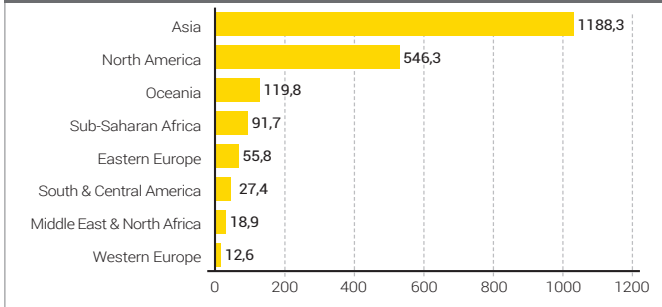


The race to build the world

Leveraging on their technology, expertise and experience in delivering high-quality infrastructure projects and machinery, Japanese companies are set to play a major role in infrastructure drives in Asia, the United States and beyond over the coming years.

Value of overseas construction contracts by companies in Japan in fiscal year 2019, by region (in billion Japanese yen)



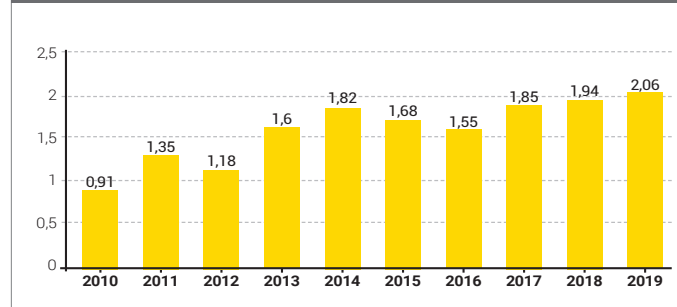
Source: Overseas Construction Association of Japan, Inc.

What do Australia's Olympic Stadium and Singapore's Jewel Changai airport have in common? As surprising as it may seem, the answer is that the leading contractor in both construction projects was Japanese.

From a Shinkansen railway system boasting zero passenger fatalities in fifty years of operation to the world's longest suspension bridge connecting Awaji Island to Kobe, Japan is

recognized as an undisputed leader in infrastructure. Since the country's first construction boom prior to hosting the 64th Olympics, Nippon enterprises have been admired not only for their ability to build engineering marvels, but for their capacity to do so in one of the world's most inhospitable environments, marked by tectonic activity and mountainous regions. It is therefore no surprise to

Value of overseas construction contracts awarded to companies in Japan from fiscal years 2010 to 2019 (in trillion Japanese yen)



Source: Statista 2021

find that since 1990, the 'land of the rising sun' has consistently ranked amongst the Top 5 in the WEF's 'quality of infrastructure' assessment.

Today, the Japanese construction market has matured. With the oldest population in the world, Japan's demographic line has been sharply declining since 2011, which has lowered the amount of new projects. The Japanese market is currently sustained by the rising need for maintenance and repair of aging infrastructure, and by certain mega redevelopment projects, such as the new Chuo Shinkansen Maglev or the preparations for the Olympic Games.

Japan's international push

Aware of the market's maturity, the country's private and public institutions have engaged in an aggressive campaign to expand overseas, a move which has been aptly timed. In spite of the coronavirus pandemic, the global construction industry is projected to grow by nearly 35% up to 2030, with the bulk of that growth predicted to stem from Asia. Driven by rapid economic and demographic changes and by reforms that facilitate PPPs, the value of mega projects (those worth more than \$25 million) in the ASEAN region alone stands at an incredible \$2.9 trillion. Since 2000, Japan has financed more than \$230 billion worth of projects in the region, more than any other country thus far.

Massive roads rollout in the US and Asia

In the Asia-Pacific region, the increased need for connectivity has pushed road-related construction projects beyond the \$1 trillion mark.

On the other side of the world, President Joe Biden recently outlined an ambitious \$2 trillion infrastructure plan which has, at its core, the promise to "fix 20,000 miles of American roads". Attracted by the potential of these projects, Sakai Heavy Industries, a leading Japanese manufacturer of road construction machinery with a long-established presence in both regions, has strengthened its technological edge and international presence.

"One reason we have been so successful across Asia is because of the durability and reliability of our rollers. With our brand and quality recognition, we now see growth selling new machines as additional areas have become more prosperous. Though Asia is our primary market, we have seen our business grow across North, Central and South America, the Middle East and Africa," explains president, Ichiro Sakai.

"We offer a number of asphalt and soil compaction machines in the United States, so we are very optimistic about these future projects [under Biden's plan]. We developed a unique series of oscillatory rollers for highway, airport and bridge pavement projects. We offer asphalt rollers for all sizes of construction projects, including residential, commercial, and Interstate highway paving. We have put a lot of emphasis recently into the US market, where we promote our simple-yet-durable designs and superior reliability when compared to the competition there."

Sakai's competitive edge also stems from its technologies that improve the compaction capabilities of its rollers, which ultimately leads to the building of better roads. One of the company's latest developments

Roads must be built. Worlds must be connected.

sakaimet.co.jp/en



Kotaro Hirano, President,
Hitachi Construction Machinery

is the intelligent Compaction Control system with the CCV stiffness sensor for digital mapping and data gathering for soil and hot mix asphalt.

