

Japan: building solutions to global challenges

Climate change and increasing environmental regulation, the rehabilitation of aging buildings and infrastructure, a shrinking workforce and sustainable development are among the major challenges facing Japanese companies involved in construction and related industries.

"What's the impact of the social environment on the construction industry?" says Ryoichi Tazawa, President of ILYA Corporation. "First, the current labor force in the industry is aging, and there is a reduction in newly recruited talent. We have to build a positive new image, and a safer and more secure working environment so that we can attract young people. Another point is the acceleration of redevelopment in urban areas, and also the renovation of social infrastructure, which are aging at the moment. We think the redevelopment of currently aging buildings will continue. Also, we need to develop new technologies to curb CO₂ emissions, so the appropriate construction materials are under development."

Construction firm Hiraiwa is directly involved in the building of social infrastructure as well as the refurbishment of old buildings in Japan. "Mainly right now we are performing construction that is related to hospitals and nursing homes, in addition to quite a lot of residential developments. In terms of the aging of local infrastructure, which is quite problematic in Japan, we are trying to demolish old buildings

and replace them with new buildings," explains Toshikazu Hiraiwa, President of Hiraiwa. "We don't necessarily have to demolish everything, we can go into buildings that are already there and renovate them, making them look brand new. We are also seeing our client portfolio in this sector increasing too."

With Japan looking to reach carbon neutrality by 2050, investment in green energy projects is crucial to this goal. Daiwa Energy & Infrastructure, a subsidiary of Daiwa Securities, is facilitating such investments for clients both in Japan and abroad. "Renewables and infrastructure offer stable cash flow, and once operational, we can create private funds. By entering at the development phase, we open up investment possibilities and use the asset to provide services to Daiwa Securities' clients," states president Morimasa Matsuda. "Over the next 5-10 years, our mission is to strengthen the pipeline so that Japanese investors can invest in renewable energy and infrastructure. Currently, we own a fund of approximately 100 billion yen in solar power generation, but we aim to further expand that."

Sakaguchi is a manufacturer of heating and sensor systems for industrial facilities and R&D labs. Looking ahead, company president and CEO Mayumi Hachiya anticipates that the challenge of attracting younger generations to the construction and manufacturing industries will

persist. "To address this, we have two approaches to recruitment. Firstly, we recruit new graduates who join us as fresh talent. Secondly, we also consider mid-career recruitment from various industries, not just the heating industry. We welcome individuals with diverse backgrounds. Furthermore, lifting the retirement age ensures the transmission and inheritance of our company's know-how. While working actively may be challenging for employees at such advanced ages, it remains crucial to pass on our assets – both tangible and intangible – to younger generations."

Recruiting staff from neighboring countries has become an important strategy for Japanese companies, which is why Sekisho Corporation has established job fairs in Vietnam in collaboration with the Hanoi University of Science and Technology. "By utilizing the know-how we have accumulated in the human resources business, we were able to launch the Sekisho Job Fair, which addresses the overlapping needs of Japanese companies dealing with a shrinking workforce and high-level Vietnamese human resources who want to work in Japan," says president Masaki Seki. "Recently, we have been working on implementing the know-how gained from our job fairs in Vietnam in India. We know that there are similar needs in other countries, and we are considering the possibility of working in various other countries as well."

Breaking the mold: rethinking traditional rebar solutions for modern construction

Toyo Kensetsu Kohki values a client-centered approach by listening attentively and developing products and services that align with customer requirements.



Reinforcing bars

Initially founded in 1933, Toyo Kensetsu Kohki was the first Japanese company to produce rebar processing machines and the company's pioneering approach has since seen it achieve an 80% domestic market share in the rebar processing industry.

Clients, as company president Yasuo Tanaka is keen to point out, are at the heart of the firm's success: "We always value our conversations with clients, especially when we are developing

something new. We try to listen to different individual needs, as we know that understanding individual needs will ultimately translate to the market as a whole."

With all the country's domestic rebar processing companies having at one stage used Toyo Kensetsu Kohki's equipment, Mr. Tanaka is looking to expand into overseas markets. Culture, language, prices, standards and accuracy present challenges, but the company has



Bandsaw precision cutting machine started to employ workers from a variety of countries, including

China, South Korea, Vietnam and India. Mr. Tanaka adds: "We would like to combine these different backgrounds so that we can bring synergy to our global business."



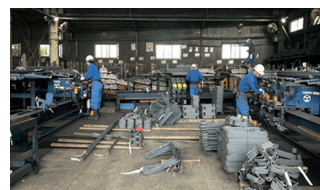
Automatic rebar bending machine

Another challenge is the integration of DX technologies. While DX in the rebar industry is "very hard to imagine", Mr. Tanaka is adamant that it is something the company "must pursue." To this end, since 2017 Toyo Kensetsu Kohki has been acting as a distributor in Japan for Progress, a company that has strengths in providing precast concrete and rebar-based digital solutions.



Yasuo Tanaka, President, Toyo Kensetsu Kohki Co., Ltd.

As for what drives the company forward, the answer is simple. "I believe," Mr. Tanaka says, "that all human beings have the right to live



Rebar fabrication factory in Japan in safety in the comfort of a secure building, and we are making every effort to see that this happens."



www.toyokensetsukohki.co.jp



Nursing home constructed like a hotel



"We never stop challenging ourselves in reaching our goals and making the most of opportunities when they present themselves."

Toshikazu Hiraiwa, President, Hiraiwa Construction Co., Ltd.

Hiraiwa Construction: the industry leader building for the future

A company with 70 years of experience in construction and civil engineering, Hiraiwa has established itself as a trusted partner both in Japan and Vietnam.

Based in Tokorozawa City, Saitama Prefecture, Hiraiwa is a leading construction and civil engineering company that's playing a major role in bringing Japan's aging buildings and infrastructure up to date. Established in 1953, the firm is also helping to maximize the island nation's resistance to natural disasters.



Factory construction in Vietnam

According to Toshikazu Hiraiwa, President of Hiraiwa, the construction sector in Japan is experiencing a surge in demand. "Many buildings and infrastructure projects are still in the same conditions as they were built during the high growth period after the War, so a major rebuild is taking place at the moment," he explains.

