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Don't just wait and see, take the initiative and shape the future.

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Visiting End Users 207
TR-COM CaseStudy

**Created a condition-based maintenance (CBM) system!
TR-COM helps reduce costs and build a knowledge base for maintenance**

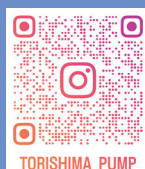
Toyo Kohan Co., Ltd.



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**AESSEAL-Torishima Japan Co., Ltd.
Established**

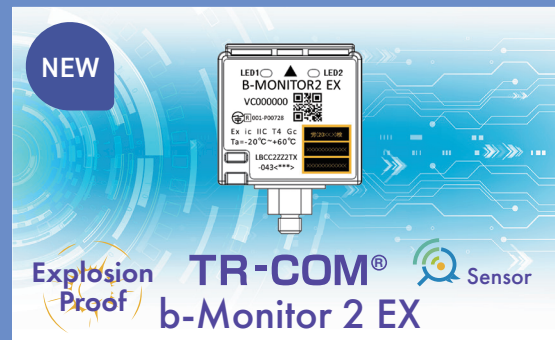
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TORISHIMA NEWS

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On-Site Training in India



好奇心と向上心'を
持ち続けることができるか。
我々のチャレンジは続きます。

We are always finding new ways
to maintain our curiosity and ambition.

Kotaro Harada
Representative Director, CEO

CEO MESSAGE

Did you see last year's year-end NHK special on Shohei Ohtani? The subtitle was "2023: A Legend Built at Hidden Cost, and the Start of a New Chapter." Ohtani led the American League of MLB in home runs as a hitter, posted double-digit wins as a pitcher, and won his second unanimous MVP award, yet he continues to change and evolve. I want to start 2024 by sharing with you three points about change that I took away from this in-depth interview with Ohtani.

1. Changing based on data

Ohtani the pitcher developed a sweeper that breaks sharply sideways like a frisbee. Ohtani the hitter modified his conventional uppercut to a swing that can beat high fastballs. He used a state-of-the-art AI pitching machine capable of simulating 850 big-league pitchers, and also conducted in-depth analysis of data for each and every pitch he threw. Ohtani had designed his swing and pitching mechanics in great detail to prepare for the upcoming season. The keywords here are data and AI.

2. Expediting change through training

I keep coming back to a colleague's comment on how Ohtani is able to adapt immediately where it takes others two or three years or even longer to catch up. Ohtani himself recognizes the difference. "Some can adapt in a day, and others cannot even if they spent 10 days, a year, or even a decade," he said. "I think it's possible to shorten the span of that feeling with the right training."

Last year, we launched the Agile Project led by COO Alister Flett and Hitoshi Ushida, General Manager of the Information System Office. The purpose of the project is to introduce a system development methodology in which changes and development are



repeated in short cycles of functional units. We plan to show that change can be expedited through training.

3. Enjoying change

Ohtani enjoys trying new things to see what happens. "It's a great feeling when cause and effect are directly connected," he said. How do you feel about changing things? Do you dread change, or do you find it exhilarating?

Ohtani will spend the next 10 years in a Los Angeles Dodgers uniform pursuing World Series championships. On why he chose the Dodgers, Ohtani has said the deciding factor was what the team's leaders said about their last decade: they do not consider it a success at all. In that time, they won nine division championships, three league championships, and one World Series, and had the best winning percentage of all MLB clubs by far. Ohtani was attracted by the Dodgers' refusal to be satisfied with even that level of success.

I think we, too, can continue to be curious and ambitious, believing that we can still get better. In that spirit, we at Torishima will continue to tackle challenges in 2024.



Don't just wait and see, **take the initiative** and shape the future.

Director, CO-COO **Koichiro Hamu**

We would like to once again express our deepest sympathies to the victims of the Noto Peninsula earthquake on January 1. While reconstruction efforts will begin full-scale operations soon, we at Torishima, a provider of safety and security to society, will extend our utmost cooperation toward reconstruction as a company that plays a role in infrastructure.

2023 proved to be a busy year for our company, but thanks to all of your creative ingenuity, we were able to successfully deliver on a large number of projects, leading to a steady flow of orders. We are promoting energy efficiency as part of our decarbonization efforts, and are pursuing the design and development of pumps for new energy sources such as ammonia and hydrogen and pumps for deep-seawater desalination plants. As a solution to labor shortages and maintenance efficiency

in Japan and overseas, TR-COM received a special award from the Ministry of Agriculture, Forestry and Fisheries at the Infrastructure Maintenance Awards and continues to play a significant role not only in the industrial world but also in the public sector. We owe everything to all of you, so thank you for your support.