The company has also pioneered state-of-the-art autonomous rollers. Its reputed vibratory pneumatic tire rollers and high-frequency vibratory rollers were used in the paving of San Francisco International Airport. "In the US, contractors are working hard to continue to improve roadway lifespan by achieving higher density levels," adds Mr. Sakai. "Our business is really about providing the best machinery to these contractors in order to build the best roads possible."

Like Sakai, Hitachi Construction Machinery (HCM) has a prominent presence in the US and Asia, where its reputation for high-quality and industry-leading technology has set it apart from competitors. For HCM president Kotaro Hirano, the



Ichiro Sakai, President,
Sakai Heavy Industries, Ltd.

reputed 'Made in Japan' brand gives Japanese construction machinery manufacturers an edge over competitors.

"One characteristic of the Japanese industry is that the whole supply chain has high standards, and those standards are applied across the entire industry. So as a result, the final products show a markedly different level of quality," he explains.

Digital technologies to address disaster prevention

As our world continues to experience environmental changes, the frequency and scale of natural disasters has increased. According to the WEF, 820 natural disasters causing insured losses were experienced in 2019, three times as much as 30 years ago. Strong of their decades of expertise in dealing with geophysical and meteorological disasters, Japa-



Masaru Narita, President,
OYO Corporation

nese enterprises have developed leading technologies to address, predict and mitigate such events.

With its operations spanning four business segments (Infrastructure Maintenance, Management, and Renovation; Natural Disaster Prevention and Mitigation; Environment; and Natural Resources and Energy), OYO Corporation offers advanced disaster prevention solutions that combine geology and digital technology.

"When maintaining buildings and civil infrastructure, understanding the ground underneath is of paramount importance. Our company's underground surveys are the perfect example of how we are leveraging Industry 4.0 technologies. For example, after our sub-road cavity survey is conducted, we use AI technology to analyse 3D mapping data. Thanks to this method, we can analyse a 1km

parcel of ground in ten minutes," says president, Masaru Narita.

Pioneering digitalization in the industry, OYO boasts one of the largest databases on underground data and geology-related surveys in the world, and aims to digitize this information to make it available in an open ICT platform accessible to other companies and industries. One of the main advantages of using digital 3D modelling to represent this data is that it allows even non-experts to make more sense of it.

"Our technology has been developed from surveys conducted in Japan, one of the most complex geological regions in the world. Beginning our project in such a complex environment has forced us to develop cutting-edge technologies," Mr. Narita explains.

"While at first a challenge, developing geo-technical technologies in such a complicated environment has become one of our competitive advantages; and we believe that we can export our expertise to overseas markets. We are also working with bSI (building SMART International) to create a new international standard so that our technologies in the field of underground surveys can be recognized globally."

Becoming a next-generation developer



Hitoshi Nomura, President and
CEO, Tokyo Tatemono Co., Ltd.

Tokyo's real estate sector continues to witness strong and stable growth, offering investors attractive investment yields and stable profit channels. Nevertheless, foreign investment in Tokyo remains comparatively low, which is why the government and other stakeholders have worked to build a more open, transparent and attractive market for overseas investors.

"I think the real estate market is very attractive but as a whole still receives only a small amount of foreign investment," says Hitoshi Nomura, President of Tokyo Tatemono, a leading player in Tokyo's office and condominium segments. "As a developer, we need to embark on very good projects that pique the interest and appetite of foreign investors in Japan."

Tokyo Tatemono is currently engaged in seven large-scale redevelopment projects in the Tokyo area that are scheduled to be completed in 2030, increasing the company's share of office stock from 500,000 to 800,000 sqm.

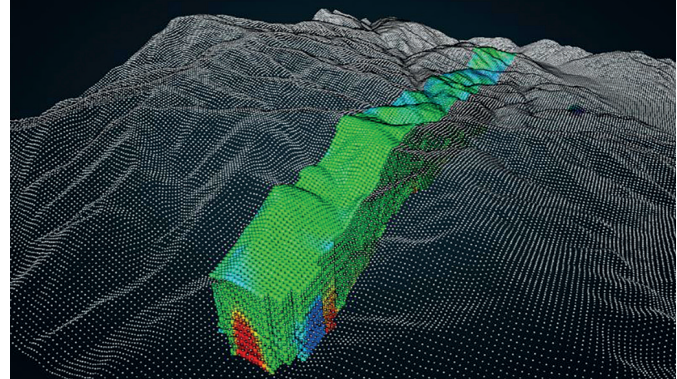
While the pandemic has not affected Tatemono's revenues, it has prompted the company to adopt a new approach to business in line with its "Becoming a Next-Generation Developer" long-term vision. Having launched its office-sharing business "+OURS", the company is also supporting the start-up scene in the capital's Yaesu district under the brand name, "xBridge-Tokyo".

Such initiatives form part of Tokyo Tatemono's efforts to "engage in business with a completely new mentality," says Mr. Nomura. "In doing so, we aim to be reborn as a corporate group that has a 'next-generation' perspective with a flexibility to adapt to any situation."