"And when rebuilding projects come in, they tend to be for more than one building, usually covering an entire area. Whether

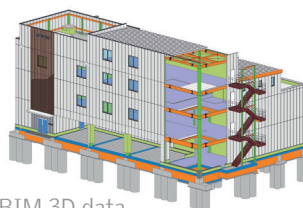
these areas are residential or commercial, the fact remains that they were built many years ago – about 50 to 70. When the time comes to rebuild, it doesn't make sense to just rebuild a single structure; we're talking about demolishing a whole area and rebuilding with new structures.

"When an entire area is rebuilt from scratch, you also need to consider the infrastructure that goes with it – whether that's commercial facilities, hospitals, landlines, offices, and schools. This is why we believe that the situation is in a good spot right now for businesses like ours."



Women play an active role at construction site

Hiraiwa excels not only in reconstruction but also in the renovation of existing structures, solidifying its reputation as a trusted choice in the industry.



BIM 3D data

"We don't necessarily have to demolish everything – we can go into buildings that are already there and renovate them, making them look brand new," Mr. Hiraiwa says. "Our client portfolio is increasing in this sector, too."

Meanwhile, Hiraiwa boasts crucial expertise in protecting Japanese society against the effects of events such as earthquakes and flooding – phenomena to which Japan is particularly susceptible. "We're also very strong in this segment," Mr. Hiraiwa says. "We strengthen buildings from a seismic point of view and build dams to protect rivers from overflow. We also cover the mountain ranges we have from landslides. This area of our business is very important to us."

In addition to its four offices in Japan, Hiraiwa has established a strong presence in Vietnam with three locations. In this

Southeast Asian country, the company not only undertakes local construction projects but also assists other Japanese firms in expanding into the Vietnamese market. "More and more companies are inquiring about our services as Vietnam experts," Mr. Hiraiwa says. "We do things such as search for land for a factory,



Levee protection works

assist with various application processes, provide construction services, and offer after-sales support. We're expecting this to be very profitable this year."





Okayama University "OUX"(CLT), Okayama, Japan



"My mission as the president is to lead the company so that it continues to be the kind of business that makes social contributions through SDGs."

Hiroshi Sekino, President, Itochu Kenzai Corporation

Sustainability key to Itochu Kenzai's corporate growth

As the first trading company in Japan to offer a full range of environmentally-friendly wooden products, Itochu Kenzai holds sustainability and SDGs as core aspects of its business.

With a rich history in the trading of building materials, Itochu Kenzai is capitalizing on the rising demand for environmentally friendly and sustainable construction solutions. Hiroshi Sekino, the company's president, sheds light on the current state of the Japanese construction market and the company's strategic focus on sustainability.



Okayama University "OUX" (CLT), Okayama, Japan

"Japan is currently experiencing a decline in population and thus we see a fall in demand for detached housing," explains Mr. Sekino. "This is the main field of business that we offer, so we are trying to steer our path in other directions, including



CLT (cross section view)



CLT master panel (top view 3m x 12m)

towards commercial store facilities, buildings, and public facilities like schools or auditoriums."

Traditionally, Japanese people have built houses with timber, so wooden houses make up the majority of the company's business, however, this is not the case for non-residential buildings such as schools, gymnasiums, and stores. Recently, with the increase of carbon neutrality initiatives, there has been a rise in interest in sustainable and environmentally friendly materials. And, as such, in the redevelopment of buildings and non-residential facilities, wood is increasingly becoming a new and very viable option.

"Although demand for detached houses may be decreasing, there is a growing need for wood's use within non-residential buildings," the president says, "so we are now putting a foot back into the trading of wood and having a history in this we feel we have gained back strength."

One of the advancements in discussion is the aggressive

use of CLT (Cross Laminated Timber) and LVL (Laminated Veneer Lumber), both new types of structurally engineered joining wood that utilize glue to sandwich timber together, thus adding the thickness, width and length required for many modern construction projects.

"By combining different types of timber, we can achieve better strength," says Mr. Sekino. "You can also combine it with heat-insulating material or metals to reinforce it. Although we may call it a wooden structure, it is not 100% wood, rather it is augmented by supplemented materials and parts."



Kids Dome (LVL), Yamagata, Japan

As well as strengthening the material's anti-seismic properties, this also provides fire-proof properties, leading to predictions that there will be more wooden structured buildings in the heart of Tokyo.

With an emphasis on the use of Japanese trees as part of its carbon neutrality targets, Mr. Sekino believes the full potential of the country's vast tree reserves has not yet been tapped into. Al-



JR Onagawa St. (LVL), Miyagi, Japan

though the company does not own any forests right now, it is trying to shift and acquire not only the harvesting rights but also to involve itself in the full life cycle for trees, from planting to producing products using the wood, all the way back to replanting again.

"This cycle within our company is important to our SDGs and our branding," he says. "We are collaborating with Itochu group and as people globally continue to be more environmentally aware, there is a big opportunity, especially in Asia, to provide our Japanese-sourced timber products."

"We believe this is the new role we will play, taking responsibility as a trading firm in the global market."



ITOCHU KENZAI CORPORATION

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"As a professional group that performs high-quality work related to interiors, ILYA has an extensive track record of projects both in Japan and overseas."

Ryoichi Tazawa, President & Representative Director, ILYA Corporation

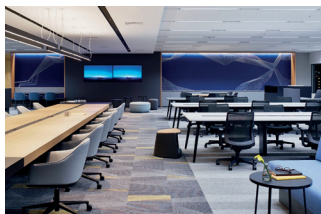


Interior of the Hilton Yokohama

ILYA Corporation: Delivering total design solutions

An interior design company whose firm focus is the client's point of view, ILYA is a go-to supplier of comprehensive, top-class services.

Since it was founded in 1985, ILYA Corporation has set about establishing itself as one of Japan's leading interior design companies, bringing its proven expertise to numerous major projects under the motto "total design solutions".



Panasonic Corporation Tokyo Shiodome ©Nacása & Partners Inc.

A firm that declares itself committed to "realizing the dreams and ideals of our clients with our rich sensitivity and creativity", ILYA harnesses its nearly four decades of experience to craft optimal interior environments in buildings belonging to a wide variety of fields, both in Japan and elsewhere in Asia.

