

# T I E R R A <sup>plus</sup>

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*from*  
**India**

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**A**wakening  
the **Giant E**lephant

# India

## The Latest Updates on Infrastructure

*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 main four cities of India (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 service) 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%.



The subway in Kolkata has had a single line since 1984. This service will be increased to six lines over the next five years. The construction site in the images at right is the Railway Maintenance Vehicle Yard that Senbo is working on. It's about 25 kilometers from the heart of Kolkata. Since it's located in a marsh in a residential area, the connecting line being built is elevated.



## 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



Mr. Pujal is an operator with nine years of experience. "The machines of Tata-Hitachi rotate so quickly that we can make great progress in our work. Although I have operated other manufacturer's machines, Hitachi's are the best. No wonder everyone wants to operate the Hitachi's."



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.

It's been awhile since India became a member of the developing countries called BRICs. However, BRICs achievements were not easy to see from Japan, probably because of the distance from Japan to those countries. Compared to other Asian countries, the penetration

into BRICs by Japanese companies is still low.

The biggest reason was the concern for the infrastructure. Surprisingly, despite India's image as an IT-advanced nation, they have desperately wanted infrastructure improvements for years.

The lack of infrastructure is the result of the controlled economy by socialism that lasted until the 1990s, the budget allocation favoring the farming areas, and so forth. But now India is proactive about their infrastructure improvement.

Major infrastructure improvements around the city like Kolkata have been going on in many places. It's because the central government announced one infrastructure project after another.

In the Twelfth 5-Year Project (2012-2016), they set the goal of GDP growth to between 9-9.5%. They also made it clear that they would invest \$1 trillion in the infrastructure projects over the next 5 years. That's twice the amount from the previous 5-year plan.

The plan is packed with many major projects, starting with an improvement of high-speed rail that will connect the capital Delhi, Mumbai in the west, Kolkata in the east, and Chennai in the south; highways; and includes improvements

to power facilities, subways, harbor facilities, and the water supply. So the major projects go on and on.

"There is no doubt that our work will increase for the next ten years," the chairman of Senbo, Mr. Sengupta, exclaimed.

"We have to improve the efficiency of our work and accelerate our speed. Time is money. In-order to do so, it's essential to have superb machines. Our work is not done by humans but by machines."

Tata-Hitachi is supported by these construction companies the most.

More than 25 years ago, Hitachi Construction Machinery (HCM) tied up with Tata Motors for technical co-operation. Tata Motors is a mainstream company of Tata Group, the largest conglomerate of India. Ever since then, we have been gaining steadily in the Indian market with the Tata-Hitachi brand.

Tata-Hitachi's domestic market share is over 40%. Mr. Katsushi Saito, construction machinery analyst at the Equity Research Department at Nomura Securities, describes Tata-Hitachi as the market leader in India.

"Tata-Hitachi is established as an Indian brand. It's significant that HCM's partner is Tata," says Mr. Saito.



"Time is money in this business," the chairman of Senbo Engineering, Mr. Sengupta, repeats. "Also, it's necessary to replace and renovate the machinery to improve the efficiency of the work. This business depends on the efficiency of the machinery. We have mainly used 7-tonne class machines, but as major infrastructure projects increase, the 20-tonne class excavators will be the mainstream machines of the future."



from  
India

Mr. Kei Kawano of JETRO Overseas Research Department, who knows the Indian market very well, thinks highly of the partnership and says "it's hard to tie up with Tata now. It was wise for Hitachi to foresee the future."

The unbeatable team made from HCM machinery, with its cutting-edge technology and global-level quality, and Tata, with its overwhelming sales network, led to the largest market share in India.

Last year, HCM raised its ownership percentage to 60% and strengthened its partnership. Because of this, HCM started building the next-generation factories and the development of new models for the emerging countries. We are targeting an increase of our presence in the Indian market and at the same time we are targeting to gain the markets of emerging countries.

Mr. Kawano of JETRO says, "Tata-Hitachi shouldn't focus only on Indian domestic demand. Since India tends strongly to grow together as a team, the key for the Japanese companies is to keep very strong relationships with their Indian partners and try to obtain the markets of the emerging countries that already have a close relation with India, and more."



The 250-tonne ultra large hydraulic excavator, the EX2500, is working actively at the West Bokaro mine. It was selected by the technical committee of Tata Steel after passing various standards such as durability, work efficiency, operability, safety, and fool proof.



The West Bokaro mine produces world-level, high-quality coal. The life-span of this mine is another 45 years. It's been verified that there are many other mines around it. The coal produced here is used as fuel at Tata Steel and it's also sent to the power station of the Tata Group. At Tata Steel, it's mixed with both the coal from another domestic mine and the coal that has been imported from Australia. "The quality of the coal is critical in making good steel. The current combination is best. We want to keep this ratio," said Mr. Sarangi.