OYO: the geologist survey-based corporation

Based on its management philosophy and vision, **OYO Corporation** has developed creative technologies such as its i-SENSOR, an electromagnetic device that can 3D map underground utilities and cavities in a matter of minutes, allowing clients to have instant access to critical data. **OYO** serves both Japanese and international clients in four distinct business segments: Infrastructure Maintenance, Management and Renovation; Natural Disaster Prevention and Mitigation; Environment; Natural Resources and Energy.



oyo corporation

www.oyo.co.jp

Leveraging 120 years of experience to support the next century of progress



"We established a factory last year in South Carolina to make our circuit breaker and it is very popular in the ecologically friendly states in North America."

Takeshi Miida, President,
Meidensha Corporation

Having celebrated 120 years of history in 2017, Meidensha Corporation aims to play a major role in shaping the next century through its wide-ranging operations spanning IT, automotive, energy, water and transport.

At the same time that Meidensha is contributing to the advancement of next-generation semiconductors and electronic vehicles with its proprietary technologies, the company will also support the rollout of vital infrastructure projects in fast-growing Southeast Asia, where its long-standing expertise in water, electricity and railways will help to support

the region's rapid urbanization and socio-economic development.

While Meidensha is focusing on state-of-the-art greenfield infrastructure projects in emerging Southeast Asia, back home in Japan its focus is on coming up with innovative solutions to tackle the nation's aging infrastructure problem. And the company's experience in this area could also prove valuable to other developed nations like the United States that face the same issue.

Giving an example, president, Takeshi Miida, explains that the traditional and aging circuit breaker, which is essential for power infra-



structure, can be replaced with the innovative and environmentally friendly vacuum-type circuit breaker (VCB) developed by Meidensha.

"Circuit breakers widely used in various sites of the power supply network use SF6 gas, which is a powerful greenhouse gas. Meanwhile, we have the vacuum-based circuit breakers that do not use SF6 gas at all in our product line up," he says.

"We established a factory last year in South Carolina to make this circuit breaker and it is very popular in the ecologically friendly states in North America. We will continue to develop such markets

with these eco-friendly solutions while continuing to manufacture highly reliable products."



MEIDENSHA CORPORATION
www.meidensha.com

Providing industrial and social infrastructure to Japan and the world

Since its establishment in 1909, Kurimoto has contributed to the improvement of social infrastructure and extended the lifespan of industrial equipment.

For over 100 years, Kurimoto has been at the forefront of industrial equipment, using its technology to manufacture high-performance and highly durable products for both industrial and social infrastructures.

The company continues to refine the technology it has developed, using the philosophy of *monozukuri* to ensure its products, which range from iron pipes and valves to building materials and machines, are both innovative and essential. "Kurimoto provides solutions that are vital to society's development and that support essential social infrastructure," explains Moriyoshi Kushida, Chairman of Kurimoto.

The company's commitment to excellence and customer-centricity has allowed it to expand globally and Kurimoto purchased



Moriyoshi Kushida,
Chairman, Kurimoto, Ltd.

KURIMOTO

www.kurimoto.co.jp

American manufacturer Readco in 2006 as part of this expansion. Readco, itself founded in 1906 and today overseen by president David Sieglitz, is a global leader in mixing machinery and its flagship



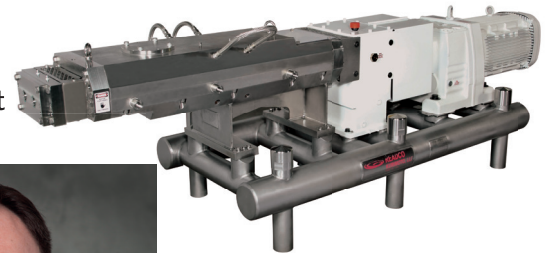
David Sieglitz,
President, Readco Kurimoto LLC.

READCO KURIMOTO, LLC

www.readco.com

Continuous Processor has been a standout product in the field since the first model was built in 1961.

The processor allows the customer to mix one or more dry materials with one or more



liquid materials continuously, producing high-quality homogenous products for a wide range of industries, including processed foods and pharmaceuticals. The processor is used in mixing, compounding, kneading, and shearing, among other processes, and offers companies using batch mixers an innovative solution to improving their overall mixing process.

"Readco aims to create value in partnership with our customers by supplying customized machines specifically designed to suit their precise needs and requirements," says Mr. Sieglitz. "Our customer's success is Readco's success."

Bringing the construction site into the Industry 4.0 era

With 140 years of history in civil engineering and construction, Tobishima Corporation is today at the forefront of the construction industry's shift to Industry 4.0.



"Japanese construction companies are more adaptive towards listening carefully to what the customer wants and implementing projects according to their needs."

Masahiro Norikyo,
President,
Tobishima Corporation

Established in 1883, Tobishima Corporation has played a vital role in building modern Japan for almost 140 years – overseeing a diverse number of iconic projects during the 20th century, including the original Haneda Airport (later to become Tokyo International Airport) in 1931, Korakuen Baseball Stadium (1938), the Tomei Expressway (1968), Tokyo's Toei Shinjuku rapid transit line (1977) and the Onaruto Bridge between the islands of Honshu and Shikoku (1981).

Today, guided by its mid-term plan focusing on digital transformation, innovation, co-creation and building a 'Smart Solution Service' business, Tobishima continues to undertake important civil engineering and construction projects in Japan and abroad, across Asia and in Rwanda, Africa.

