The gigantic elephant has woken up. India, a member of BRICs, has seriously started its infrastructure improvements. India is predicted to exceed China’s population by the year 2025 and become the world’s most populous country. India is gaining interest not just for its rich domestic market, but also for building a strong position among emerging nations.

India will undertake $1 trillion in infrastructure projects over the five years between 2012 and 2016. In transportation, the main project will be the completion of the Golden Quadrilateral that connects the major cities of Delhi, Kolkata, Chennai, and Mumbai. The construction machinery market is expected to grow rapidly to meet the demands of these infrastructure projects. Based on the Industry Federation of India’s estimate, India’s domestic construction machinery market (including parts and services) will grow from $7.5 billion in 2010 to $13 billion by 2015. The percent of India’s market will rise from 5% of the world’s market to 7%.
During the Twelfth 5-Year Plan, $1 trillion is being spent to accelerate India’s infrastructure projects, primarily in cities.

The key to promoting efficiency and increasing the speed of the work is to have superb machines.

After 27 years of inaction, the construction work for a new subway line has been going on around-the-clock in the suburbs of Kolkata, the largest city in eastern India.

Senbo Engineering (Senbo), a construction company headquartered in Kolkata, has the contract for the project. Senbo, one of the most rapidly growing companies in India, has been contracted for large construction projects such as the subway and the international airport in New Delhi. Their accomplishments have already proven the quality of their work. What should be especially mentioned about them here is the speed of their work. They completed the subway construction in Delhi two months ahead of the scheduled completion date and they were awarded for that by the Indian government.

Mr. Dotha, the mechanical manager of the site explains “construction work in Kolkata, which has a lot of marshes, is not easy. In addition, construction work is interrupted by rain for about four months total during the year. On top of that, since the residential area is so close by, we have to be aware of the noise we make.” How can they work keeping the noise low while maintaining safety—they adopted the excavators by Telco Construction Equipment Company (Telcon), a joint venture between Hitachi Construction Machinery (HCM) and Tata Motors. It’s known as “Tata-Hitachi” in India. “First of all, the movement in front is fast. It’s obvious when you compare it to other company’s products. Its quiet operation is appreciated. You can also tell this by comparing it to other company’s machines. On top of that, because of the position of the lever, we don’t get tired when operating their machines for many hours. Another strong point is that there are no problems with the equipment. We want to use them for as long as possible” said Mr. Dotha.

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A Global Hub Structure that has Been Created Over 25 Years of Accumulation

Hitachi’s ultra large hydraulic excavator changed the durability standard

One of the reasons why India has attracted attention is because of its rich coal and mineral resources. In fact, India is one of the largest sources of natural resources in the world. However, the development of these resources is still underway. Mr. Kawano at JETRO, previously mentioned, says that most of these mining companies are government-owned. So the productivity of these companies is still low. However, there are some companies that stand out because of their high productivity.

One major steel company is Tata Steel, one of Tata Group’s core businesses. One of their mines is a coalmine in West Bokaro in Jharkhand, a state in northeast India. The size of the mine is 4,300 hectares (over 10,600 acres). The coal that is extracted from here is used either as fuel in the steel-blast furnaces of the Tata steel factory or is sent to the electrical power plants in the Group’s area. At this coalmine, they want to raise their production from 5,500,000 metric tons to 9,000,000 metric tons within three years.

To support the increased production plan, the maintenance manager of the mining equipment, Mr. Sarangi, recently ordered a new 120-tonne large excavator, the EX1200. There are already thirteen excavation machines in operation at this coalmine, including the main EX2500 excavator, along with the 1200, 1100 and 200 models. All of these machines were manufactured by Hitachi.

You may think Tata has an acquisition preference for Hitachi equipment because of the capital relationship between the Tata and the HCM companies, but that is not true. “Tata Group has many screening and investigative committees that are specialists in making purchase and investment decisions.”

“Purchasing and using HCM’s new excavator was thoroughly examined by the ‘Mobile Equipment-Based Replacement’ committee. They rigorously judged whether Tata should buy new equipment or overhaul the existing equipment,” said Mr. Sarangi. Sometimes, Indian business operations are tougher and more logical than at Japanese companies. At Tata, with a history of over 100 years, it is well understood that all purchase decisions require a rigorous and solid logical basis.

