

2022 年6月 24 日

TREホールディングス株式会社

『ニューズウィーク (Newsweek)』に当社が紹介されました

当社が、『ニューズウィーク (Newsweek)』の“Japan takes on the infrastructure challenges of the 21st century” (21 世紀のインフラに挑戦する日本) 国際版 2022 年6月 17 日号に紹介されました。

地球環境の保全にやさしく、自然災害に強いインフラ強化や復興に貢献する企業であり、同時に二酸化炭素の削減技術を通して、日本と同様の環境や防災の課題を抱える国々に、そのノウハウを世界に向けて提供を目指す日本企業の一つとして掲載されました。また、企業紹介として“New merger sets out on sustainable mission” (新たな統合によりサステナブルな企業理念の実現を目指す) が写真入りで掲載されています。

(以下、掲載記事の要約)

■フロントページ:

TRE ホールディングスは、廃棄物処理、金属リサイクル、再生可能エネルギー、環境エンジニアリングを専門としており、バイオマス発電にも携わっている。同社は、脱炭素社会を実現するための計画の一環として、エネルギーミックスの多様化・拡大を求める東南アジアの国々を支援していく。

「TRE ホールディングスは、現在、国内6つの発電所を運営し、発電に関する知見を蓄積してきました。今後は、そのノウハウを活かすべく、東南アジアを中心に展開していきたい。」と松岡直人会長兼CEO。「当社は、バイオマス発電のみでなく、太陽光発電も活用しています。東南アジアには、電力が不足している国がたくさんあると思います。そこに展開していくことで、これらの国々の発展に貢献していくことができると考えています。また、2030 年の CO₂ 排出量を 2013 年比で 46% 削減するという菅前首相の公約においても、当社は、そのリーダーになれると考えています。松岡会長とともに脱炭素化と環境保全の取り組みを通して、次世代に誇りをもって引き継ぐことができる日本を創造していきたいと思います。」と阿部光男社長兼COO。

■企業紹介ページ:

TRE ホールディングスは、カーボンニュートラルを推進するため、新たな技術開発に挑戦

昨今、気候変動、資源・エネルギーの枯渇、海洋プラスチック問題などは、普遍的な課題となっています。このような地球規模の持続可能性を阻害する問題を解決するため、昨年、(株)タケエイとリバーホールディングス(株)は経営統合を行い、TRE ホールディングス(株)としてスタートしました。

限りある資源を有効に活用し、現時点では適切な回答がない環境問題について、一つでも多くの解決策を生み出していくことが、当社の目指すところです。

社会全体で環境に対する意識は、大きく変わりつつあります。様々な技術を生み出し、業界をリ

ードしていくことが、私たちの務めです。そのために、資源循環のためのリサイクル事業の深化、カーボンニュートラルの推進、環境にやさしい新技術への挑戦の3つの成長戦略に取り組んでいます。

TREの経営陣は、「リニアエコノミー」から「サーキュラーエコノミー」への移行を実現するため、この2社の統合はゴールではなく、むしろ地球を守るための旅の始まりであり、当グループは崇高な理念の実現のために、さらなるパートナーシップを積極的に築いていくと述べています。

■ニューズウィーク(Newsweek) : <https://www.newsweek.com/>

以上

Japan takes on the infrastructure challenges of the 21st century

Greener, stronger, and more resilient to natural disasters, when it comes to infrastructure, Japanese companies have gained considerable expertise in maintenance and repair, disaster prevention and carbon-reducing technologies, and are ready to take their know-how globally to countries facing similar issues as Japan.

From a Shinkansen railway system boasting zero passenger fatalities in 50 years of operation to the world's longest suspension bridge connecting Awaji Island to Kobe, Japan is recognized as a global leader in construction and infrastructure. Since the country's first construction boom prior to hosting the 1964 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 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, which also includes leveraging the latest disaster prevention technologies to enhance resilience to natural disasters. And with Japan looking to reach carbon neutrality by 2050, the environment is also a major priority for those in construction and related industries.