With Japan increasingly suffering from natural disasters in recent years, Tobishima has built deep expertise in disaster prevention solutions, which today comprises four major activities that president, Masahiro Norikyo, describes as the "full package of disaster-preventive functions".

"First is the disaster-preventive measures. Sensors are installed in the disaster areas or at vulnerable places that already have a history of disasters occurring in that area. Information is also a key factor here. Second is mitigation, getting ahead of time, and equipping vulnerable areas with emergency kits. When a

disaster occurs, one needs to have access to water, food or communication services," he explains.

"Third is recovery methods. It's about knowing what to do after a disaster has taken place and to be able to recover as soon as possible. Fourth, is decreasing the disaster to a level as low as possible; this is connected to on-time information. If you know that a disaster is about to happen or if we can analyze and predict when a disaster is coming, then we can evacuate the people or decrease the level of damages that might be caused from that disaster."

Digital transformation

Indeed, adopting the latest technologies such as sensors, Big Data and IoT to gather data and information now underpins almost all of Tobishima's construction activities. Having placed itself at the forefront of construction IT, Tobishima is working in collaboration with other companies to develop the digitalized construction sites that will become the norm in the era of Industry 4.0. Such collaboration lead to the development of e-Sense in conjunction with Rosetta Co., Ltd. Aimed at improving operational efficiency, e-Sense offers simultaneous automatic interpretation and rapid information sharing – which is extremely useful in multi-national construction sites where engineers and workers speak different languages.

"e-Sense is one part of our activity, obviously other products are coming up and it's a big part of our approach," says Mr. Norikyo regarding the company's digital transformation. "The first idea is to simplify the construction site operations with easy access and understanding. The accuracy of delivering information is very important in order to understand what is happening on the construction site."

Overseas expansion

Amid the dwindling domestic market that has prompted a wave of international expansion, Tobishima has joined the legion of Japanese companies looking to play their part in building developing Asia, where it has projects in Brunei, Pakistan, Timor, Indonesia and Myanmar. While Japanese construction companies face stiff competition from China in the re-

gion, they continue to maintain a competitive advantage through a focus on high-quality, technology and customer service.

"Japanese construction companies are more adaptive towards listening carefully to what the customer wants and implementing projects according to their needs. Some Chinese contractors are winning the bidding phase and then drop the project midway or are unable to provide good quality," Mr. Norikyo explains.

"Our company not only provides high-quality, high-reliable projects but we also ensure the highest standards of quality possible, and we can negotiate a better price range. It is difficult for Chinese companies because they all set up as low a minimum cost as possible. Japanese companies, therefore, can be more flexible and adaptive towards the customers."

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Towards a future that connects everyone

Beyond the distance,
eliminate the language barrier,

We will create together,

Towards a super
smart society,

The future of "Tobishima"
has begun.

A Smarter Future New Business Contractor

ENGINEERING & CONSTRUCTION
TOBISHIMA
CORPORATION

www.tobishima.co.jp/english

Ensuring constant water supply globally through high-performance technologies



"Many of our fine products are installed throughout the world, and such products include Yano Stopper, which is used at the waterworks project at the right bank of the Seine River in Paris."

Hitoshi Suzuki,
President & Representative
Director, Taisei Kiko

Through its innovative products that have been designed to withstand Japan's frequent and powerful earthquakes, Taisei Kiko is a market leader in ensuring water supplies keep running around the globe.

Japan's status as an earthquake-prone nation has prompted the country's SMEs to become world leaders in infrastructure technology as they find innovative solutions to the intense seismological conditions around them. Such is the case for Taisei Kiko, which has used its 80 years of experience in water works, sewage and gas systems to develop a range of high-performance products built to withstand the most extreme conditions.

Taisei Kiko developed the Earthquake Resistant Reinforcement Fitting, which can be installed speedily and easily without any special tools. The fitting improves the resistance of existing water pipelines without the need of shutting down the water supply, reducing costs

for the customer. This product was featured in a program for overseas viewers on the public broadcaster NHK, and also received the Infrastructure Maintenance Award sponsored by

Since its founding in 1941, Taisei Kiko has strictly followed a strategy of creating products and methods based firmly on customer needs. The Yano Stopper is an example of this principle in action, allowing customers to replace pipes and address water leakages without shutting down the water service. It is currently in use in both France and the UK. In the UK, it is helping water utilities avoid possible fines for disrupting water services during maintenance work.

This commitment to working towards customer needs sees Taisei Kiko launch a new product every eighteen months on average, and the company is dedicated to researching and developing products that provide solutions to each customer's specific requirements and demands.

Taisei Kiko has already successfully partnered with companies from all over the world, from exchanging technology and information with an Austrian firm for over 50 years, to exporting its technology to the US to allow local engineers to reproduce its products. This cooperation also extends to the company lending equipment and providing training to allow companies from other countries to visit its factory in Hyogo Prefecture. Taisei Kiko has valid patents in the US, Europe and Asia, and Mr. Suzuki says the company is always looking for partners overseas, especially in countries in the process of creating a modern infrastructure system such as China, Australia or other earthquake-prone countries around the Pacific 'Ring of Fire'.