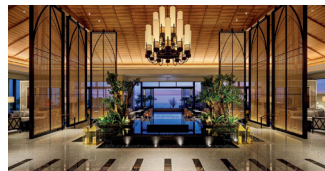
The Tokyo-based company, which has set up international locations in Beijing, Shanghai and Singapore, is divided into three chief business divisions: design, interior construction and furniture procurement/purchase agent services.

Among the areas that ILYA's design department focuses on is office design: not only work spaces themselves, but also meeting rooms,

lobbies and cafeterias. ILYA has broken new ground in Japanese interior design by using facility programming techniques such as multivariate analysis to devise innovative, comfortable work places that faithfully reflect each client's corporate image.

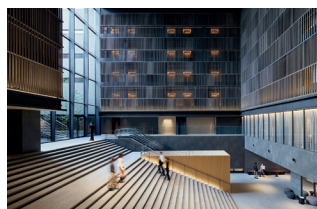
The design department also focuses on hotel design and has extensive experience in planning the interiors of all types of hotels – from luxury to up-scale, and from resorts to city-center establishments. Drawing on its expert, up-to-the-minute knowledge of global hotel design, it creates guest rooms, lobbies, lounges, bars and restaurants that meet the highest quality standards.

Furthermore, ILYA boasts expertise in designing commercial spaces, providing customers with proposals that ideally suit their business and will actively contribute to their success.



Ryukyu hotel & resort Nashiro beach ©Koujiro Nakajima

Meanwhile, ILYA shapes tailored lifestyle environments in the residential field, designing both living areas and common spaces such as entrance lobbies.



The Thousand Kyoto ©Nacása & Partners Inc.

In addition to designing the interiors of offices, stores, hotels and housing, ILYA also covers hospitals and welfare facilities, educational and research institutions – and many more settings.

In its construction division, ILYA's team of professionals has in-depth know-how on high-grade interior construction, carrying out projects that are delivered on schedule and leave customers completely satisfied on cost and quality. In this business segment, hotels and offices are the company's particular areas of expertise.

Finally, ILYA's furniture department selects and procures the furniture, fixtures and equipment necessary for interior spaces across the wide range of fields that the firm caters to. Sourcing its items at the best possible cost from trusted suppliers in Japan and overseas, ILYA proposes solutions that are precisely in line with clients' needs, in terms of design and function. This department also serves as a purchase agent in the five-star hotel segment.

Notably, the company works closely with research facilities to furnish these institutions in a way that fosters creativity. What's more, it obtains and installs the state-of-the-art laboratory instruments that they need.



Shiseido Global Innovation Center S / PARK

ILYA's activities in furniture, fixtures and equipment procurement also see it collaborate with many of the foreign five-star hotels in Japan. Supplied by the worldwide network of partners that it has built up over the past 38 years, it provides these hotels with items including tableware, carpets, curtains, art work, lighting fixtures, and IT and AV systems.





Braila Bridge, Romania

The international experts in delivering infrastructure excellence

IHI Infrastructure Systems harnesses its technical expertise to provide first-class infrastructure both in Japan and beyond.

Founded in 2009 – as a joint venture between the vastly experienced companies IHI Corporation, Matsuo Bridge and Kurimoto Bridge – IHI Infrastructure Systems specializes in the construction, maintenance and renovation of roads and bridges, bringing its expertise to major projects both in Japan and overseas.



Second Bosphorus Bridge, Turkey

On the domestic front, IHI Infrastructure Systems' know-how is proving to be essential as Japan updates its aging civil infrastructure. "This is one of the challenges the country currently faces," says the company's president, Kazuya Ueda. "Renewal of aging infrastructure and renovation due to changes in environment and standards generally require greater technical capabilities than new infrastructure development. We

have experience accumulated over a long period of time – a great strength in projects that require major technical capabilities."

IHI Infrastructure Systems also boasts significant expertise in protecting Japan against natural disasters like earthquakes, which occur frequently in the Asian country. In addition to strengthening buildings with technology such as seismic isolation floors, the company is bolstering Japan's infrastructural resistance. "The Japanese government has started initiatives to provide alternative routes should a natural disaster strike and suspend the operation of roads and bridges," Mr. Ueda says. "This work is ongoing." The firm also has a track record of building state-of-the-art dams and water gates for flood control.

Outside Japan, IHI Infrastructure Systems uses its technology to protect other vulnerable countries against natural disasters. "After the Kocaeli earthquake in Turkey in 1999, for example, we carried out seismic reinforcement work on major bridges in Istanbul," Mr. Ueda notes. "And since

then, our efforts to strengthen disaster resistance in the country have continued."

As IHI Infrastructure Systems' presence abroad steadily grows, the company's international ambitions extend right around the globe, Mr. Ueda says. However, Asian countries with significant infrastructural needs will, for now, be the focus of a firm that has established overseas bases in the Southeast Asian nations Myanmar and Vietnam. "Many countries in Asia require infrastructure maintenance and reinforcement, so we see good opportunities for IHI," he explains.



Nhat Tan Bridge, Vietnam

While IHI Infrastructure Systems' international endeavors are central to its future, so too is its ability to cope with a key domestic challenge: overcoming Japan's



"As well as delivering and maintaining infrastructure such as roads, bridges and water gates, we focus on providing services and products such as seismic isolation systems for buildings, to enable safe, secure and comfortable lifestyles."

Kazuya Ueda,
President, IHI Infrastructure Systems Co., Ltd.



Osman Gazi Bridge, Turkey

aging, shrinking labor market to bring through the company's next generation of workers.

On the one hand, the firm has responded to the country's talent shortfall by embracing automation; on the other, it is targeting a more diverse workforce – and knows it is vitally important that its employees are happy in their jobs. "We're looking to hire more female and non-Japanese workers," Mr. Ueda says. "And to attract and motivate young talent, we need to enrich their lives by ensuring they have a healthy balance between work and home life. At the same time, we must successfully transfer knowledge from older workers to these younger employees."

IHI

Realize your dreams

www.ihico.jp/iis/en



"We seek to team up with manufacturers and suppliers in Japan and overseas, and are always striving to meet expectations with our Value Engineering."

Jun Genba, President,
AIRU-ENG CO., LTD.