"One aspect is that the market is definitely faced with aging infrastructure and facilities, and how to deal with that issue. The second aspect is the strengthening of buildings towards mitigating earthquake damage, and the third aspect is preventing disasters apart from earthquakes, such as the flooding of rivers. Creating infrastructure to be resilient in the face of these three aspects is the primary aim of projects nowadays, and there is a big demand for projects in this field," says Takasuke Nakano, President of Mitsui Consultants.

"As for technologies that we can provide in order to prevent and reduce disasters, we are focused on the conservation of coasts, river channels, and groundwater tables in order to mitigate the effects of events such as tsunamis, floods and landslides. One specific technology developed by our company is called RRI (Rainfall-Runoff-Inundation), a flood predic-

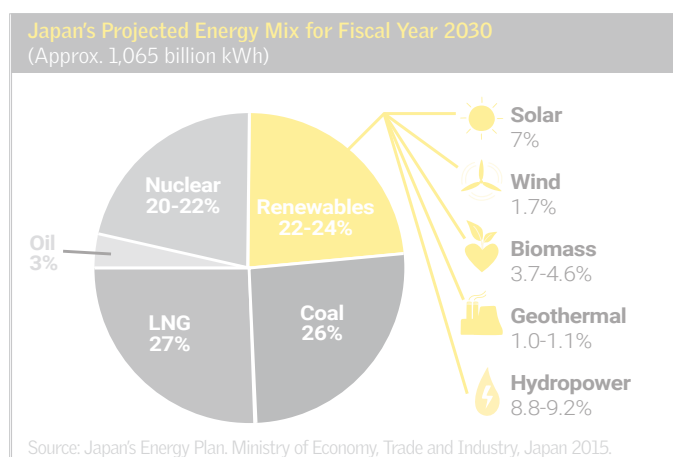
tion system using a flood analysis model developed by ICHARM (The International Center for Water Hazard and Risk Management). We have developed a real-time flood prediction system for floods all over Japan using a supercomputer."

Indeed, Japanese companies like Mitsui Consultants have gained considerable expertise and knowledge when it comes to disaster prevention technologies and are ready to share those technologies with other countries facing increasing natural disasters due to climate change. Chuo Kaihatsu has also developed state-of-the-art technology to mitigate the impact of landslides, with its Kantaro early warning system (EWS) utilized globally.

"In recent years, many preventive conservation projects are needed, such as flood improvement in watersheds, prevention of landslides and other measures due to the frequent occurrence of torrential rain due to climate change," says Makoto Tanaka, President of Chuo Kaihatsu. "Especially in the past decade, there have been many natural disasters that have resulted in the loss of precious lives and valuable property. Situations like this make us reflect, and I want to utilize the technology we have accumulated here at Chuo Kaihatsu and deliver that internationally. We also have various maintenance and management technologies that we have accumulated over the past 76 years. We wish to contribute overseas by putting together a set consisting of our infrastructure and our technology."

Yasuhiro Tochimoto, President & CEO of Kawasaki Geological Engineering (KGE), highlights that the Sasago Tunnel collapse in the Yamachi Prefecture in 2012 triggered a shift in emphasis from new construction to maintenance and management of aging civil engineering structures. "As a result, the number of surveys, inspections, diagnostics and designs for maintenance and management has increased compared to civil geological surveys of new construction projects, and the renewable energy field has also become active. Therefore, the content of our business has diversified," he explains.

"The aging of civil engineering structures is inevitable, but the policy



has shifted from corrective maintenance, in which repairs are conducted after the infrastructure is damaged, to preventive maintenance, in which measures are taken to extend the life span of the infrastructure before it breaks down. In preventive maintenance, it is important to accurately assess the topographical and geological conditions at the time of construction and maintenance management."

Even ATOX – a company principally engaged in the maintenance, management and deactivation of nuclear power plants – has become involved in the maintenance of public infrastructure, leveraging its know-how in X-ray technology to develop non-destructive inspection systems for large-scale structures. "It's a unique technology that we obtained over the years in the nuclear field. By using X-ray technology, we can visualize the inside of concrete that is over one-meter thick, and this visualization technology should contribute greatly to maintaining the integrity of bridges in the future," explains ATOX president Toshikazu Yaguchi.