With high expectations from our stakeholders, I foresee a 2024 that will be even busier and filled with more pleasant things to come. Looking ahead, Torishima is thoroughly committed to data-based approaches and will further promote data-driven operational reform while stepping up innovation to accelerate our efforts toward building a de-carbonized society. With DX (Digitalization) and GX (Greenification) as the axis, let us enjoy change with excitement and evolve to become a company that is indispensable to society.

The other day, a client made a bold comment to me that “the term ‘inquiry’ is not necessary for a company,” which has stuck in my mind.

The term “inquiry” is widely used in business practices, making it familiar even to those not involved in sales. Commonly, when a sales representative receives a request for a quotation from a customer, they will say “I received an inquiry.” You may have noticed that this inquiry is something that is received, coming from the other party with an image of waiting or passivity accompanying it.

I often hear conversations in the company such as “Have you received any inquiries? Oh, not yet?” Conversations like this are a red flag indicating that the company may be waiting for an inquiry or that the job has turned into simply responding to inquiries. This is far removed from Torishima’s aspirations of pursuing originality, enjoying change, and proactively proposing social solutions.



An inquiry from a customer can only be for widely recognized products, goods, and services that already exist in the world. At Torishima, we aim for innovation in the form of cutting-edge products, services, and solutions that have just been introduced to the market. As such, we are unlikely to receive inquiries from customers in the early stages of development. Instead of waiting, Torishima should always be the first to make a move. Leveraging our originality, we must strive to develop products and services that satisfy society’s needs and promote

proactive initiatives. It is important to always be working to create better changes in society. While Japan has produced many wonderful products in the past, many have faded away quickly due to the lack of a proactive approach.

This is certainly not limited to sales. Haven’t you encountered wait-and-see attitudes in other departments? In place of inquiries, we could instead consider order forms and development requirements in the engineering department, blueprints and spec sheets in the manufacturing and procurement departments, and other departments’ requests and revisions to government systems in the administration department. Do you ever find yourself waiting to be told how to move forward with your work? Have you been able to initiate actions or proposals?

If we consider inquiries to be an entrusted type of task, proposals are a proactive type. To be proactive, it is essential to understand the background of the work, identify the problem to be solved, determine the essence of the work, and have an image of the purpose and goal. Proactive tasks are not handed to you by someone, instead you become the proposer. While there are various challenges to face when trying to make proposals into realities, the process of considering and resolving them as the initiator will foster the development of personnel and corporate culture and allow us to become a company that will last another 100 years.

With the current population decline, digitalization, acceleration toward a decarbonized society, and geopolitical risks, the business environment surrounding Torishima is moving unpredictably and at unprecedented speed. This may sound a bit extreme, but failing to take action implies extinction. Of course, moving proactively instead of waiting may lead to setbacks, but let’s have the courage to enjoy change and shape our future.

Looking toward the future, why not stop using the word inquiry?

Created a condition-based maintenance (CBM) system!

TR-COM helps reduce costs and build a knowledge base for maintenance

Toyo Kohan Co., Ltd.

Toyo Kohan Co., Ltd. was founded in 1934 as Japan's first privately owned tinplate manufacturer. The company purchases steel materials from other companies and distributes them after adding value through rolling, surface treatment, lamination, and other processes. At present, they are also active in fields other than steel, such as aluminum, films, and DNA chips. The company's products contribute to people's daily lives in every aspect of society. Examples include laminated steel sheets used for beverage cans; nickel-plated steel sheets used for batteries, which are in growing demand due to the expansion of electric vehicles; aluminum substrates for magnetic disks used in hard disk drives; and films used for containers, among many other shapes and forms.



Issues arose from the maintenance system that failed to provide predictive maintenance

— Please tell us about the challenges your company faced prior to the introduction of TR-COM.