Solar power plant

Airu Engineering: From Okayama to the World

Since 2013, Airu Engineering has provided innovative construction solutions to clients in a wide range of sectors.

Founded in 2013, Airu Engineering offers expertise and services in infrastructure development, from road construction and seismic reinforcement to renewable energy power generation.



Offshore wind farm

With Japan facing well-documented demographic challenges leading to human labor shortages, Airu Engineering company president, Jun Genba, is adamant that the solution lies in Value Engineering, which combines new technology with the firm's existing expertise: "Going forward, we will try to implement the best from new technologies while also leveraging the best features of our human capital and experience."

And, indeed, two of the company's domestic focuses, solar and wind power generation respectively, offer ample potential for technological innovation. Drones can be used, for example, to observe and maintain both onshore and offshore wind tur-

bines if the sites are difficult for humans to access. Along with AI they can also help shorten the construction period. "Another example," Mr. Genba states, "is solar panel installation on the slopes of mountains, where the use of drones enables our human resources to plan where to place the panels accurately."

In terms of seismic reinforcement work, Airu Engineering can carry out construction work to extend the life of infrastructure by adjusting optimal seismic reinforcement measures such as the RC jacketing method, the carbon fiber jacketing method, and the installation of bridge fall prevention devices for existing road bridges.



Car dealer workshop and engineering training center

As well as maintaining its domestic focus, Airu Engineering is also looking at global expansion, particularly in the fields of construction, civil engineering and renewable energies.

With Airu Engineering's existing experience in offshore wind power construction, cooperating with companies with cutting-

edge technology has the potential to revolutionize offshore wind turbine installation in Japan.



Highway bridge seismic reinforcement

And indeed, a recently established partnership with a leading UK offshore wind turbine cable protection system could be a game-changer with countless opportunities for mutual development. New technologies are, of course, often fused from pre-existing ones, a process Mr. Genba describes as the "multiplication of creativity."

Thinking outside of the box, meanwhile, is widely regarded as one of Airu Engineering's strengths. In 2019, the company established a West African branch in Ghana. New construction projects are also afoot. These include SDGs building construction work to improve energy efficiency with a view to creating a decarbonized and sustainable society, and various infrastructure development projects for long life.

Mr. Genba is optimistic about the mid-term, with the company looking to expand beyond its current West African base. "We are looking all over Africa. I would like to see our company capturing more areas of Africa as well as Europe. Our company motto is to put down roots locally and develop things from there."

Airu Engineering is now ten years old, and it is exciting to think what the next decade might bring. Certainly, Mr. Genba is not short of ambition. "One goal," he says, "is to have the ability to implement a full project from the start by fusing the knowledge we have gained from overseas collaboration, in other words, to introduce new technologies from all over the world."



Large land reclamation and formation

And, a more modest aim, which arguably underpins the whole enterprise: "I want to increase the happiness of all those who are related to or work for the company."

Striking the right balance for renewable energy

Providing comprehensive support for all companies that want to introduce renewable energy, the Abalance Group continues to go from strength to strength.

While Japan has lagged behind the likes of Europe in renewable energy development, momentum has been building quickly in Nippon, where the government has set forth an ambitious plan to reach carbon neutrality by 2050.

More than a decade ago, the island nation's initial renewable energy push was driven less by environmental concerns, and more so by an energy shortage due to the closure of dozens of nuclear plants following the Fukushima Disaster in 2011. Nuclear may still have a role to play in Japan's future energy mix, but the focus for many companies is renewables, with government policy rapidly shifting from a feed-in-tariff (FIT) system to the power purchase agreement (PPA) model that has become the norm in Europe.

As negativity and doubts surrounding solar and other renewable energies in Japan have fizzled away, the government, the banks, prime sector companies and smaller enterprises have all become increasingly active in supporting Japan's shift to carbon neutrality. This has led to a boom in interest in renewable energy projects, which bodes well for Abalance, a firm that acts as a one-stop solution for companies looking to get into the clean energy business.



Yasuaki Mitsuyuki, President, Abalance Corporation

"Our company plays a role in promoting green energy and solar power generation by offering comprehensive one-stop solutions, from planning to construction, as well as operations and maintenance, and there aren't many companies like that in Japan," states Abalance CEO Ryu Junsei. "As part of our efforts, we have accumulated knowl-

"We are promoting green energy and never see others as rivals but as partners, as no single company can realize the supreme goal of carbon neutrality."

Ryu Junsei, CEO, Abalance Group



edge and expertise in green energy, and we aim to transfer that knowledge to Japanese corporations interested in adopting such technologies. To facilitate this, we recently established a decarbonization business division that offers consultation services

initially not involved in the green industry become well-versed in green technology within a year or two and take pride in the business they are engaged in."

Indeed interest from private companies in developing renewable energy is not just driven by



to Japanese companies seeking to set up solar panels or engage in green energy initiatives. Our mission is to nurture and support Japanese companies so they can achieve their green energy goals independently."

Mr. Junsei, who decided to pursue a career in renewable energy back in his university days, has been a long-time proponent. Back in 2003, when he first expressed his aim to develop clean energy projects, people thought it was a crazy idea. Twenty years on, however, and he heads up a company leading the charge in the sector, having witnessed a huge change in perspective from business leaders over the past two decades.

"When private companies, especially listed companies, actively engage in business with us, such as installing solar panels or participating in wind power generation, it brings about significant change," he says. And as an increasing number of private companies have looked to work with Abalance, the firm's workforce has grown 50% year on year. "Even those who were

environmental consciousness, but also financial incentives. And Japan's move to the aforementioned PPA model will go a long way in making those financial incentives more attractive to investors. "In Japan, we have been involved in green energy and CO₂ reduction, primarily through the FIT system, which provides a tariff of around 10 yen per kilowatt-hour," Mr. Junsei explains. "However, in comparison, PPAs with corporate entities offer a higher rate of 15 yen or more per kilowatt-hour. Thus, PPAs are more financially lucrative. As a result, there has been a gradual shift from FIT to PPA in Japan."