Taisei Kiko's dedication to innovative infrastructure solutions has seen it lead the way in securing Japan's water supply even during powerful earthquakes, and these innovative products are helping to ensure people around the world have access to this most vital of needs.



Taisei Kiko's representative products:
the Yano Stopper & Tai-Flex

the Japanese Government. "It is crucial to have a water supply always available to people. Therefore, we have to improve the technology for the prevention of earthquake damage. This is the number one mission of our company," says Hitoshi Suzuki, President of Taisei Kiko.

Taisei Kiko's highly durable products are useful not only in earthquake-prone areas, but also in places where ground can become vulnerable such as reclaimed land or areas with high amounts of traffic. Here the company's Tai-Flex joint allows the joint section to bend whilst remaining connected to the pipes, preventing damage and water leakage. The Tai-Flex is now used across the globe, and Mr. Suzuki hopes Taisei Kiko's expansion can continue as it looks to help more areas secure their water supply through the adoption of the company's innovative products.

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the Earth, and the Environment*

Well prepared means no worries

Pioneering 21st century waterworks technology
through innovative R&D

TAISEI KIKO
www.taiseikiko.com

FujiClean: 'Our mission is to protect global water resources'

FujiClean has developed its Aerobic Treatment Unit (ATU) as an innovative solution to treat domestic wastewater. This effort will not only improve the water environment, but also alleviate water shortages by recycling wastewater.



With a high-density population and paucity of land, the Japanese have historically been forced to dispose of domestic wastewater into waterways rather than into soil absorption systems, such as leach fields. To avoid this obvious environmental hazard, the onsite treatment industry in Japan has needed to build a robust, competitive, and innovative sector. The result is the technology of the Aerobic Treatment Unit (ATU), developed by FujiClean.Co.,Ltd, now a leading international player.



Kaichi Watanabe,
Chairman,
FujiClean.Co.,Ltd

"We have introduced our products to the global market when often there is no familiarity with

our kind of product: the Aerobic Treatment Units. Therefore, we've always needed to listen to requests from our customers and to meet their needs," says Kaichi Watanabe, chairman of the board of FujiClean. "We do not produce septic tanks, which are still commonly used all over the world. We produce ATUs which inject air into wastewater to activate micro-organisms which purify water very efficiently. Our ATUs can be installed alone or attached to traditional types of septic tanks in order to upgrade performance. For example, when conventional systems were causing

coastal water pollution in Long Island, New York State, the FujiClean system was reported by Suffolk County to be one of the most effective systems to upgrade them."

Founded in 1961, FujiClean.Co.,Ltd now has 500 employees, manufactures 50,000 systems annually, and has over two million systems installed and operating in Japan. The company has recently begun to expand worldwide and now has subsidiaries and dealers in Australia, the United States, Europe, Asian countries, and Middle Eastern countries.

"There are many manufacturers of ATUs, but there are few that have a long history of ATU production, since septic tanks have been widely used for a long time. I feel that a lot of manufac-

turers lack basic knowledge of how the ATU functions. FujiClean has always taken basic knowledge seriously including R&D and experience. In terms of the purification effectiveness, FujiClean is one of the top companies in the world," says Mr. Watanabe.

"As the world becomes more aware of water shortages, the ability to recycle wastewater will become increasingly important. In order for global water resources to be available for future generations, they must be treated with respect. FujiClean intends to be a world leader in the effort to protect them."



Built like a tank: Industry-leading infrastructure solutions developed to withstand every challenge

Abe Nikko Kogyo's unique technology, built to withstand Japan's frequent earthquakes, enables the company to create fuel, water and sewage tanks that can stand up in the harshest environments.

Since its establishment over 70 years ago, Abe Nikko Kogyo has used Japan's unique topography and frequent earthquakes to inspire its cutting-edge infrastructure solutions, which are built to withstand intense pressure and extreme environmental conditions.

Throughout its history the company has focused on R&D to develop industry-leading technology and techniques. Abe Nikko Kogyo's expertise in pre-stressed concrete led to the creation of its "tsunami-proof fuel tanks", which can withstand intense pressures upon impact of a tsunami; and even after impact, the company's technology ensures its products return to their original shape.

The company has expanded into the international market on the back of its cutting-edge solutions, completing over 25 overseas projects in countries such as Egypt, Sri Lanka and Bangladesh.



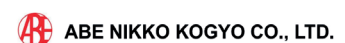
Tetsuro Ideguchi,
President of Abe
Nikko Kogyo Co., Ltd.

"We built Sri Lanka's first ever water tank, and to a large extent, our technology became a national standard there," Tetsuro Ideguchi, President of Abe Nikko Kogyo, proudly explains. The company's commitment to excellence sets it apart from its counterparts in neighboring countries, with Abe Nikko Kogyo seeing it as its duty to honor its assigned projects even in the face of unforeseen issues.

Mr. Ideguchi is aiming to use this long track-record of excellence in

the construction of tanks to further the company's international expansion, especially as Abe Nikko Kogyo's unique technologies can adapt to different environments, from the dry heat of Egypt to the frozen Japanese lands of Hokkaido.