Mr. Morishige: We were carrying out maintenance of various types of equipment through daily and periodic inspections based mainly on human senses, but we had been unable to reduce the number of sudden malfunctions. Specifically, bearing failures with no identifiable causes occurred several times a year at certain facilities, but even with intensive daily and periodic inspections, abnormalities remained undetected. This resulted in sudden malfunctions, a situation that was not conducive to predictive maintenance. Furthermore, variations in the accuracy of equipment inspections among maintenance personnel remained an issue of concern. To a certain extent, this was left to the discretion of individual staff members, but due to the shrinking numbers of maintenance personnel and changing

to a new generation of staff, knowledge, skills, and experience were not handed down, leading to a situation where abnormalities were difficult to detect during equipment inspections.

Appeal of near-constant monitoring at a low cost

— Why did you choose TR-COM?

Mr. Morishige: We had considered installing a portable vibrometer to measure vibration, but learning that TR-COM is wireless helped us decide on it. The ability to perform FFT analysis was another of the deciding factors, making it easier to create a near-constant monitoring situation compared to portable vibrometers. In terms of cost, establishing a system that can constantly monitor with sensors would cost tens of millions of yen in many cases, but with TR-COM, we were attracted by the fact that it can be set up for only a few tens of thousands of yen per sensor.

— What are your impressions of Torishima's support during and after the installation of TR-COM?

Mr. Morishige: We feel that they respond to our needs well. We appreciate the care and attention that Torishima's technical staff takes in handling the installation and our requests. With regard to functionality, we also feel that we can rely on them to add useful functions over the cloud, and if there is a function we don't understand, they are always ready and willing to assist. The advantage of implementing TR-COM is the ability to exchange information and hold meetings to navigate issues together. Thanks to this, we have been able to build up a knowledge base within the company.

Transition to the CBM system and cost reductions

— Has your maintenance system changed with the introduction of TR-COM?

Mr. Morishige: At the facilities where TR-COM was introduced, the conventional maintenance method was to grease each bearing once every two months, but for approximately 80% of bearings, we felt that it was unnecessary to grease them so frequently. If only the approximately 20% of bearings that could lead to sudden failure are inspected, maintenance labor and costs can be minimized. In fact, after installing TR-COM and performing FFT analysis, it was confirmed that 80% of the equipment was over-lubricated, as anticipated. Among that equipment, 10% resulted in no need for greasing for more than two years and continued to require no maintenance. In addition, since any changes in the FFT spectrum can be immediately addressed, sudden equipment malfunctions have been reliably prevented since TR-COM was introduced. By shifting from failure management to lubrication



TR-COM (sensor) installed on various rotating machinery



Mr. Morishige, Engineering Department, Kudamatsu Plant, who cooperated in the interview

management, it has been possible to increase the service life of parts, contributing to reduced maintenance costs.

— There are many difficulties in transitioning to a CBM system. What made it possible for your company to achieve this?

Mr. Morishige: Facing a declining and younger workforce, the maintenance department developed concerns about the conventional time-based maintenance (TBM) system, which relied on human senses for daily and periodic inspections. While the themes of reducing dependence on individual skills and IoT of facilities have become a focus within the company, our value of "taking on new challenges with passion and courage" was the main reason for the transition to the CBM system. Of course, the maintenance personnel could confidently carry out the evaluation and verification process by observing the vibration data generated from TR-COM.

We would like to expand use of TR-COM as part of our IoT

— Please tell us about your future initiatives.

Mr. Morishige: Until the previous fiscal year, TR-COM was installed in a few production facilities as a trial run, but the results were so favorable that TR-COM is being installed in other facilities this fiscal year. The facilities selected for installation in the current fiscal year are more prone to sudden malfunctions. Therefore, we plan to decide on future development based on whether or not we can achieve the same positive results as with the trial facilities, so we would like to ask Torishima for their continued generous support.

— We look forward to working with you more in the future. We would like to take this opportunity to thank Mr. Takayuki Morishige and all those involved for their cooperation in this interview.

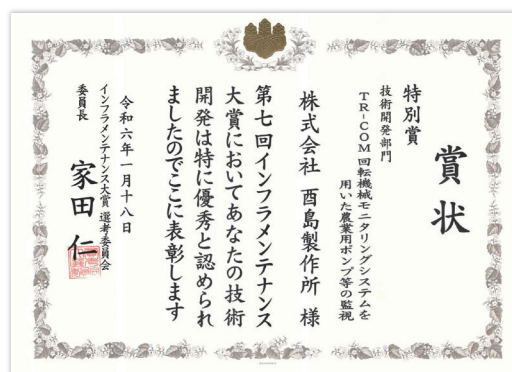
(Interviewed by Yoshitami Muraki & Satoshi Nakamura,
Business Development Department)