While Japan has the highest ratio of solar panels per square kilometer of flat area in the world, there is still a long way to go to realize the full poten-

tial of solar power. Abalance is playing its part by supporting a number of initiatives, including the installation of solar panels in unused agricultural land, mountainous regions, and on the walls and rooftops of factories and city buildings. It has even developed a "solar tree" – consisting of a reinforced steel or concrete core, with branches made of sturdy metal or rebars resembling scaffolding – and flexible solar panels that can be bent. "We are continuously working on refining and developing our products," adds the Abalance CEO. "We aim to make solar panels installable anywhere, and we are constantly thinking about how to improve our products."

What's more, Abalance is also engaged in wind power and biomass power projects, as well as hydrogen. But the company's vision is not only limited to Japan. With operations in five countries in Asia and a solar panel manufacturing plant in Vietnam, Abalance plans to expand overseas are well underway. "We already have a factory in Asia, but we also plan to explore the possibility of establishing production facilities in the U.S., Europe and Africa," Mr. Junsei reveals.

"Our main goal is to support advanced countries to achieve zero emissions by 2050, and for developing countries to realize zero emissions by 2060 or 2070. We may at some stage be faced with the renovation of obsolete solar panels, and hydrogen technology might be required. Demand for solar power has increased but may fluctuate. We don't know what the future requirements will be, but whatever they may be, we would like to offer products that suit the needs of that time."



Investing for a greener future

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Solar power plant at Ozu Town Kumamoto, Japan



Battery storage system of Exergy Power Systems

Part of Daiwa Securities Group, Daiwa Energy & Infrastructure is looking to provide Japanese investors with renewable energy opportunities in Japan and around the world.

Established in 2018 as a subsidiary of Daiwa Securities Group, Daiwa Energy & Infrastructure was launched to leverage the expertise of its parent company to create a fund focused on renewable energy and infrastructure projects in Japan and across the globe. Over the past five years, the company has invested over 100 billion yen in solar energy projects, supporting the push towards carbon neutrality while also creating new value for investors.

With Japan looking to reach carbon neutrality by 2050, the Japanese government has adopted measures to support the proliferation of renewable energy products, with solar and wind holding much potential. So far, support from the government has come in the form of feed-in-tariff subsidies. But the transition to a new model – like that used in European countries, which is based on power purchase agreements – will be the next step for Japan as it looks to diversify its energy mix and lower dependence on fossil fuels from the Middle East.

“Private enterprises, including our company, play a crucial role in collaborating with the Japanese government to create a post-feed-in tariff system,” explains Morimasa Matsuda, president of Daiwa Energy & Infrastructure. “As financial investors, we work together with the government to invest national capital in renewable energy sources. Individuals in

Japan have substantial savings and pensions, and through financial institutions like pension funds, we introduce new financial investment assets, such as renewable energy infrastructure, to these individuals.”

Daiwa Energy & Infrastructure currently offers domestic solar power projects as private funds to Japanese clients, including pension investments and banks. In the near future, by leveraging its 40% stake in Aquila Capital, the company plans to create a private fund specifically for Aquila’s managed assets and European infrastructure, which it can offer to Japanese clients. “Additionally, we are looking at the use of blockchain technology to create products for private investors interested in solar panel projects,” adds Mr. Matsuda.

Aside from solar, Daiwa Energy & Infrastructure also participates in wind energy projects. For example, in collaboration with Capital Dynamics, the Japanese firm has invested in an onshore wind farm in Scotland developed by a German firm. Such projects are part of Daiwa’s strategy to increase its participation in greenfield renewable energy developments in Europe. “By partnering with companies

“Currently, we own a fund of approximately 100 billion yen in solar power generation, but we aim to further expand that.”



Morimasa Matsuda, President, Daiwa Energy & Infrastructure Co., Ltd.

like Capital Dynamics, who have extensive knowledge and experience in the field and the region, we can successfully execute these investments in new assets, particularly in Europe and other foreign countries,” the president of Daiwa Energy & Infrastructure explains. “We partner with new companies whenever we invest in a new asset. In Europe and other regions, it is important to find local partners who have extensive experience in the field.”

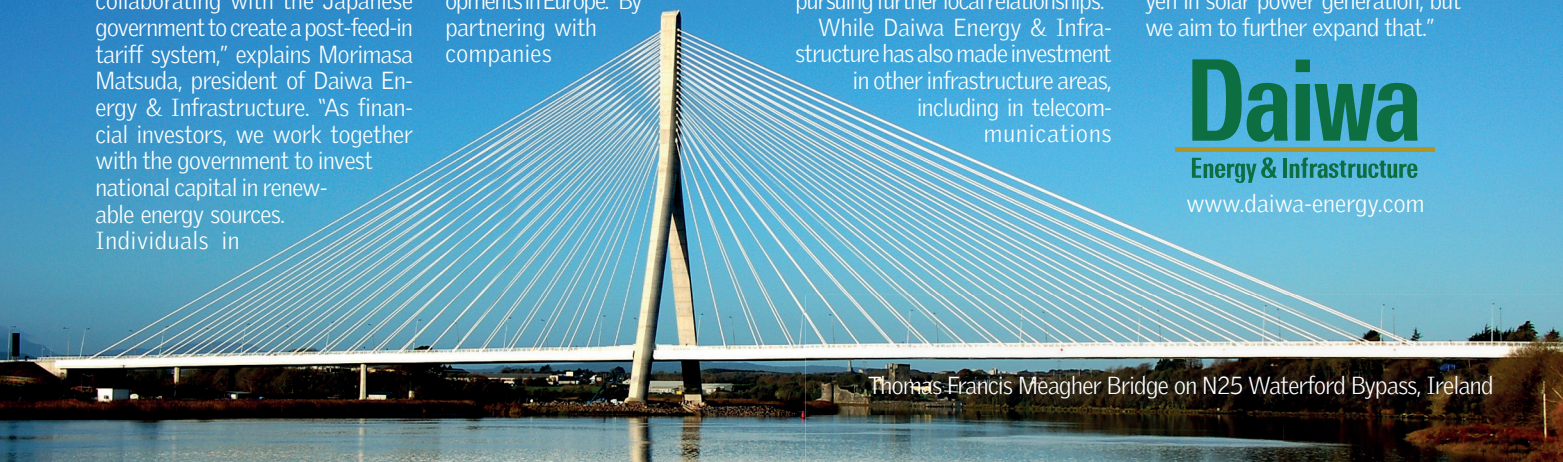
“We are constantly seeking new opportunities and partners,” he adds. “Having said that, we have already established a substantial network of trustworthy relationships with partners across every region we are focusing on. Specifically, for solar power, our focus regions are North America, Europe, and Australia, where we have established partnerships with companies, though still pursuing further local relationships.”

