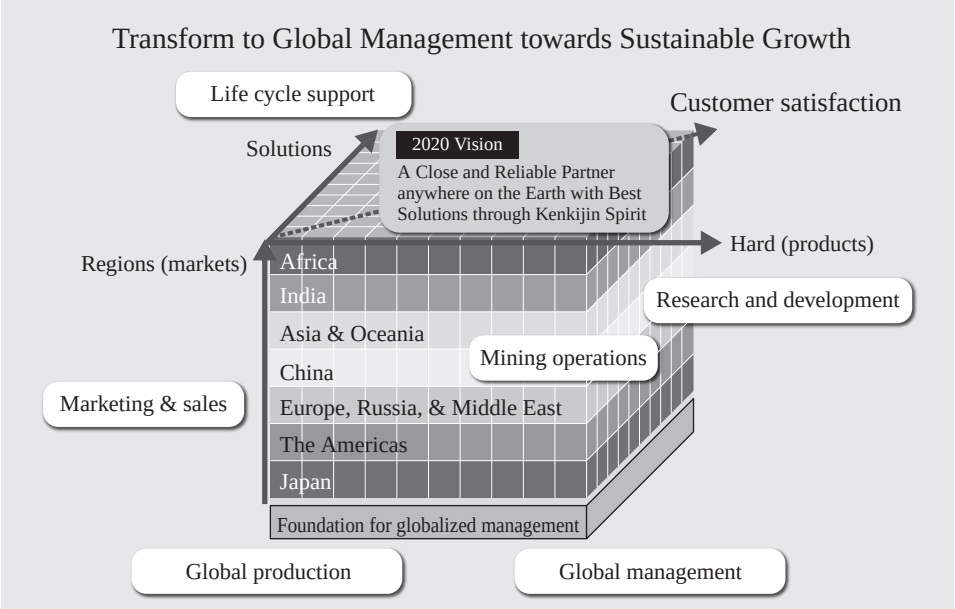

Fig. 1—2020 Vision and Six Imperatives to be Tackled in Medium to Long Term. Hitachi Construction Machinery Co., Ltd. has identified six imperatives to strengthen along three key axes.

TRANSFORMATION OF BUSINESS MODEL

The Go Together 2013 medium-term management plan is a growth strategy based around the three axes of products, solutions, and regions (markets). It seeks to strengthen the following six imperatives of the company's strategy (see Fig. 1).

(1) Research and development
(2) Life cycle support
(3) Marketing and sales
(4) Global production
(5) Global management
(6) Mining operation

Product Strategy: Becoming a Comprehensive Broad-based Manufacturer of Construction Machinery

Hitachi Construction Machinery developed the UH03 hydraulic excavator in 1965 to be a model based on entirely Japanese technology, and now supplies products to suit various customer needs, ranging from small to medium-sized hydraulic excavators to ultra-large excavators with a machine weight of over 800 t. The company has become a broad-based manufacturer of construction machinery, with a product range that also includes mini excavators, dump trucks, wheel loaders, environmental recycling machinery, and tired rollers (see Fig. 2).

On the technical side, the company has followed a strategy of focusing investment on technology developments, such as hydraulic efficiency or performance improvements, that target economics, advanced features, and reliability. A feature of Hitachi Construction Machinery products is their enhanced total fuel efficiency achieved by adopting engines that suit the different circumstances in each country or region and matching them to the hydraulic systems. The company is also preparing itself for future electrification technologies, with power source innovations that include the development of hybrid and battery-powered excavators that consolidate technologies from the wider Hitachi Group.

For emerging markets, meanwhile, where operating conditions are mostly harsh, Hitachi Construction Machinery is earning a strong reputation by developing models designed for cost performance that are tough and easy to maintain while also being able to handle a heavy workload.

The company is pursuing value engineering practices for product development with the aim of maximizing the true value to the customer and minimizing costs across the entire life cycle, from the initial cost of purchase to the running costs of use and disposal (see Fig. 3).

Solution Strategy: Strengthening Solution Businesses

To satisfy customers around the world, the Hitachi Construction Machinery group supplies total solutions that combine all of its capabilities. These include contract service packages that deliver low after-sales running costs in the form of a fixed fee, an anti-theft service that utilizes mobile communications, support

Fig. 2—Main Products of Hitachi Construction Machinery Group.
Hitachi Construction Machinery is a broad-based manufacturer of construction machinery with an involvement in a wide variety of products that dates back to the development of the UH03 hydraulic excavator in 1965.