The steel mill of Tata Steel at the central part of Jamshedpur, where Tata Steel was founded. The facility had been expanded to increase production. A "Tata Gate" was put up at the entrance of this city, a so-called "business castle town".

## 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 north-east 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 durability and reliability of Hitachi machines is astonishing," says Mr. Sarangi, the maintenance manager of Tata Steel.



tween 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 opera-



tions 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 life-cycle 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 equip-

ment 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. Rana 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 ("Hitozukuri") in India.

The top manager of the new factory, Mr. Alok Kumar 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 results 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."

from India



Telco Construction Equipment Company Limited  
Managing Director

# Mr. Rana Sinha

**In 2010, as a result of discussions with Tata Motors, our joint-venture partner, HCM raised its partnership percentage with Telcon to 60% to prepare for the new generation. It's been over 25 years since HCM and Tata tied up together. What is the Global Hub strategy that these two global players, representing Japan and India, came up with after much preparation?**

## 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.

Coincidentally, 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 cre-



ated 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.

**Interviewer:** What's the target strategy for the Global Hub?

**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 two top officials, Mr. Rana Sinha and Mr. Yoshimi Iwase, shake hands in front of the monument to the 25-year partnership between Hitachi Construction Machinery and Tata Motors.



## from India



### Tata Group, the Father of Indian Industry

Tata Motors gained attention in Japan with the announcement of the world's lowest-priced vehicle, the Nano. Probably there are a lot of Japanese people who first heard about Tata at that time.

Tata is the largest conglomerate in India with a history of over 140 years and they are a global business group operating in 85 countries around the world. Their holding companies, Tata Sons and Tata Industries, lead 98 companies under them. Tata Motors and Tata Steel are the core companies of the group. Jamsetji Tata, the founder of Tata Group, felt that Indian social development should be supported by industrial development. He started the business at age 29 in 1868. Thus Tata Group, from early on, adopted and practiced social contribution and CSR (Corporate Social Responsibility). That philosophy has been passed down to the entire group that has its own plan for contributing to society.

66% of the shares of the holding company, Tata Sons, are held by the Tata Foundation, a charity run by the Tata family. The profits of the group are donated through the foundation to charities throughout India.

Also, the Tata Foundation promotes the Tata mission statement that admonishes unfairness and depravity, and they require all the companies in the group to comply with these policies.

That company philosophy and history are very similar to those of Namihei Odaira, the founder of Hitachi. Odaira also had a vision that industrial development should support the growth of the nation.



Welding



Painting



Assembly



## The Newest Frontline Production Site

# The Kharagpur Plant

The assembly line is a flexible manufacturing-line where multiple models are assembled on the same line. These models are: a bargain-priced edition of the medium-sized shovel, EX200-i, that can meet the demand of Indian domestic users who are tough on price; the ZX370, an Indian-customized model that is used for resource extraction and at harsh construction sites; and some machines that we rarely see in Japan such as the backhoe-loader. The line is not limited to the Indian market, but is also for the various and complex needs of the markets of emerging nations. The key to success is how flexibly we can respond to the markets that need many varieties in small lots.



## 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 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 believed to have problems in their traffic infrastructure.

Also, more than half of the Indian domestic mines are in that area and that makes it a great location for the growing after-sales service market for mining

machinery. In addition, it's close to the Haldia port that is one of the twelve largest shipping ports in India. This export port has many strategic advantages.

Mr. Alok Singh, the top of the factory, says the factory, in terms of buildings and equipment, follows HCM's ideas faithfully. All the workers and engineers here obtained their skills under HCM's guidance.

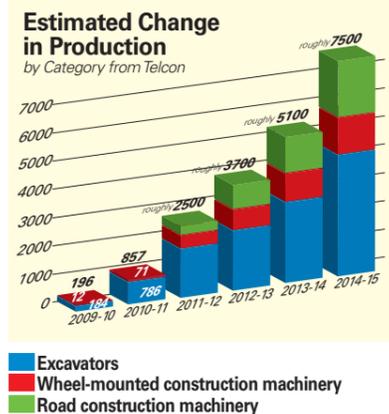
This Global Hub factory is exactly what is needed for targeting the emerging nations. We have high expectations for the R&D center that will have the

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 Kharagpur factory as a Global Hub R&D center that



Mr. Alok Kumar Singh is the General Manager of Production at the Kharagpur factory. He is also an engineer who has developed engines at Tata Motors. He describes the essence of management of "Monozukuri" (manufacturing) as "Hitozukuri". Hitozukuri means developing people.

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."

The newest robots for welding are used on the welding line. The robot operators require more than three years of studying in a special program. The development of these specialists who can operate robots and computers is an immediate business need.



# From India

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 its diverse values.