“Tata makes purchase decisions of equipment by judging the entire lifecycle cost. The machines manufactured by HCM have higher initial costs but they have greater durability and, with appropriate maintenance, their machines do not degrade or lose their performance level even through extended use. The durability of HCM’s equipment is much better than other companies by far. Up to now, Tata’s standard was the 100-tonne equipment class operating for 30,000 hours. However the benchmark tests Tata carried out showed that the equipment could actually be used twice as long for 60,000 hours. So the machines from HCM changed our standard to be twice as long. In the future, we believe that with appropriate maintenance, the use of this equipment can be stretched to 100,000 hours.”

HCM’s machines easily passed the required checkpoints and have been shipped to many countries with world-class quality. These checkpoints are not just the price or durability of the equipment but also their reliability and safety. Moreover, the ergonomics of the equipment makes them easy to operate with excellent visibility. The idea of “fool-proof” is included to avoid any mis-operation of the equipment.

The reason why Tata Motors believes in the partnership with HCM is because they can see the global quality standard in manufacturing by HCM.

“The top of Telcon, Mr. Rama Sinha, said, ‘we are grateful that we found a business partner in HCM. We are very happy.’ “It’s not only their global-quality technology that is great but it’s also their ability to grow and develop people who can create that excellent technology.” To meet Tata Motor’s expectations, HCM has its own ‘People Communication Program’. The purpose of the program is to establish HCM’s philosophy of manufacturing great products (“Monozukuri”) by developing people (“Hitotsubuki”) in India.

The top manager of the new factory, Mr. Aloikumar Singh, says the effect of this People Communication Program is huge. “At each production line in the factory, we see fantastic ideas about improvements (‘kaizen’) coming from all levels of workers.”

The future we want to have is becoming real, without fail. In the near future, Telcon is going to export its new equipment series with a global-standard of quality. When that happens, Telcon will become the Global Hub in both name and reality.

At the same time, the Japan and India EPA will be enacted in August of this year. The tariff rate will be lowered step-by-step. Our advantage will be increased over the Europeans and the Koreans who have been closely following us. India is a gigantic elephant that woke up from its deep sleep. To handle this new pace of growth, you may think the Global Hub was created to fit this new India, but this is not true. The managing director of HCM, Mr. Yoshimi Iwase, who is located in India, says, “We have been working and moving forward with our plans here for over 25 years. One of the reasons is considering India as our Global Hub. The path has now been blazed. Now it’s time for us to keep going up our future steps together.”
We are Making our Future Hand-in-Hand with HCM

Interviewer: It’s been 25 years since HCM and Tata Motors tied up together.

Mr. Sinha: Ever since the start of Telcon’s business, Telcon and Hitachi have been promoting technical cooperation. Since HCM joined our partnership in 2000, our relationship has become much closer. Coincidently, it was just when HCM became a joint owner that infrastructure projects started in a major way in various locations in India. We were able to steadily gain more share in an increasingly competitive market by adding HCM’s new technology to our own machines that we had been developing by our own hand. In fact, the Indian market grew five times larger in the five years since 2003. Meanwhile, our policy was to further enhance our partnership with HCM.

Interviewer: After that, HCM kept raising its ownership percentage so that by 2010, HCM reached 60% of the ownership and gained majority position.

Mr. Sinha: We were certain that we got an advantage from that. The technology from HCM became more accessible and people were sent here from HCM. That means we have made a path to global-standard quality. Furthermore, we created a new factory, Kharagpur, which is to become a base for our Global Hub. By nature, in terms of the workforce and transportation cost, India was very competitive. But because of this new factory, we could increase our cost advantage to compete with the world. India is close to countries such as Sri Lanka and Pakistan that are expected to grow in the future plus we have a strong advantage with African and Middle-Eastern markets. We are planning to build a large product line at the Kharagpur factory for all kinds of products, not only excavators but also wheel loaders, backhoe loaders, dump trucks, road machinery, and other products that are needed for both the Indian and emerging markets. It is clear that Kharagpur will be a world-class factory. HCM supported us with their technology.