While Daiwa Energy & Infrastructure has also made investment in other infrastructure areas, including in telecommunications

projects, the main focus will remain on greenfield renewable projects, helping conventional institutional investors to invest in this exciting and growing field. The company’s business model, Mr. Matsuda reveals, is based on the history of Macquarie group, in which it owns and develops seed assets that will enable the creation of a future fund for clients of Daiwa Securities.

“Renewables and infrastructure offer stable cash flow, and once operational, we can create private funds. By entering at the development phase, we open up investment possibilities and use the asset to provide services to Daiwa Securities’ clients. Over the next 5-10 years, our mission is to strengthen the pipeline so that Japanese investors can invest in renewable energy and infrastructure. Currently, we own a fund of approximately 100 billion yen in solar power generation, but we aim to further expand that.”

Daiwa
Energy & Infrastructure
www.daiwa-energy.com



Thomas Francis Meagher Bridge on N25 Waterford Bypass, Ireland

Sannosuke Kobayashi Co. Ltd. provides the railway ties to keep industry on track

With extensive know-how, Sannosuke Kobayashi has been providing railway ties to well-known railroad networks, such as the renowned JR, and private firms, like the Enoshima Electric Railway, among others.



"We have experience with sophisticated demands that come from loyal customers."

Yuzo Kobayashi, President, Kobayashi Sannosuke Co., Ltd.

The green revolution has brought with it a return to traditional methods and materials that provide sustainable solutions to modern problems. Japanese railway sleeper manufacturer Sannosuke Kobayashi

is one of the companies driving the use of organic materials in modern railways.



Founded in 1908, Sannosuke has over a century's worth of experience in the wooden sleeper industry. Working with organic materials allows the company to create sleepers suitable for the sophisticated demands of modern railways, especially on tracks with dis-

tinct curves, bridges, tunnels and track shapes.

Not only do wooden sleepers allow for tailored solutions, they also enable Sannosuke to regenerate its raw materials through sustainable forestry. Sannosuke has planted over 10,000 hard-



wood trees in Gifu prefecture, and the company has expanded its forestry into Canada, where it



has comprehensively utilized over 440 hectares of land in British Columbia. As company president Yuzo Kobayashi says: "it is vital to keep the sustainability of our materials going for the future."

Sannosuke has recently moved into biomass production from wood waste and it also supplies precision dry wood chips for paper manufacturing. The company's expansion includes a logging facility in Malaysia and Mr. Kobayashi says he expects Sannosuke to continue its growth in Malaysia, Canada, Singapore and the United States.



Taihei: the future of woodworking

In a niche field, Taihei Machinery ensures that all of its customers' needs are met.



Horizontal Hot Press "Accordion"

In the competitive landscape of global manufacturing, Japanese firms, particularly SMEs, have managed to maintain their leadership in niche B2B fields, despite stiff regional rivalries. Takeshi Saito, CEO of Taihei Machinery, a prominent Japanese woodworking equipment manufacturer, sheds light on the strategy for expanding its presence overseas while attracting new clients, recognizing that it's not all about price.

"We have come up with a formula that is quality plus working environment equals productivity, equals efficiency, and equals competitiveness," he says. "Catering to the needs beyond the customer's expectations is something that defines Japanese manufacturing companies."

When it comes to overseas markets, Taihei Machinery tailors its products to meet the specific needs of foreign customers. For instance, their veneer dryers, presses, and grinders are designed to handle different types of wood not readily available in Japan. The company ships logs from abroad to Japan, allowing them to test and adjust the equipment accordingly and cross-check everything before delivering the final product, maintaining the company's reputation.

One of Taihei Machinery's notable products is the horizontal press, which offers a unique advantage over conventional presses. Its design eliminates thickness differences and ensures consistent quality,

making it a preferred choice for customers seeking precision in their woodworking processes.



Roll Jet Dryer "SRJ-125"

In terms of expanding their global footprint, Mr. Saito has a proactive approach, dispatching personnel to directly engage with potential clients overseas to fully understand their specific needs and promote suitable products. While Southeast Asia is a well-understood market, the company is actively seeking to strengthen its presence in Europe and North America, analyzing the market and formulating a clear plan for growth.

As the demand for sustainable materials rises, plywood has gained prominence for its eco-friendly qualities and Taihei



"Collaborating closely with our customers, we are creating the future of the woodworking industry."

Takeshi Saito, CEO Taihei Machinery Works, Ltd.

Machinery aims to cater for this expansion. Ongoing research and development also sees the company look to explore innovative drying solutions to maintain moisture balance within wood, addressing a perpetual industry challenge.

"If we could implement this new solution within two years," Mr. Saito says, "it would be a fantastic achievement."



www.taihei-ss.co.jp/en/index.html



Super Honing Machine "ARTESA II"

Delivering 'made in Japan' excellence at home and abroad

Founded back in 1894, Murakami Lumber specializes in high-quality wood products, working with a network of trusted suppliers to deliver a first-class service that construction clients can depend on.

A company with 129 years of history, Murakami Lumber is a leading Japanese supplier of logs, lumber and pre-cut wooden products, chiefly catering to B2B clients in the housing construction sector. The Osaka-based firm, which boasts an in-house pre-cutting factory, imports wood from worldwide locations such as the United States, Canada and Scandinavia, before delivering its top-quality materials to building projects both in Japan and beyond. Murakami also provides customers with the know-how offered by its own team of highly-qualified architects and engineers.

"What truly sets us apart is our profound knowledge and understanding of Japanese construc-

tion methods," says Murakami's company president, Kenji Sahara. "Recently, there has been a surge of interest from other Asian countries in applying the highly regarded 'made in Japan' approach to construction, particularly the axis method. This revered practice, prominently utilized in the construction of centuries-old temples, boasts exceptional strength and earthquake resistance, achieved without the use of nails. We have embarked on an ambitious project to export this traditional construction method to other Asian markets.