Mr. Singh clearly stated "My mission is to grow the Karagapur plant to being called a 'world-class factory'"

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



Environmental protection is also considered a global standard. In order to control the electricity consumption, solar panels and solar lights are placed throughout the factory and the skylights, made of polycarbonates, are inserted into the ceiling.



### The Newest Frontline Production Site The Kharagpur Plant



## Operator Training School

The Operator Training School at the Karagapur facility is run as a social-contribution project of Telcon.

It was built for the purpose of giving young people employment opportunities in the state of West Bangalore where the unemployment rate is relatively higher than the rest of India.

Although the name is "Operator Training", the students can also learn the assembly and the basic maintenance of the machines so they can work at the factory or work at the dealer. These are additional courses on top of the training offered at the main training facility in Japan for construction machinery operation.

The program consists of lectures using videos and computers and hands-on training using actual and simulated machines. Its concentrated training runs between 8:30 am and 5:00 pm for three months. Expenses are paid completely by Telcon. They have a dormitory on the factory property for the students who have traveled from a long distance away. "I'm proud of studying

at the Telcon School. My family is also very excited."

38-year old Mr. S. Venkat Raman, a former bus driver, who is taking the class passionately among the younger students in their twenties, says he is thinking of working for a different company's dealer after his graduation.

"Everybody wants the graduates of this school. Everybody in the construction or machinery field knows about the Telcon School. I'm confident that they can work anywhere."

So confidently says the instructor, Mr. Parvezalam, who has been operating construction machinery from different companies while working in the Middle East.

On the other hand, he has some concerns. "What I want from the graduates is to have a positive attitude to work. Work is not to be given. You have to find it. Plus if you work for a company, be committed to working for them for your entire life. We don't want them to quit easily. Otherwise, people cannot build up skills or grow."



Training using real machines such as the ZX70 excavator and the 315 backhoe loader is also included.

## Key Person

HCM Vice President and Executive Officer & Telcon Director  
(in charge of Technology and International Business Development),

# Mr. Yoshimi Iwase

## The steps to the Global Hub are progressing steadily.

HCM as a global company is practicing the "Global Quality Diagnosis" at its production facilities around the world in order to reach a high "Made by Hitachi" quality. Last time, the Karagapur plant of Telcon was the closest plant in quality to the benchmark factory at Tsuchiura.

The Japanese Telcon top, Mr. Iwase, feels the impact as Telcon steadily progresses toward the desired Global Hub. "The 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 vendor 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."



The people-only doorway created by an idea from "kaizen". The goal of the people-only path is to avoid interactions between people and factory vehicles.

## Global Strategy of HCM ~India Takes Charge of Two Major Missions~

### mission 1 Shuttle Project

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.

## 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 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 given from the higher levels, 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."

### mission 2 Design and Development Engineering Team

from India

## Driving Toward the Global Hub with Our Own Model for Emerging Markets

One of the forms of localization is the development of a machine model led by a national staff. The models of excavators we are developing now are a full line consisting of partly mini-shovels along with excavators from 20-tonne to 120-tonne.

The basic specification is decided in Japan and then the Indian specification is added and mixed in.

The leader, who is the Chief of the Design and Development Engineering team, Mr. S. Umamathy, says "We concentrate on enhancements to the arm and boom in the design process and strongly recommend it to Japan."

"The ways the machines are used in India are really harsh. Often a large job is done by small machines, the site is dusty, or the rock beds are very hard. The temperature often exceeds 40 degrees Centigrade. We want the Japanese side to understand these difficult conditions that are not seen in Japan."

Furthermore, it's very important to foresee future conditions at the release time. The markets of emerging nations are changing every minute, so it's not easy to predict the situation for a future release.

In addition to the needs of the market, it's important to accurately and quickly read the environmental conditions and



The unit for the engineering and development of the machines for the Global Hub strategy. In the center is the chief, Mr. Umamathy. Five to six people are assigned to one model. They handle the work from development of a new product through modeling to testing. Regarding the model they are working on for emerging nations, Mr. Umamathy says, "It will be a model that will have our additional inspiration using HCM technology on top of the excavator that Telcon now has. The cost will be reduced and the existing shovel problem will be fixed."

the international situation. Of course, sometimes the situation can change during the design phase.

"Recently, fuel expenses have gradually been going up. It became necessary to rethink the fuel performance," says Mr. Umamathy. Because of the strong yen, the cost for procurement of parts from Japan is going up. So it's important to raise the percentage of locally obtained parts. Furthermore, it's important to watch the actions of competitors. More and more European companies,

American companies, and Korean companies are targeting the Indian market.

"We have a good chance for success here because we know the Indian market much better than any other manufacturer and we know HCM's standard for global product quality. On top of that, we're going to have an R&D center for global quality. With more information and increased accuracy, we'll take another step forward toward the localization of model development. You can count on us."