What we appreciate the most is the fact that HCM inspired us with the spirit of a high sense of commitment to work and to the spirit of manufacturing (“Monozukuri”).

Interviewer: What’s the difference in business culture between Tata and HCM? How are they combining together?

Mr. Sinha: Tata is a cosmopolitan company with over a 100-year history. Tata’s culture is very open and transparent, plus it’s friendly. On the other side, HCM’s culture is also very transparent and very customer-oriented and open. I believe both companies are very similar culturally. As a matter of fact, when their ownership passed 60%, there were some employees who left the company concerned for their future. But I can clearly say that they were wrong. It’s been proven by the Japanese who are here working with us that we are becoming closer and closer and are able to have a higher sense of cooperation. We respect each other and make each other better. I’m sure that HCM culture is same as Telcon culture.

Mr. Sinha: The development of a version of the machine that fits the emerging markets; that model should become the standard for the emerging markets around the world. We’re taking our future in our own hands.

For that, we have to make quality manufacturing the global standard. That is, match HCM’s level. We haven’t reached there yet but we are making steady progress.

Another point is to practice after-sales service globally. No matter where HCM Group’s machines are sold, we should be able to support them when requested by the customer. We want to make it happen following HCM’s global strategy and using HCM’s network.

Interviewer: What are your main issues from now?

Mr. Sinha: I don’t take this as an issue as much as a challenge. The key challenge is to develop our workforce. In India, the younger generation is focused on the IT business. Their engineering ability is aimed toward the IT business. I want to shift their ability to “Monozukuri” (manufacturing). We weren’t able to promote the attractiveness of manufacturing very well in the past.

But now the Shuttle project, which is a staff-exchange program, is very effective. Every month we send some people to Japan to learn Japanese manufacturing, HCM’s global technology, and their know-how, all learned through their philosophy. Their motivation for manufacturing keeps growing. We want to raise our people’s level by continuing this program.
The Kharagpur Plant

The Newest Frontline Production Site

At the Main Facility of the Global Hub that Integrates much of HCM’s Core Philosophy

The group’s largest production facility is twice the size of the Tsuchiura plant.

The Kharagpur Plant, a next-generation factory with a construction cost of $125 million, started operation in 2009 as an addition to the existing Dharwad and Jamshedpur factories, and is 250 acres in size (about 100 hectares), about the size of 20 Tokyo Domes. Starting with excavators, the factory also currently produces wheel-loaders, dump trucks and other items. At full operation, it will produce 10,000 machines per year.

The production numbers have been growing steadily. It grew from 857 machines in 2010 to approximately 2,500 (est.) in 2011, and is scheduled to produce 7,500 in 2015. See the graph provided.

In order to respond to the various needs of the emerging countries, a flexible, mixed-production line was adopted. Robots are used for welding along with other leading-edge systems.

Yoshimi Iwase, the Japanese top manager at Telcon, talks about the strategic role of the factory as follows. “As you can see from the size, this factory is twice the size of our Tsuchiura factory. By itself, it is HCM’s largest factory. If we consider only India’s domestic demand, the three factories combined can meet all of India’s projected demand five years from now. It’s because the Kharagpur factory was designed from the beginning to be the base of the Global Hub.”

In addition to the production line, there are additional facilities such as the Operator Training School and a guest house on the property. In the future, there will be a vendor park (an industrial park that will be set up for the manufacturing of parts by suppliers), an R&D center, meeting facilities, and so on.

Its location and conditions are perfect for the Global Hub. It’s about two hours by road to the Jamshedpur factory. It’s also about two hours from Kolkata, the largest city in eastern India. Parts suppliers are gathering in that area. Since the roads between them are paved, it’s a great advantage in an India that is becoming one of the most developed countries. The Kharagpur Plant is the location of India’s largest city, meeting facilities, and equipment, follows HCM’s ideas faithfully.

This Global Hub factory is exactly what is needed for targeting the emerging nations. We have high expectations for the R&D center that will have the newest equipment.

“Currently, the Jamshedpur factory has the R&D function for Telcon. But at some point, everything will be centered at Kharagpur.”