TR-COM Receives Infrastructure Maintenance Award

TR-COM (rotating equipment monitoring system) received a special award from the Ministry of Agriculture, Forestry and Fisheries at the 7th Infrastructure Maintenance Awards. The Infrastructure Maintenance Awards are granted to those (individuals and activity groups, including facility managers, companies, and organizations) who have made outstanding initiatives and technology developments related to social infrastructure maintenance at facilities under the jurisdiction of the Ministry of Land, Infrastructure, Transport and Tourism, the Ministry of Internal Affairs and Communications, the Ministry of Education, Culture, Sports, Science and Technology, the Ministry of Health, Labour and Welfare, the Ministry of Agriculture, Forestry and Fisheries, the Ministry of Economy, Trade and Industry, the Ministry of the Environment, and the Ministry of Defense.

This award was received in recognition of the TR-COM system's ability to easily and quickly detect signs of failure and

improve labor management of facilities and the longevity and maintenance of equipment by allowing for analysis up to 10,000 Hz, which exceeds the frequency range of conventional vibration sensors (1,000 Hz), by installing the system's sensors on rotating equipment such as pumps and generators in the agricultural sector.

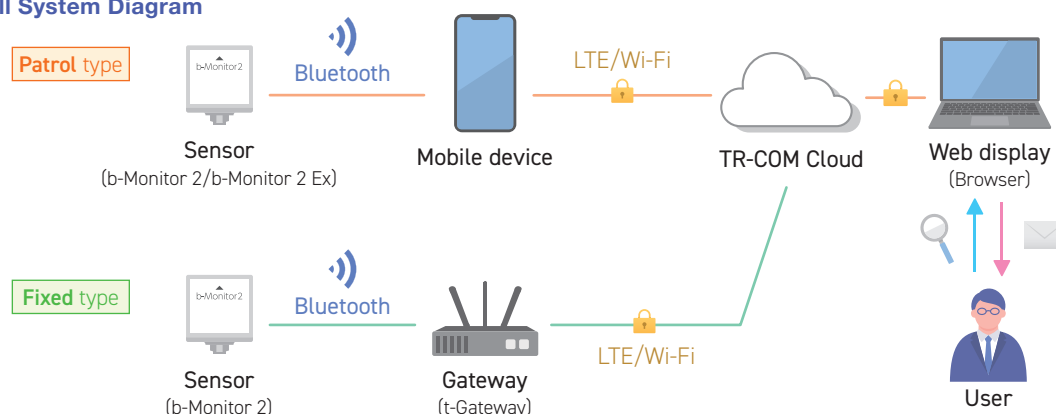


Launched b-Monitor 2 Ex, an Explosion-Proof Wireless Vibration Sensor

On December 25, an explosion-proof wireless vibration sensor, b-Monitor 2 Ex, was launched. While the conventional model TR-COM (rotating equipment monitoring system) allowed sensors to be used only in non-explosion-proof areas, an explosion-proof model was released in response to demands for use in petroleum and chemical plants that handle flammable gases and other hazardous materials.

Designed to be inherently safe and explosion-proof, b-Monitor 2 Ex can be installed on rotating equipment in hazardous locations (Zone 2) where hazardous materials such as flammable gas are handled, allowing for early detection of equipment malfunctions thereby preventing catastrophic problems.

Overall System Diagram



Main Features

- Can be used in hazardous areas (Zone 2), such as oil and chemical plants
- Wireless vibration sensors that allow for early detection of equipment abnormalities
- Detects signs of abnormalities and determines the cause of abnormalities
- Easy retrofitting to equipment
- Can be used in Japan
- Receives and operates sensor data via mobile device

AESSEAL-Torishima Japan Co., Ltd. Established

In October, Torishima and AES Engineering Ltd. (headquartered in the U.K.) established a joint venture AESSEAL-Torishima Japan Co., Ltd. AESSEAL-branded products and services will be offered exclusively in Japan.

Founded in the U.K. in 1979 by Chris Rea, AES is a leading manufacturer of mechanical seals and sealing systems. Today, it is one of the world's largest seal manufacturers, offering world-class machining and assembly capabilities, with operations in 104 countries (235 locations, including 9 production and 44 repair sites). Torishima will offer AES' state-of-the-art seals and sealing technology, mainly cartridge mechanical seals and dry gas seals, along with comprehensive and prompt service to existing and new sectors in Japan (for petroleum refining, chemical, paper, food, and other processes).