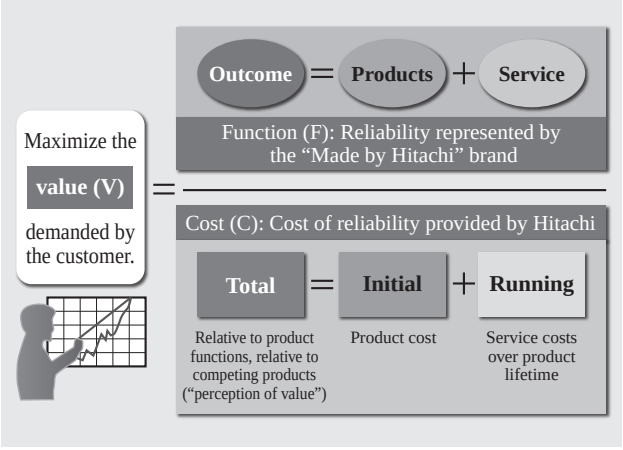

Fig. 3—Use of Value Engineering.
In 2003, Hitachi Construction Machinery won a Miles-Supreme Corporate Award from the Society of Japanese Value Engineering.

for staff to acquire licences for construction machinery operation, and financial services. Furthermore, Hitachi Construction Machinery Japan Co., Ltd. was established in April 2012 to further enhance value to customers by supplying sales, service, and rental products.

In Africa, Hitachi Construction Machinery was the first Japanese company to establish and operate a re-manufacturing factory of hydraulic components for hydraulic excavators. The facility is located in the Republic of Zambia and utilizes know-how from Japan.

Regional Strategy: Transformation from Japanese to Global Company

Hitachi Construction Machinery has been transforming its business from one based on exports from Japan toward expansion of local production. Production in countries such as China and the Republic of Indonesia commenced during the 1990s. The company has increased the proportion of overseas sales year by year to the point where they now account for about 80% of total sales. This was achieved by expanding its network of dealers, particularly in Asia and Oceania, and by establishing its own sales companies in mining regions (see Fig. 4).

The company has also adopted an organizational structure that divides itself into seven regional business divisions to ensure a prompt response to the pace of growth in emerging markets. This includes adopting diversity management and accelerating a shift to global management that combines business delegation to locally based management and governance of its operation (see Fig. 5)