The company's innovative methods not only reduce delivery time and cost, but they can also help countries reach sustainability goals. Abe Nikko Kogyo's specialized technologies allow it to build small-scale sewage treatment systems with precast concrete. "Our technology can provide an effective solution not only for supplying adequate water to remote areas, but also for treating sewage," says Mr. Ideguchi, explaining this technology can help countries ensure safe water supplies. "Our mission is to secure water to enable the clean, safe and secure life of as many human beings as possible."



www.abe-nikko.co.jp/english/index.html

From apartment buildings to US military bases: the “Ever-Evolving DNA” of HEXEL WORKS

HEXEL Works, one of Japan's leading electrical construction companies, boasts a top-class track record in electrical work for large condominiums and U.S. military bases, and has received high praise from its customers. Our history is supported by our outstanding technical capabilities, diverse human resources, and sound financial base. We promise that our know-how and ability to implement will help you with issues that other companies are not able to.

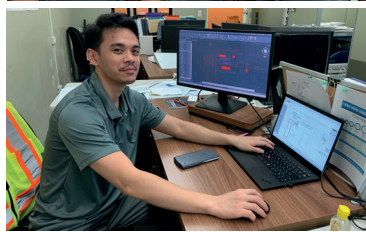
Outstanding technical capabilities

The strength of our company is that we have the No. 1 track record and name recognition for large-scale condominium construction in Japan. There are many companies that avoid large-scale condominium construction because it is time-consuming and because there are many items that must be checked in the process, but we have not been deterred by that, and as a result, have been able to gain the top share in the industry.

In addition, we provide highly flexible services that allow us to respond to all kinds of customer needs by utilizing the high level of technology and abundant experience we have cultivated over the years. Currently, we are involved in construction work for a wide range of areas, including medical facilities, accommodation facilities, offices, and commercial facilities, as well as large condominiums.

Ability to respond to U.S. military-related construction

In 2003, we made a full-scale entry into the U.S. military-related construction market, which requires specifications, technology, and knowledge based on U.S. standards that are different from those required for construction in Japan. As in the case of large-scale condominium construction, we took on the challenge of U.S. military construction, which had been shunned by



other companies, and as a result, we have accumulated a track record of success in U.S. military-related facilities throughout Japan and have acquired the top share in the industry. We are proud of the overwhelming know-how we have accumulated so far, and we have completed the electrical work in almost all U.S. military bases in Japan.

Diverse human resources

We have a track record that surpasses that of other subcontractors in large-scale condominium construction and U.S. military-related work, and one of our strengths is the diversity of our human resources, including field agents who have completed large-scale projects involving more than 1,000 units in three years without error and

support staff with strong English skills. Based on the idea that “we don't want our employees to score 90 points in everything they do, but to be able to score 120 points in what they are good at,” we have a group of unique employees, each of whom has their own strengths.

In addition, our motto for training is “Let them learn through repeated on the job training (OJT). As soon as they learn the basic knowledge, they go out into the field and take up responsible work, which results in more opportunities for young employees to play an active role. We also have an early training program for new employees called the “Three-Year Trajectory,” and are working to develop excellent field agents who will form the basis of our business.



“We will continue to optimize our business by grasping the trends of the times with flexible thinking and a broad perspective.”

Yoichi Nagae,
President & CEO,
HEXEL Works, Inc.

Sound financial position since the foundation

It is not uncommon for a construction project to take several years to complete, making it an industry that requires a great deal of financial strength. In addition to having no interest-bearing debt, we have almost no real estate or marketable securities, which allows us to make effective use of the funds we have. As a result, our equity capital is steadily increasing, and our equity ratio is now over 60%.





JAPAN'S LEADING ELECTRIC WORKS CORPORATION

HEXEL Works Inc.

www.hexelworks.com





General Electric Works / Air Conditioning & Plumbing / Military Facility Installations / Small Scale Construction / Energy Plant Instrumentation

Disrupting the concrete industry: pioneering de-carbonization and self-healing concrete

Aizawa has positioned itself at the forefront of major innovations in the concrete industry aimed at both reducing carbon emissions and strengthening the resilience of concrete structures to aging and natural disasters.



"Our focus is on developing carbon neutral materials that look like concrete to bolster our intellectual property assets."

Yoshihiro Aizawa, President,
Aizawa Concrete Corporation

There are fewer industries older than concrete, whose origins can be traced back thousands of years. Concrete has literally formed the foundation of civilizations through the millennia and remains the most widely used building material in the world.

With the ballooning global population and rapid economic growth, particularly in developing nations, demand for concrete will continue to rise over the coming decades, during which time the world also faces an unprecedented environmental crisis that will require the overhaul of many traditional industries in a bid to reduce carbon emissions. This has prompted companies in the concrete industry, which currently accounts for around 7% of global CO₂ emissions, to develop new solutions for a de-carbonized world.

"There is increased environmental awareness, leading to a need for de-carbonization to slow global warming and this is having a pronounced effect on the infrastructure sector. So companies must adapt their operations to anticipate and satisfy these requirements," says Yoshihiro Aizawa, President of Aizawa Concrete Corporation, one of Japan's industry leaders.

Having played a vital role in the building of Japan's infrastructure over the past decades, Aizawa



has now positioned itself at the forefront of major innovations in the concrete industry aimed at both reducing environmental impact and strengthening the resilience of concrete structures to aging and natural disasters.