Kumamoto Fair

— Serving Local Foods from Kumamoto Prefecture at the Company Cafeteria and Holding a Kumamoto Food Exhibition



The Kumamoto Fair was held to support the expansion of consumption of agricultural products from Kumamoto Prefecture. From December 18 to 22, the company cafeteria at Head Office & Works served meals featuring ingredients sourced from Kumamoto Prefecture. A wide variety of food from Kumamoto was offered on the menu, including Mori-no-Kumasan rice, Waoh (premium Kumamoto wagyu beef), sea bream, yellowtail snapper, tomatoes, cherry tomatoes, eggplant, dekopon oranges, and dekopon jelly.

On December 23, an exhibition of Kumamoto food was held at the Head Office & Works building, attracting more than 300 people, including employees, their families, and acquaintances. Kumamon, Kumamoto Prefecture's Sales and Happiness Manager character made an appearance to

promote the prefecture and showed off his dance moves, with appearances by Hanitan from Takatsuki City and Torishima's Toripon, making the event a great success.

Thanks to this fair, Torishima's employees reaffirmed that numerous Torishima pumps are operating in Kumamoto Prefecture and that Torishima pumps are contributing to the maintenance of agricultural lands in the prefecture.



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Held a Pep Rally for Scholarship Recipients — Harada Memorial Foundation

On November 19, the Harada Memorial Foundation held a scholarship recipient pep rally in Saga City, attended by a total of 170 people, including the scholarship recipients, Chairman Harada, Mr. Nobuhiro Ide, Head of the Saga Prefecture Department of Industry and Labor, foundation officials, selection committee members, principals of high schools in the prefecture, and faculty members responsible for scholarship recipients.

At the pep rally, Chairman Harada encouraged the students, "We hope that you will cherish your individuality and grow up to become useful members of society." Speaking on behalf of the guests, Mr. Ide, Head of the Department of Industrial and Labor, and Mr. Satoshi Watanabe, Professor of the Graduate School of Kyushu University (Chairman of the foundation's selection committee), shared their expectations

for the students to become valuable citizens who will play leading roles in the future. The event was a hope-filled pep rally, with scholarship recipients expected to graduate next spring also speaking strongly of their future paths and aspirations.

The foundation was established in 1981 by the late former chairman and president Ryuhei Harada with a privately funded investment. The goal of the foundation is to support individuals and organizations engaged in academic research and its application in the fields of hydrodynamics, fluid dynamics, fluid machinery, and other natural sciences closely related to the pump industry. People tend to be more materially oriented and lose heart easily, so the foundation provides assistance and grants to promising young individuals who will lead the next era, thereby contributing to the development of the nation and society and the happiness of mankind.

Over the past 42 years, the foundation has awarded 351 research grants and 1,355 scholarship grants to graduate, undergraduate, and technical college (kosen) students in Kyushu and high school students in Saga Prefecture. Other programs include a scholarship grant program for high school graduates from Saga Prefecture who have entered universities in the Kansai region (Hagakure Scholarship Students) and a grant program to promote athletics in Saga Prefecture.



Aiming to Be a Certified Technician — Late FY2023 Technical Proficiency Test

On January 21, the practical examination for Grade 2 Mechanical and Plant Drafting (CAD Work for Mechanical Drafting), part of the late FY2023 Technical Proficiency Test, was held at the head office, and a total of 16 employees from Torishima took the examination. Five employees took the written and practical examinations for Grade 2 Mechanical Inspection (Mechanical Inspection Operation) at a separate venue. Following the practical examination, a written examination on CAD Work for Mechanical Drafting was held on January 28 at another venue.

The Technical Proficiency Test is a national test conducted by the Ministry of Health, Labour and Welfare. Each prefectural Vocational Ability Development Association is

commissioned by the Ministry to conduct the test, and Torishima received a request for cooperation in setting up a venue for practical examinations. We are confident that all the examinees will pass these examinations and move up to the advanced level.