"We have chosen not to establish factories in local overseas markets. Instead, we focus on leveraging Japanese expertise in pre-cutting wooden housing mate-

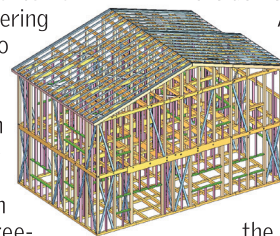
rials and transporting the finished products abroad. This enables us to maintain strict quality control."

At present, Murakami's international aims are centered around Vietnam, Mr. Sahara ex-



Ikonih children's wooden toys

plains. "One compelling reason is the country's rapid population growth, projected to reach 100 million within the next few years," he says. "Vietnam's average age is in the 30s, so there is tremendous growth potential in the market. I'm delighted to announce that this year, we will successfully complete our first building project in Vietnam, showcasing the impeccable craftsmanship and unwavering commitment to excellence that define Japanese construction practices. We can also reveal that we will soon finalize an agreement for an additional 15 buildings in the city of Da Lat."



CAD design

While Murakami has traditionally focused on B2B services, the company has in recent years ventured into the domestic B2C market, developing a portfolio of products that not only cater to home-building needs, but branch out into other areas, too. Alongside its 'M's' brand of wooden tabletops, for example, customers will also find the company's 'Ikonih' range of wooden toys. "Our primary objective is to effectively communicate the unparalleled excellence of wooden materials to the Japanese audience," Mr. Sahara says. "We are particularly keen on expanding the sales of our wooden toys. We had a collaboration with a Japanese



"Our vision revolves around conveying the allure and excellence of wooden materials to people worldwide, and in turn enriching their lives through our service."

Kenji Sahara, President, Murakami Lumber Co., Ltd.

airline for a limited run of a set of wooden plane toys which was an instant success, selling out promptly. Currently, we are formulating our next strategic moves within the domestic market."

And as Murakami plots continued growth both in the B2B and B2C sectors, Mr. Sahara knows that the first step on that path is to preserve the happy workplace culture that

the firm cultivates at each of its offices. "At the core of our company's philosophy

lies the belief that the well-being and contentment of our employees are paramount," he says. "It is my personal dream to relentlessly pursue the happiness of our team members, creating an environment where they feel fulfilled and motivated. By fostering a workplace that values and prioritizes employees' happiness, I strongly believe we can achieve extraordinary goals together."



Murakami Lumber showroom (top), Panel method (bottom)



村上木材株式会社

MURAKAMI LUMBER Co., Ltd.

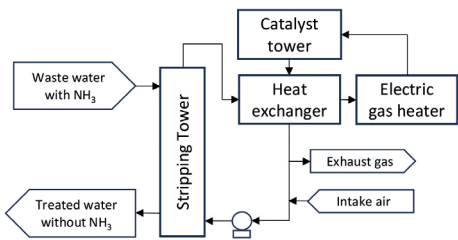
<https://mr-lb.co.jp>

Tsukishima Kankyo Engineering: A world-leading engineering company for environmental protection

Tsukishima Kankyo Engineering Ltd. (TSKE) contributes to a sustainable recycling-oriented society for limited resources through its innovative technologies.



Random tower packing "SPIRAX"



Air stripping process building in catalyst

Founded in 1958, TSKE specializes in the recovery of valuable materials contained in waste from production processes and the incineration of hazardous substances. Company president Naoya Fujita explains that TSKE has been providing the recovery and /or decomposition facilities for the ammonia wastewater from semiconductor factories and offers a

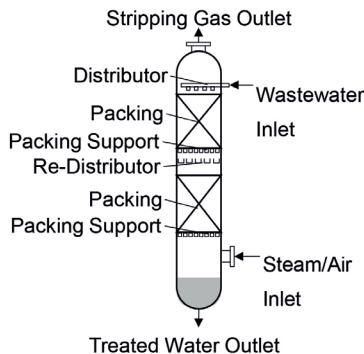


3D model of ammonia stripping facility

wide variety of processes to meet customer needs.

Semiconductors are the building blocks of our digital world, but the environmental impact and hazardous emissions related to their production can often be overlooked. TSKE is the company reducing the harm created by semiconductor production through its treatment technologies for the ammonia wastewater discharged during the process.

The process uses stripping technology to separate ammonia from the wastewater content



Structure of stripping tower

using steam or air. The removed ammonia can then be recovered as an ammonia solution if the customer desires, or it can be decomposed into nitrogen and water using the oxidation catalyst to render it harmless.

Mr. Fujita understands the importance of forming partnerships to advance the technology and he says that TSKE not only

promotes in-house development, but also adopts innovative and beneficial technologies from other companies. By combining these technologies and creating synergistic effects, TSKE proposes the processes and provides facilities that respond quickly to customer needs, and contributes to protecting the invaluable global environment through its ecology-related technologies. As TSKE continues to grow, its mission to contribute to the world through environmental technologies is becoming ever more important and the company's innovations are creating a more sustainable future for its customers.

TSKE TSUKISHIMA HOLDINGS
www.tske.co.jp/en

Sekisho Corporation continues to diversify by developing overseas markets

Demographic challenges in Japan have prompted the company to look overseas to address the impending recruitment crisis, with Vietnam and India creating a number of new hiring opportunities.

A general trading company with over a century of experience, Sekisho Corporation is using all its business know-how to respond to Japan's well-documented demographic challenges.



Sekisho Job Fair 2022 in Vietnam

With the population in Ibaraki Prefecture expected to decrease by 150,000 people annually by 2030, the company's latest recruitment drive has focused on the potential offered by Vietnam.

A representative from the corporation's highly-skilled HR team explains: "Japan and Vietnam established dip-

"In the future, it is clear that many Japanese companies will come to understand that employing a diverse workforce is a necessity."

Masaki Seki, President, Sekisho Corporation



lomatic relations in 1973. For political, cultural and historical reasons, there are many pro-Japanese people in Vietnam who wish to work in Japan."

Since 2016, Sekisho has been running a job fair in Vietnam in collabo-



24 exhibiting companies

address the overlapping needs of Japanese companies dealing with a shrinking workforce and high-level Vietnamese workers who want to relocate to Japan. To date, 124 exhibiting companies and over 5,625

Vietnamese students have participated, and plans are afoot to extend the scheme to India.