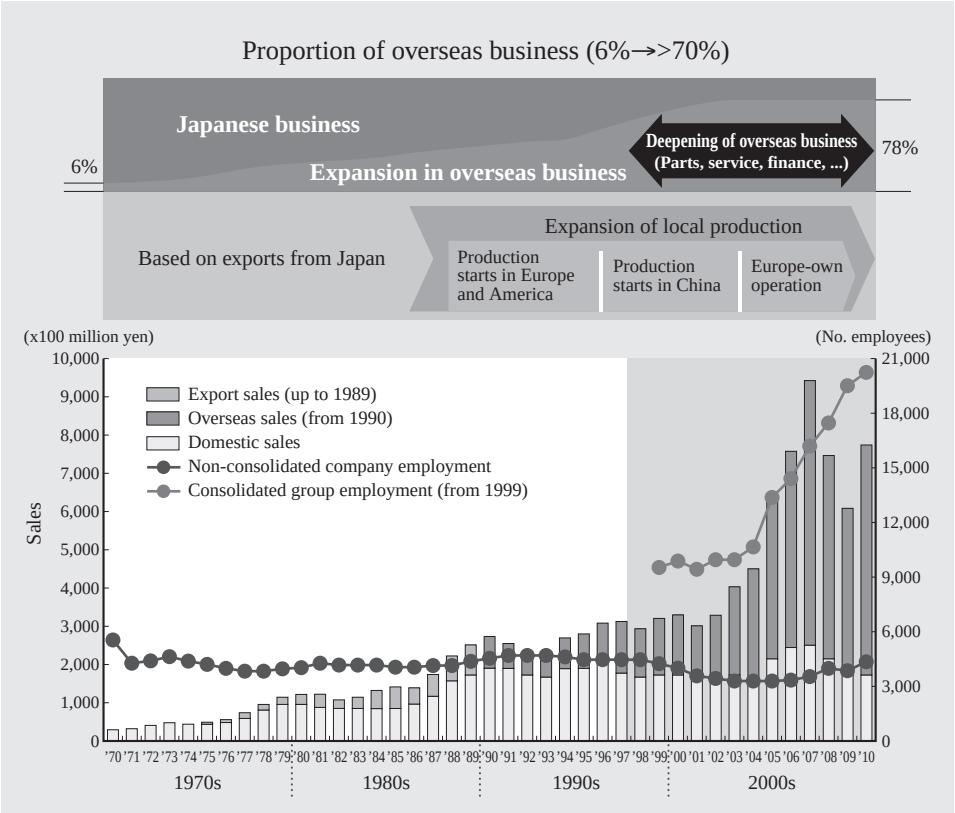

Fig. 4—Expansion of Overseas Operations of Hitachi Construction Machinery.
Hitachi Construction Machinery seeks to transform itself from a Japanese to a global corporation.

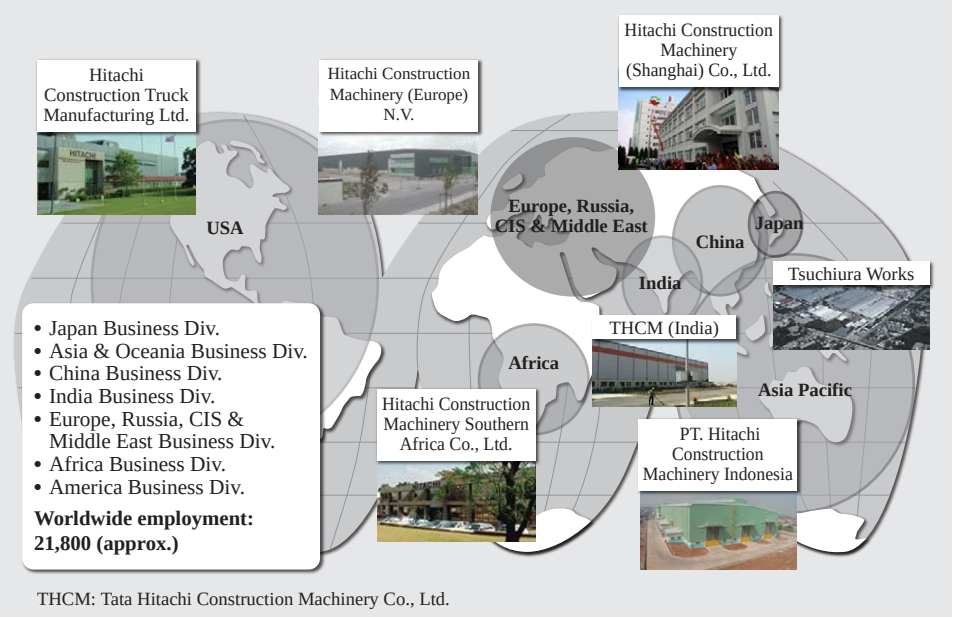

Fig. 5—Hitachi Construction Machinery's Seven Regional Business Divisions. The organizational structure has been divided into seven regional business divisions to accelerate the transition to global management.

As global competition continues to intensify, the company is also strengthening its management base by pursuing both monozukuri innovation to achieve industry-leading cost-competitiveness and optimum procurement and production.

Hitachi Construction Machinery (China) Co., Ltd. in Hefei City, Anhui Province, China boasts world-top class scale and is making progress on a shift to local production to achieve the volumes needed to satisfy vigorous demand in China. To achieve a world-class level of quality, the company has established a staff training system in collaboration with a vocational training institution in Hefei.

Hitachi Construction Machinery (China) is also undertaking joint research on construction machinery with Zhejiang University through a three-way partnership that also includes Hitachi (China) Research & Development Corporation.

In India, Hitachi Construction Machinery established a technical collaboration more than 25 years ago with Tata Motors Limited, one of the core businesses in the Tata Group, the nation's largest conglomerate. Since then, Tata Hitachi Construction Machinery Co., Ltd. (THCM) has had a strong presence in the Indian market under the Tata Hitachi brand, with the leading position of the market for hydraulic excavators. This was achieved through a combination of the leading-edge technology and high quality of Hitachi Construction Machinery with Tata's unparalleled brand presence and sales network.

In the future, Hitachi Construction Machinery intends to continue building its global production system and expanding its sales network so that it can respond flexibly to changes in the business environment.