"We already see ourselves as positive disruptors of the traditional concrete industry by pioneering de-carbonization and self-healing concrete," Mr. Aizawa states proudly. "We handle one million tons of concrete per year, so you can imagine the size of the task to introduce these innovations at this scale."

A monumental task, indeed, but a challenge that Aizawa has faced head on through the development of new materials. "The main challenge now is to come up with new materials and alternative materials for conventional concrete. Regarding de-carbonization, our focus is on developing carbon neutral materials that look like concrete to bolster our intellectual property

assets and have this become an integral part of our business model."

Aside from environmental issues, Aizawa has also taken on the challenge of developing novel solutions to improve the strength and durability of concrete structures, which is of extreme importance in Japan, where aging infrastructure and the impact of natural disasters are major issues for the construction industry.

"Our ultimate goal is to create a kind of non-breakable concrete. The idea is similar to that of the human immune system in that the material will be capable of healing itself. The unavoidable fact is that all concrete is liable to cracking no matter how well prepared and applied it is. Variations in temperature over time will crack it, so our company has been one of the first to advance this idea of unbreakable concrete and we are doing so through Basilisk, a self-healing concrete that we promote in Japan," explains Mr. Aizawa, adding that

the use of self-healing concrete to reinforce older projects built with traditional concrete could help to reduce maintenance costs.

Today, Aizawa is introducing earthquake-resilient pre-stressed concrete into its manufacturing process so that it can be used in pre-cast components assembled on the construction site, thereby saving on labor costs, lead times and space used. As international recognition for Aizawa's innovative solutions have grown, it is now in talks with Saudi Arabia, which wants to apply the company's latest technologies in pre-stressed concrete manufacturing as it looks to build 400,000 houses for its growing middle-class.



www.aizawa-group.co.jp

Bringing Japanese safety and evacuation equipment overseas



NAKA
www.nakacorporation.com



Katsuyuki Sakuma,
President, Naka Corporation

Japanese companies across all industries have placed themselves at the forefront of challenges posed by the COVID-19 pandemic thanks to new and existing technologies. In the case of Naka Corporation, a manufacturer of building safety equipment, the company's anti-viral handrails, which it first launched in 2015, have come into the spotlight amid the unprecedented hygiene concerns due to coronavirus.

Naka's handrails contain the company's own patented anti-viral powder named 'Viruan', which is based on photocatalysts technology (visible-light-sensitive photocatalysts) and has the ability to eliminate coronavirus.

"The deactivation of COVID-19 using photocatalysts technology was confirmed by Tokyo Institute of Technology, Nara Medical University and Kanagawa Institute of Industrial Science and Technology," explains Naka's president, Katsuyuki Sakuma.

"Naka's handrails are expected to have a large effect on preventing coronavirus infection. This is a one-of-a-kind advancement and is being used all over the world; and quite a distinguished achievement for our company."

Mr. Sakuma envisions Viruan being adopted as an infectious disease counter-measure in other industries and Naka has already received inquiries from other manufacturers. "We are aiming to introduce the anti-viral technology to the material manufacturing companies so they can produce garments and clothes with the anti-viral features threaded into them," he says, giving one example of Viruan's many potential applications.

But health, safety and disaster prevention equipment for buildings



will remain the company's main business activity. Having cemented its reputation as the leader in hand-rail manufacturing over the past 50 years, Naka also manufactures other evacuation equipment defined by safety and reliability, including access hatches; the UD Escape series for the evacuation of wheelchair users released in 2017; slim CK Stair Nosing, which provides emergency lighting during building evacuation; and the TASCARL escape ladder, which has been widely used in apartment buildings across Japan since its launch in 1974.

Moving forward, Naka aims to grow its international presence by providing its 'Made in Japan' quality disaster prevention equipment to countries across Southeast Asia.

Japan's expertise in infrastructure maintenance and seismic strengthening

The Japanese leader in preventative maintenance, SHO-BOND aims to support other countries dealing with issues posed by earthquakes and aging infrastructure.

As a result of Japan's aging infrastructure and the nation's proneness to earthquakes, construction contractors have gained deep expertise in preventative maintenance and seismic strengthening for vital social infrastructure such as roads, bridges and tunnels.

Established in 1958, leading infrastructure maintenance company SHO-BOND's first major challenge came when it was tasked with supporting the reconstruction of bridges following a devastating earthquake in 1964. "This turned out to be the point-of-origin event for us to become a technology-oriented company that combines chemical and civil engineering technologies for structural maintenance," explains president, Tatsuya Kishimoto.



Tatsuya Kishimoto,
President,
SHO-BOND Holdings
Co., Ltd.

Since then, SHO-BOND has played an essential role in infrastructure maintenance and seismic strengthening in Japan, during which time its unrivalled technology, solutions and products (which include injection adhesive fillings, seismic resistant devices, pipe-fitting products and anti-seismic synthetic resin materials) have continued to evolve. The company's proven track record in successfully applying its technologies to all types of infrastructures – regardless of size, weight and location – have ensured it remains the leader in its field.

"Our approach is to provide fully-integrated solutions to our maintenance sites. From such an on-site-centered approach, we perform our investigation, diagnosis, technology development, design, construction and manufac-

turing," Mr. Kishimoto explains. "Our own project sites create synergies and enable us to develop a comprehensive maintenance system."