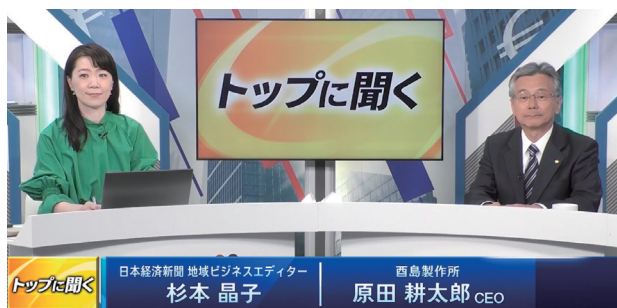
FY2023 ESG Training Conducted

FY2023 ESG training was held for all employees of Torishima Pump Mfg., Kyushu Torishima, and Torishima-AESSEAL Japan. This year's training, entitled "ESG Series: Topics You Can't Ask About Now," focused on familiar examples such as environmental issues, approval systems, and stock prices and was designed to raise awareness of the connection between ESG and day-to-day business operations. At the

end of the lecture, a comprehension test was administered to improve participants' understanding of ESG issues.

Looking ahead, Torishima will continue to provide training from the perspective of its employees and promote corporate activities to become "a company that is indispensable to society."

CEO Harada appears on Nikkei CNBC's Talking to Top Management program



On November 16, our CEO, Mr. Harada, was featured on Nikkei CNBC's Talking to Top Management. He discussed Torishima's contribution to a decarbonized society through our products, future initiatives, and business performance.

The video is available on Torishima's IR website.

<https://www.torishima.co.jp/en/ir/>

or go watch the video from the 2D barcode ➡



Participated in Factory Innovation Week 2024



In particular, there were many visitors who work in the field in maintenance and manufacturing. TR-COM was well received because it is easy to install and is built by a pump manufacturer, so I was able to explain it with great confidence.

(Kazuki Kinoshita, Business Development Department)

Torishima participated in Factory Innovation Week held at Tokyo Big Sight from January 24 to 26, primarily introducing its TR-COM (rotating equipment monitoring system), an IoT vibration monitoring solution that prevents rotating equipment failures before they occur. We also exhibited the Super Eco Pump, just released last fall, which provides energy savings as the world's highest efficiency pump, attracting viewers from various industries, including air conditioning, food, and other manufacturers.

I received feedback and questions from customers' perspectives and had visitors sign up for Go Green with Pumps seminars to be held at Torishima, and I felt a solid sense of connection with people and businesses at the exhibition. Moving forward, I will continue to engage in activities that will bring Torishima to a broader audience.

(Chisato Izumi, Osaka Private-sector Sales Department)

On-Site Training in India

\ 3 nights and 5 days /



Suspended since 2020 due to the COVID-19 pandemic, the overseas on-site training has now been resumed with ten selected employees visiting Torishima's service plant TPIPL (Torishima Pumps India Private Limited) in India. In the past, the main focus was on training at the site, but this year we changed the theme to "Next Generation Leader Training" with a new three-stage program of **Preparatory Training**, **On-Site Training**, and **Post-Training** to further enhance the learning process.

Preparatory Training

Prior to the preparatory training, the participating employees were asked a series of questions: "What is your ideal image of a leader?"

What are the essential qualities required of a leader? What are your own strengths and weaknesses? What is the gap between you as you are and your ideal leader?

Based on these questions, the participants listed specific action items to be done during the on-site training.

On-Site Training

November 13 **Departure**

November 14 **Training at TPIPL (learning about TPIPL)**

At the TPIPL office, a briefing was provided on TPIPL's functions, facilities, and staff, and the participants visited each facility. In particular, the plant was thoroughly maintained with 5S, and they commented that the plant was tidier than the head office.

November 15 **Visit to customer**

The participants visited TK Halli Pumping Station, located on the outskirts of Bengaluru. On the way, the road conditions and surroundings differed greatly from those in the city center, revealing just how vast India really is.

Water from the Kaveri River, which runs through the south of India, is purified and delivered to the city of Bengaluru.

November 16 **Self-introduction and workshop with local staff at TPIPL**

Each participant gave a presentation in English, including an introduction of their work and workplace based on slides prepared in advance, followed by a discussion with local staff on the themes of Teamwork and Diversity, also found in Torishima's Vision. With India's population reaching 1.4 billion in 2023, ranking first in the world, participants gained insight into the unique mindset of India, which embraces diversity.

The objective was not to speak English fluently but to communicate effectively.



November 17 **Return to Japan**

Post-Training

Each participant prepared and presented their own training report. Based on the knowledge and information obtained from the training, they formulated a future action plan. Going forward, through operations at each worksite, participants will work to close the gap with their ideal leader figure by executing their action plans.



Torishima Pump Mfg. Co., Ltd.

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