ONGOING GLOBAL GROWTH IN MINING MARKET

For the mining market, Hitachi Construction Machinery has developed ultra-large excavators boasting excellent reliability and dump trucks that incorporate large alternating current (AC) motor drives augmented by Shinkansen technology from Hitachi, Ltd. These machines are in use in mines around the world.

Trolley-assisted dump trucks[(b)] help reduce the load on the environment and combine dump truck technology from Hitachi Construction Machinery with AC motor technology from Hitachi, Ltd. and pantograph technology from Hitachi Engineering & Services Co., Ltd. The Hitachi Group combines to supply these dump trucks as a package that includes the overhead contact lines (see Fig. 6).

In the future, Hitachi aims to further enhance customer satisfaction with its mining machinery by drawing on its strengths in fields such as electrical technology and vehicle stability control systems to

(b) Trolley-assisted Dump Truck
A dump truck driven by electric power supplied via a pantograph from overhead contact lines. Trolley-assisted dump trucks improve production volume and utilization compared to diesel trucks due to advantages such as superior hill-climbing speed and because the reduced load on the engine reduces the frequency of overhauls. Because they are powered by electricity rather than diesel, they help reduce the load on the environment by reducing carbon dioxide (CO_2) emissions as well as operating costs.

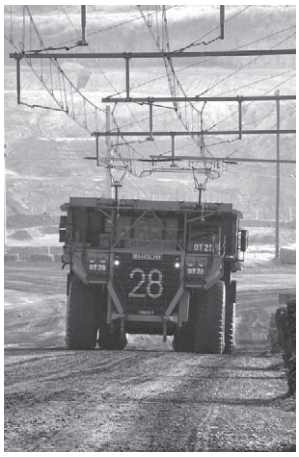

Fig. 6—Trolley-assisted Dump Truck Incorporating Technology from Hitachi Group.
This trolley-assisted dump truck was developed using technology from across the Hitachi Group and is being sold as a package that includes the overhead contact lines.

enhance performance and reliability while minimizing life cycle costs per unit of material excavated.

UTILIZATION OF ICT DESIGNED FOR GLOBALIZATION

Currently, approximately 120,000 construction machines fitted with communications equipment are in use around the world. Hitachi Construction Machinery is using information and communication technology (ICT) to track the location of these machines and other operational information so that it can be used in the next generation of product development and to strengthen service and support.

At a mine that operates 24 hours a day, for example, even very short machine downtime can result in major losses to the customer. The ultra-large excavators used at such mines are fitted with sensors at approximately 50 locations to perform detailed monitoring of the machine's working condition. The company is also working on research and development of techniques that analyze the large quantities of collected data to predict when to replace parts and to facilitate preventive maintenance.

RESPONSE TO ENVIRONMENTAL CONCERNS

As part of Hitachi's Environmental Vision 2025, Hitachi Construction Machinery is seeking to cut carbon dioxide (CO_2) emissions by 3.5 million tons.

In addition to compliance with the world's most stringent exhaust gas regulations in Japan, Europe, and America, Hitachi's latest ZAXIS-5* Series hydraulic excavator also features excellent energy efficiency. Also, the company led the construction machinery industry in Japan by being the first to use carbon offsets to offset the emission of CO_2 in manufacturing, something it has been doing since 2008.

As it is anticipated that regulations and other environmental requirements will become even stricter in the future, the company is seeking to combine technologies from all Hitachi group to reduce the load on the environment with a focus that extends from manufacturing to the rest of the product life cycle (see Fig. 7).

CSR

Construction machinery also has an essential role to play in disaster recovery.

Double-arm working machines have a primary arm for crushing and cutting work and a secondary arm for assisting in these tasks. Able to manipulate both arms simultaneously using intuitive controls, one of these machines can accomplish work efficiently that would normally require two heavy machines, such as

Fig. 7—ZH200 Hybrid Hydraulic Excavator.
Progress is also being made toward the adoption of electric and hybrid drives for construction machinery. Hitachi Construction Machinery released the 20-metric-ton ZH200 hybrid hydraulic excavator in July 2011.

* ZAXIS is a trademark of Hitachi Construction Machinery Co., Ltd.