"This technology is used to conduct a demonstration project for integrity verification of precast concrete bridges for expressways. Like human beings, social infrastructures need to be maintained for their health and longevity. Our technology will be needed not only in the field of nuclear energy, but also in the fields of people and social infrastructures, and I hope this infrastructure-related technology will spread around the world in the future."

One of Japan's largest expressway operators, the East Nippon Expressway Company (E-NEXCO) is engaged

in maintenance and management of expressways. With the shift towards electronic and autonomous vehicles, president Toru Obata says the company is "sincerely looking toward the future", where E-NEXCO will play a vital role as the number and nature of expressways continue to advance around the globe. "In the last 10 years, we diversified our activities and began conducting maintenance and renovation projects. Rather than overseeing new construction projects, we have developed leading technologies to update and enhance the performance of existing expressways," says Mr. Obata, who also points to the important role the company can play in reducing carbon emissions.

"The first way to reduce carbon emissions is to ensure that our highways are in great condition. This includes managing construction and conducting highway redevelopment so that the maintenance is up to date. With regard to highway redevelopment, increasing the number of lanes from four to six, for example, reduces congestion and directly leads to reducing CO₂ emissions. To support the switch to electric cars and renewable energy, we will increase the number of EV (electric vehicle) chargers in parking and service areas. Utilizing our R&D capabilities, we want to develop a technology that enables EVs to charge while driving. We are currently working towards testing this technology."

With the Japanese government's plan for Japan to reach carbon neutrality by 2050, the role of power generation and related equipment companies will indeed be vital, while institutions such as the New Energy

and Industrial Technology Development Organization (NEDO) and the Mitsubishi Research Institute (MRI) will provide support to companies looking to reduce their carbon footprints. The leaders of both organizations point out the importance of close collaboration between the public and private sectors regarding to the 2050 goal.

"In line with Japan's policy of realizing carbon neutrality by 2050, NEDO has received significant funding to implement the Green Innovation Funding Program. Under this program, concrete goals shared by the public and private sectors for realizing carbon neutrality have been established," says Ishizuka Hiroaki, Chairman of NEDO.

"At this time (February 2022), 11 projects have been launched under this program. These projects focus on areas for promising growth identified in Japan's Green Growth Strategy, such as the creation of large-scale hydrogen supply chains, development of advanced aircraft and shipping technologies, and development of advanced solar cells."

Giving his take on the 2050 target, MRI president Kenji Yabuta says: "For example, in reaching carbon neutrality, optimizing human resources to improve the economy and energy is the challenge. Both the public and private sectors will need to work together."

"Our role in the issue of carbon neutrality would be on putting emphasis on solar, wind and renewable energy, and reducing coal-generated power. To create this shift, it is very important for us to work closely with the public sector," adds Mr. Yabuta.

"Building a number of solar, wind and other renewable energy power plants falls under the private sector. We can contribute by creating solid networks between the private and the public sectors, which will allow us to help make policies with the public sector and make sure the private sector can implement these projects to completion. The experience and knowledge we have gained through our work in the public sector enables us to effectively provide consulting services to the private sector."

Mitsubishi Heavy Industries Environmental and Chemical Engineering (MHIEC) operates several waste-to-energy (WtE) facilities in Japan and Singapore, incorporating the technology of its parent company, Mitsubishi Heavy Industries. With the push towards carbon neutrality, the company is working to develop



Kotaro Hirano, President,
Hitachi Construction Machinery

carbon capture and other technologies in a bid to boost the green credentials of its WtE plants.

"We focus on increasing power generation from waste. Efficient power generation requires high-temperatures and high-pressure boilers. It is not easy because waste energy's crude gas is more hazardous and the boiler tube melts and erodes at higher temperatures. We are developing technologies to solve this challenge," explains MHIEC president and CEO Takayuki Hishinuma.

"We are pursuing higher temperature and pressure to achieve higher efficiency of power generation. Our technology is called an exhaust gas recirculation system. All exhaust gas has low oxygen content and we can reduce harmful nitrogen oxides. Flue gas can also be recycled and reduced. This is a very important technology."