“When it starts its operation, it will handle such tests as power tests for the engine, endurance tests on the transmission, and noise tests using ultrasonography and an anechoic chamber.”

“The existing center is an R&D center for the domestic market but the new one will be built at the Kharagapur factory as a Global Hub R&D center that will target the markets of the emerging nations,” says Mr. Iwase.

“The plan to aim for global quality is thorough. Needless to say, the staff in charge of the quality control rigorously checks the work process, the processing time, and the energy consumption of production, along with kaiZen (i.e., ideas for improvement). All of these checks are quantified and are checked at each step by the quality maintenance staff who are advised by the HCM staff.

Not only facilities but the motivation of employees is improved

According to Mr. Singh, “Every worker at the factory knows how much energy is used and how much time it takes to manufacture one machine.”
If some problem occurs, the manager will make a detailed report all the way from a hidden cause to the full solution. The report will be shared among the three factories in India.

If the cause of the problem is human error, the employee will be trained at the training center after a consultation with them.

The quality check and kaizen are not only practiced at the factories but also with the co-operating vendors as well. The announcement of the kaizen ideas takes place every morning and each unit of workers are required to present more than two kaizen ideas per month.

In any case, won’t the workers feel suffocated with this thorough practice? No, because they make the best use of the management skills of Tata, a global player, it won’t make that happen.

At the Karagapur plant, they do a survey on the employee satisfaction of the entire workforce twice a year to improve the satisfaction level. To be objective, they have an outside, top research company do the survey rather than an internal team. The results of the survey are analyzed by the appropriate section and are incorporated in the improvements in facilities, labor, treatment, and so forth.

The standard of quality in the products and manufacturing are consistently at the HCM level and the Tata philosophy and ideas are adopted in many areas of factory management.

A typical example of this is an affiliated facility, the Operator Training School. Tata, by nature, is a business group that has a high interest in contributing to society as part of societal uplift. They run multiple vocational training schools in India for jobless youngsters. This is one of the schools. The students learn the basics of maintenance and the assembly of the machines for three months, but the graduates don’t always need to work for Telcon.

“It’s because our number one goal is to give them portable skills that they can use elsewhere and become independent,” says Mr. Singh.

With that, we can easily see the reason why Tata has been supported in India with diverse values. Mr. Singh clearly stated “My mission is to grow the Karagapur plant to being called a ‘world-class factory.’”

Sooner or later, the words will become true because everyone understands what to do to be called a world-class factory and they are faithfully carrying it out.

CM as a global company is practicing the “Global Quality Diagnosis” at its production facilities around the world in order to reach a high “Made in India” quality. Last time, the Karagapur plant of Telcon was the closest plant in quality to the benchmark factory at Tochiura. The Japanese Telcon top, Mr. Iwase, feels the impact as Telcon steadily progresses toward the desired Global Hub.

That quality at the other two factories is gradually improving. Our efforts to raise our quality, such as starting the Shuttle project and the Kaizen movement at the production sites, have led to better and better results. We want to establish a global quality here that we can export in the near future,” Mr. Iwase says of his aspirations.

One of the proofs is the excavator, which is a model for the emerging nations. We are working on the design and development as hard as possible. For the past two to three years, European and Korean companies, among others, are working hard with every resource available to them to expand into the Indian market. “Therefore, it’s critical not to be delayed and to establish this model for the emerging nations,” says Mr. Iwase. This model for the emerging nations contains a module of our development philosophy, not only to fit the Indian market, but also to fit the nations around India.

The base should be built in Japan and the components should be assembled fitting the economic situation, the operating environment and the legal system of the export targets. “In terms of the core quality, we improved the basic strength of the machine to be more robust so they can be used under harsh conditions without a problem.” The expectation is high. Not only in the marketability but also in the confidence of the people involved at the production site.

“In Telcon’s case in the past, HCM provided the technical drawings that Telcon followed to manufacture the product. That doesn’t take analysis or learning. All you have to do is copy the drawing precisely. But that’s not a creative way. From now on, we want everyone from Telcon’s designers all the way to the sales and marketing staff to speak their minds and be engaged in the development process. That should give Telcon employees tremendous confidence and do the most to bring up their skills to a global level.”