Recruiting personnel from overseas comes



1,200 participating students

with its own unique set of challenges, of course, including, but not restricted to, communication issues and cultural differences: "It can be very difficult for overseas personnel to adjust to the Japanese business style or culture, language and living environment."

To help with the adjustment process, therefore, Sekisho not only conducts recruitment activities but follows up with companies and recruits after the hiring process is complete.

Foreign nationals are increasingly important for Japanese industry, and Sekisho's aim is to establish a model that other domestic companies can follow in the years to come.

SEKISHO
SEKISHO GROUP
www.sekisho.co.jp

Sakaguchi: sensing innovation

Since its foundation in 1923, Sakaguchi has continued to develop industrial heaters and sensors of unrivaled quality.

Early this year, Sakaguchi joined the ranks of some 30,000 other companies in Japan that have survived in business for 100 years. One of the secrets to its longevity, according to President Mayumi Hachiya, is the firm's management philosophy.

"A crucial aspect of our company's success is that our employees understand our core values," she says. "They understand what Sakaguchi stands for, and our company's principles, which contributes to our strength."

The company, which encourages employees to think of themselves as connected to society, specializes in providing specific, tailor-made products to a diverse client base, and in so doing has accumulated a breadth of knowledge which has helped it overcome a number of challenges over the years.

The latest of these comes in the form of Japan's demographic issues, which are making manufacturing and recruitment increasingly problematic.

"During the period of high economic growth from the mid-1950s to early 1970s," Ms. Hachiya explains, "know-how and technology tended to be concentrated among individual personnel."

To address the issue of knowledge transfer, implementing a new system of internal information sharing thus became vital.

Ms. Hachiya again: "The new system enables personnel to teach and learn from each other, fostering a culture of knowledge exchange. A person who has experience in a process can teach someone who is new to it. This process allows personnel to accumulate successful experiences, which has been a key factor in our success."

Meanwhile, the company has also adopted a fresh approach when it comes to recruitment, taking on graduates as well as career-changers from different industries. Retirement ages, too, have been adjusted, with employees able to work until the age of 70 or beyond, a change which may prove instrumental in passing company assets – both tangible and intangible – to younger generations.

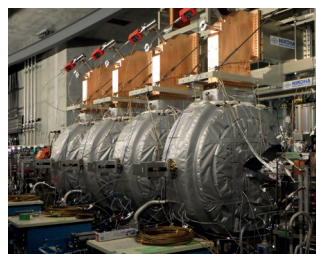


"We continuously cultivate a sense of gratitude for the people around us, and this mindset has stood the test of time."

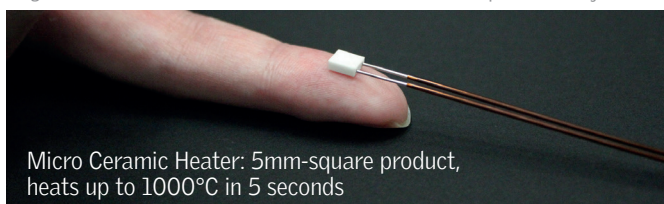
Mayumi Hachiya,
President & CEO, Sakaguchi
Electric Heaters Co., Ltd.



Minimal Fab: Tools owned by Minimal Fab Promoting Organization



The Heating Jackets for accelerator cavities installed at NanoTerasu. (provided by QST.)



Micro Ceramic Heater: 5mm-square product, heats up to 1000°C in 5 seconds

If facilitating knowledge transfer within the company is vitally important, then so too is maintaining Sakaguchi's network of partner companies.

Ms. Hachiya takes up the thread: "We have a network of over 500 partner companies with whom we collaborate to provide various solutions across different sectors and applications. Each client has unique requirements for heat types and control, and we strive to fulfil those needs. This collaborative approach has been a successful strategy for us, and we are continuing to explore new suppliers with innovative technologies to meet customer demands."

Beyond its industrial partners, the company is also actively engaged in collaborations with academia and the public sector. A flagship project is Sakaguchi's collaboration with the National Institute of Advanced Industrial Science and Technology (AIST), a

public agency, on semiconductor manufacturing technology. Work here includes research on the Minimal Fab project, which involves the construction of a new semiconductor system catering to the demands of high-mix low-volume and variant-variable production. From 2018 to 2021, meanwhile, the company participated in a collaborative development project with AIST and Professor Yoshiaki Kanamori from Tohoku University, a partnership which bore fruit in the form of a new Minimal Laser Hydrogen Annealing tool.

The company, of course, has a long history of collaborating with academic partners, thanks in no small part to its bricks-and-mortar store in Akihabara, which has good access to nearby institutions such as Tokyo University. Tsukuba, an academic and research city, is also connected to Akihabara by train.

"Since the beginning," Ms. Hachiya states, "our capability and tech-

nology have received high praise from academia. Researchers would come to our store whenever they needed heat-related solutions, and through word-of-mouth recommendations, our reputation grew."

There are even stories of Honda's founder, Soichiro Honda, visiting the Akihabara store in a working jumpsuit, on the look-out for whatever he needed to build his latest design.

Given the Akihabara store's role in the dawn of Japanese industrial development, it is perhaps no surprise that Sakaguchi products have been installed in various research facilities over the years, among them SPring-8, in Hyogo Prefecture, where a type of light called 'synchrotron radiation' enables researchers to investigate the structure and function of materials at the atomic and molecular level. A next-generation synchrotron radiation facility – NanoTerasu – has recently been established in Miyagi Prefecture, and the fact that it, too, uses Sakaguchi heaters and control devices is a clear source of pride.

Looking to the future, the company has agents in various countries and is targeting areas with significant growth potential, among them East and Southeast Asia. In terms of trade shows, the focus is on several key overseas markets. According to Ms. Hachiya, these include "Southeast Asian advanced industrial countries, emerging markets, and rapidly growing regions where demand is high."

The strategy is equally clear: "Through meticulous analysis of market needs and competition in each market, we adjust our product development and marketing strategies to meet local requirements, with a strategic approach aimed at expanding market share."

As for her own personal goals and ambitions, Ms. Hachiya takes a more holistic approach. "If, on the last day of my presidency, each and every employee were to say to me: 'Working with Sakaguchi has been a wonderful experience in my life'... nothing would be better than that."