MHIEC also has carbon capture technology that it plans to use for CO₂ recovery at its Tsuzuki WtE plant in Yokohama. "The captured CO₂ will be sent to one of the biggest gas utility companies in Japan, and they will convert the CO₂ to methane through methanation," adds Mr. Hishinuma.

Also involved in the operation of WtE plants (including biomass) in Japan, TRE HOLDINGS specializes in waste management, metal recycling, renewable energy and environmental engineering. As part of its plan to support the creation of a circular economy, the company aims to support countries in Southeast Asia in their quest to diversify and expand their energy mix.

"Currently we have six power generation plants in Japan, and through these we have been able to accumulate knowledge on power generation. From here onwards, we want to focus mainly on Southeast Asia, where we can utilize our know-how," says TRE's chairman and CEO, Matsuoka Naoto. "It's not only biomass power generation, but we also utilize solar power generation as well. I believe there are a number of countries in Southeast Asia that are lacking power. Therefore, by creating a presence there, we hope to contribute to the development of those countries."



Kazuo Kobayashi,
President, Aichi Denki

"I think another focus we have lies in former prime minister Suga's commitment to reduce CO₂ emissions by 46% in 2030, compared to 2013 levels. I would like to think that TRE HOLDINGS can become a leader in this commitment," adds company president and COO, Abe Mitsu. "I will be working very diligently with Mr. Matsuoka to tackle decarbonization, protect the environment and create a Japan that we will be proud to hand to the next generation."

A reputed supplier of power products, including transformers, power converters and control equipment, to Japanese electricity utility companies, Aichi Denki has responded to increasing demand for renewable energy-related technologies, as explained by president, Kazuo Kobayashi. "With the rising demand for renewable energy, electric power companies are looking for a way to maintain the stability of transmission and distribution networks. Our strength is in technologies for automatic voltage regulators and thyristor-type step voltage regulators that can balance out the grid and make the electric supply stable. We are forerunners in this field, and we are trying to develop a product to ease voltage control on the Japanese grid. Japan is aiming to achieve carbon neutrality by 2050. In line with this, we have established new teams to focus on small-scale hydro plants and bio-gas plants."

For its part, cable manufacturer SWCC worked in conjunction with NEDO and BASF Japan to develop a tri-axial superconducting cable that can reduce power transmission energy loss by more than 95%. "Our developed tri axial superconducting cable is thought to greatly contribute to reducing CO₂ emission," says Takayo Hasegawa, Chairwoman and CEO of SWCC. "With regards to the way in which electricity is delivered from power plants to everyone's homes, in Japan there is a 5% annual loss that comes about as a result of utilizing conventional metal cables. This 5% of energy loss is lower than the global standard of energy loss which is around 10%. I truly believe



Ishizuka Hiroaki, Chairman,
New Energy and Industrial
Technology Development
Organization

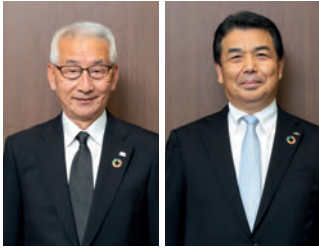
that while 5% may seem small, it is actually equivalent to the annual energy production of five nuclear power plants. I believe achieving a total reduction in transmission loss would be an extremely important contribution to the environment."

When it comes to infrastructure, Daiki Axis is another Japanese company looking to make a big impact globally, with its expertise being in wastewater treatment. Daiki Axis president and CEO Hiroshi Ogame aims to bring the company's Johkasou wastewater treatment system (a system unique to Japan) to Southeast Asia and beyond.

"Internationally, with our main priority being to contribute to sanitation and treatment of wastewater, our strength greatly expands through collaboration. Currently, we are looking for partners in India," Mr. Ogame reveals. "We are looking into expanding to Africa, and we are looking to work together with local distributors. Moreover, I want to increase our company's brand awareness in Southeast Asia. We want to be truly well established in that region. Johkasou is not known in overseas markets. Therefore, it starts with promoting its many qualities."