Of course there are a lot of other things that Telcon has to do to be a Global Hub of HCM.

For example, the product quality of vendors (the parts suppliers). Unfortunately, there is a large gap between the Indian suppliers and the Japanese suppliers. We considered expanding the Shuttle Project to include them but it would have taken too much time.”

Mr. Iwase has a bold plan for this. His plan is to transport the entire Japanese machinery factory there to train the Indian vendor. “For the transplant, we would rather have surgery rather than a gradual blood transfusion.”

“We already have a very large property for vendors at our newest Karagapur plant. We must improve the dealer product quality as well. Mr. Iwase comments as follows: “Our service network has to be denser and they have to increase their interactions with the customers. After all, increasing the number of customers means we have to give them more comprehensive after-sales care. The dealers themselves need more care. We’re increasing our office and Dealer network. They’ll share the roles and we won’t leave everything for the agents to do.”

“We would like to establish this type of network as soon as possible and shake off the competitors. We see the markets of the surrounding emerging countries as an extension of this strategy.”

“In the meantime, since it won’t be completed instantly, We will concentrate on realizing HCM’s global quality piece by piece.”
Bring Japanese Know-how Home to Bring Up the Technology to Hitachi’s Level

In order to quickly reach the global product quality of HCM, the workforce exchange program (the “Shuttle Project”) started about a year ago. Telcon employees from various departments, from the production site to the management class, fly to Japan regularly to learn through their experience. What they learn is the global product quality technology, theory, and philosophy.

27 employees have already experienced this training in Japan. The duration can be as short as two weeks or as long as three years. We can easily tell how significant their experiences were from what they say about the program. For example, Mr. Arup Mukherjee, who is in charge of the entire factory’s production technology, says, “I have known that the HCM factory is world-class but they were different from what I imagined. Their work is very precise. Plus they have passion. Everybody is working with their passion. Everybody is doing their work with passion. I was taught that these basic differences make the global level possible.”

The program is divided mainly into lectures and hands-on training at the site. In addition, there is a visit to a cooperating vendor. In Mr. Mukherjee’s case, the duration was eleven days. During the training, he learned the small-group activities (SGM) such as the familiar Kaizen (improvement) and PokaYoke (error-proofing). From lectures, he learned about the entire production engineering practices such as Value Engineering (VE) and the Value for Customer (VC). At the development site he practiced things like benchmark testing. In addition, they visited multiple vendors and had additional training.

He says he built his confidence through every single experience. “It was worthwhile to get to know the HCM staff in Japan” Mr. Mukherjee says. “When I am in trouble, I can get help with a single phone call or email!”

Mr. Ghosh, who is in charge of the Shuttle Project, says, “It became clear what each person should do to make the Global Hub real. It’s not what you’re doing, but what each of us finds on our own in our daily work.”

It’s bearing fruit. For example they now have a rule to place tools and parts, which used to be placed randomly, by size and shape. This reduces the loss of time. When a sticker used to be pasted onto a machine, air bubbles were created in the sticker. However, by adding one small step of spraying water on the sticker before pasting it, the problem was completely resolved. In the welding department, with an accumulation of Kaizen improvements, they raised their productivity by an astonishing 50%.

Now they are working on a plan to spread the information that they brought home from the Shuttle Project to their vendors in India. “That’s the way it should be,” the top of Product Quality Assurance, Mr. Mahesh Tripathi said. “Global product quality cannot be implemented by only a handful of people’s levels being raised. To make it happen, everybody has to be at the same level and everybody has to work with the same sense.”

“Those who experienced the Shuttle Project and returned to India wrote detailed reports that are being combined into a manual.”

“This accumulation of practices is our valuable asset,” says Mr. Mukherjee. “There’s no specific standard in global product quality because it should keep evolving and accumulating. Therefore this accumulation is very helpful. The best thing is that we can share HCM’s Monozukuri (manufacturing spirit) through this accumulation.”

The men pictured above have experienced the Shuttle Project training. They are also considered transmitters who are trying to spread what they learned in Japan to all of Telcon.