Indeed, earthquakes and aging infrastructure are not issues exclusive to Japan, which is why SHO-BOND partners up with Mitsui & Co., Ltd., and aims to support other countries looking to tackle such challenges with its world-leading technologies, including the US, and those in Europe and Southeast Asia.

"Aging infrastructure is becoming a global social issue and sustainability and resilience of infrastructure is coming under the spotlight," says Mr. Kishimoto. "We believe that our technology has a global competitive edge due to our experience repairing in Japan's diverse climate, harsh natural and earthquake-prone environment, and considering the level of fatigue damage beyond what was expected at the time of construction."



SHO-BOND

www.sho-bondhd.jp/english/

Monozukuri quality in food service equipment that is a cool cut above the rest

Boasting the leading market share for ice shavers, Chubu Corporation boasts an extensive range of Japanese-quality equipment used by hotels, restaurants, fast-food chains, convenience stores and caterers around the world.



"We are always working hard to improve our products with the aim of making small improvements and functional improvements."

Yoshinori Mitsubayashi,
President, Chubu Corporation

Japanese companies have long distinguished themselves from the competition through a dedication to the *monozukuri* manufacturing craftsmanship philosophy, which focuses on pride, skill, dedication, high-quality production and



Today, the company's Japanese-quality food service equipment is used by hotels, restaurants, fast-food chains, convenience stores and caterers around the world, for whom Chubu's solutions remain a cut above the competition thanks to the company's dedication to *monozukuri*.

"We are always working hard to improve our products with the aim of making small improvements and functional improvements. We do not compete at low cost and with low quality," Mr. Mitsubayashi explains, emphasizing that Chubu's successful product development has been the

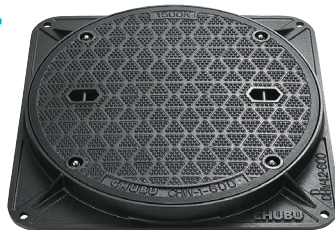
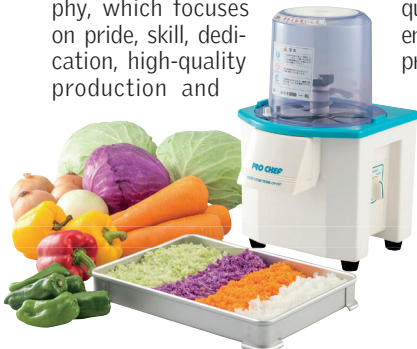
an opportunity to use its cast iron products to develop ice shaver machines, pioneering the world's first ice shaver machines that could handle small ice cubes. Later, the company utilized its cast iron technology in the same way to develop metal construction materials such as manhole covers, traps, roof drains, stainless-steel gratings and floor hatches, which it continues to supply to clients in Japan and across the world.

"Looking back at our history, in the past all we could find in the market was ice shaver machines

commercial ice shaver machines, with its food service equipment portfolio expanding to cover ice crushers, vegetable cutters, smoothie makers, table-top barbecue roasters, bamkuchen ovens, rice cookers and cast-iron pans.

In the Construction Material division, Chubu continues to develop new products finely attuned to the demands of clients, especially Japan's "five general super construction companies". "We listen to the actual needs of their design and development divisions and procurement divisions and also work with them to promote commercialization," says Mr. Mitsubayashi, adding that Chubu aims to join the Woven City project, a project led by Toyota and NTT based on the smart city concept, by supplying its high-performing construction materials.

At the same time, Chubu will continue to leverage its R&D capabilities to introduce new innovations for the food service industry of tomorrow, bringing its highly reputed food service equipment to a broader base of global customers.



the constant pursuit of innovation and perfection.

The *monozukuri* philosophy is also very much grounded in acutely responding to customer and market needs. And in the case of Chubu Corporation, the company's president, Yoshinori Mitsubayashi, says that that has involved making "small changes" and "minor adjustments" based on customer demands over the past 80 years, which has allowed Chubu to become a leader in the construction materials and food service industry.

result of an "accumulation of minor changes to meet the market needs and this is one of the main methods of our R&D strategy."

"We have our Food Service Equipment division and the Construction Material division, and we are a company that pursues new developments based upon the requirements of clients," he adds. "We believe that customer needs are very important for *monozukuri*."

Chubu was established in 1942 as an iron works foundry. Leveraging on its expertise in iron technology, Chubu spotted

which could shave big blocks of ice only," recalls Mr. Mitsubayashi.

"However, we realized that Hoshizaki, a Japanese company which is famous for ice-making machines, had introduced the new type of ice-making machines which could be installed in restaurants so the owners could easily make small ice cubes at each shop. As a result, we became the first manufacturer who developed ice shaver machines which could shave the small ice cubes."

Since then the company has become the market leader in

"We are confident that we can make further positive contributions to the ever-changing food preparation business market," concludes Mr. Mitsubayashi. "We hope that more and more people worldwide will discover our products and enjoy the services we offer. Chubu is dedicated to the advancement of food preparation technology and we are committed to making it available via our highly professional international sales and service network."

CHUBU CORPORATION

www.chubu-net.co.jp/