Fig. 8—Double-arm Working Machine (Left) and Demining Machine (Right).
Machines such as the double-arm working machine and demining machines help with disaster recovery and with restoring the land to peace and prosperity.

supporting and cutting or dismantling and separating. In recovery work following the Great East Japan Earthquake, double-arm working machines were able to deal quickly with complex rubble that would otherwise have been difficult to deal with.

Demining (landmine clearance) equipment developed by Yamanashi Hitachi Construction Machinery Co., Ltd. has earned a reputation for reliability, and 86 machines have been supplied to a total of nine countries (as of April 2012). Each machine is customized to suit specific conditions such as the soil and how the landmines are deployed. Many years of localization and rigorous research went into ensuring that the machines will restore the land to peace and prosperity in a way that combines safety with efficient landmine clearance. Maintenance costs have been reduced by building up know-how and designing parts that local technicians can replace quickly. In brush-covered or flat terrain, the machine can, in addition to clearing mines, also act as a cultivator to help rehabilitate the land for agricultural use by plowing the soil using nine large rippers.

In China, Hitachi Construction Machinery (China) Co., Ltd. donated a hydraulic excavator after the Great Sichuan Earthquake. Hitachi Construction Machinery has also been involved in a 10-year tree planting program (that started in 2005) to prevent desertification in the Horqin Desert in the Inner Mongolia Autonomous Region. In the Kingdom of Cambodia, the company is working through Good Earth Japan, a non-profit organization, to help people become self-sufficient.

The Hitachi Construction Machinery Group engages in corporate social responsibility activities around the world to continue its growth into a truly global corporation (see Fig. 8 and Fig. 9).

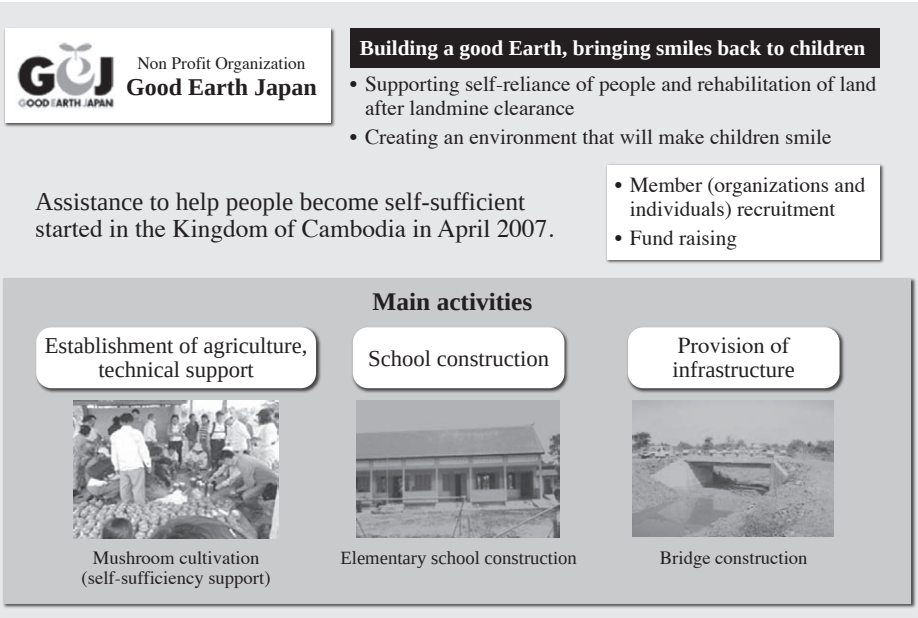

Fig. 9—Helping People in Kingdom of Cambodia Become Self-sufficient.
In the Kingdom of Cambodia, the company is working through Good Earth Japan, a non-profit organization, to help people become self-sufficient.

ACHIEVING SUSTAINABLE GROWTH

Hitachi Construction Machinery Co., Ltd. will continue to respond flexibly to various changes in the business environment and strive to deliver new value to customers through the development of technology. To achieve sustainable growth as a truly global corporation, the company is working to reform its management from the perspectives of strengthening its management base and the three axes of products, solutions, and regions (markets), with the aim of being a company that always looks one step ahead.

ABOUT THE AUTHORS

Hidekazu Nakakuro

Joined Hitachi Construction Machinery Co., Ltd. in 1980, and now works at the Corporate Planning Office. He is currently engaged in preparation, development, and supervision of the Hitachi Construction Machinery Group's medium-term management plan.

Manabu Arami

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