Union Corp, a company well known for manufacturing highly-crafted door handles, also has an eye on establishing a bigger presence in Southeast Asia, as well as Africa and the Middle East. "Our company's future sales will depend on where there is growing demand for new buildings. Therefore, we are targeting emerging economies or developing countries in Southeast Asia, the Middle East and even Africa," says president Junzo Tatenno. "We have a 90% market share in the domestic market. There is no general construction company in Japan that is not familiar with Union Corporation. Since we want to achieve similar success in foreign markets, we want to improve our brand awareness. The dream is that one day our door handles will be installed more in the U.S. and Europe."

New merger sets out on sustainable mission



"We will be working together diligently to tackle decarbonization, protect the environment and create a Japan that we will be proud to hand to the next generation."

Matsuoka Naoto, Chairman and CEO; **Abe Mitsuo**, President and COO, TRE HOLDINGS CORPORATION

Climate change, depletion of resources and energy, and marine plastic problems have become universal issues in recent decades. With a first-hand sense of these crises, last year TAKEEII CORPORATION and REVER Hold-

The newly formed TRE HOLDINGS CORPORATION is embarking on a strategy to promote carbon neutrality by taking on the challenge of developing new technologies.



Biomass power plant

ings Corporation merged to form TRE HOLDINGS CORPORATION; a new company that hopes to help solve the problems that impede global sustainability.

"What we at TRE HOLDINGS want to achieve is to fully utilize limited resources and to produce as many solutions as possible to problems for which currently there are not any appropriate answers," says Matsuoka Naoto, Chairman and CEO of TRE HOLDINGS, a Group of businesses specializing in waste management,

metal recycling, renewable energy and environmental engineering.

"The awareness of society as a whole to the environment is now undergoing a dramatic change," says Abe Mitsuo, President and COO.



Dismantling of PCs

"It is our duty to produce various technologies to lead the industry, and to that end, we are working on three growth strategies: deepening our recycling business for a sound material-cycle; promoting carbon neutrality; and taking on the challenge of developing new environmentally-friendly technologies."



Refuse paper & plastic fuel

In helping make this transition from a linear economy to a circular economy, the executives at TRE HOLDINGS affirm that the recent merger of their two companies is not the goal, but rather the beginning of a journey that will help protect the planet. The Group is open to further partnerships in pursuit of this noble mission.



Dismantling of automobiles

"We will consider collaboration and partnerships with like-minded companies to solve environmental issues and to realize a sustainable society," says Mr. Abe.



<https://tre-hd.co.jp/en>

MHIEC: A leader in waste-to-energy technologies

A company that has supplied hundreds of waste-to-energy facilities in Japan and overseas, MHIEC is embracing digital transformation and a greener future as it looks to expand its global reach.

Specializing in the design, construction, operation and maintenance of waste-to-energy (WtE) plants, Mitsubishi Heavy Industries Environmental & Chemical Engineering



Nishi Plant, Nagasaki City, Japan (MHIEC) has delivered over 300 such facilities both in Japan and abroad, supplying more than 20 to China alone since the 1980s.

As Japan's aging population decreases, MHIEC's aim is to continue to grow its global presence, says President and CEO Takayuki Hishinuma. "The Japanese market is shrinking, so expanding our business overseas is very important," he says, pointing to the Middle East as a particular target. "The



"We're focused on increasing power generation from waste."

Takayuki Hishinuma, President and CEO, Mitsubishi Heavy Industries Environmental & Chemical Engineering Co., Ltd.



Shanghai Laogang Renewable Energy Utilization Center, China

waste volume is directly related to the population. If the population drops, waste drops too."

Japan's demographic decline has also led MHIEC to embrace digital transformation to combat the shortfall in available workers. "Skilled operators' know-how should be digi-



Waste-to-Energy Plant in Xiaogan, Hubei Province, China

talized so that even unskilled laborers can operate a plant or it can be operated autonomously," Mr. Hishinuma says. For example, MHIEC has developed MaiDAS™, an AI-based remote monitoring and operational support system utilized in their Tsuzuki Plant in Yokohama, among others.

MaiDAS™ helps to increase energy efficiency – a key benefit as Japan seeks carbon neutrality by 2050. In its commitment to cutting emis-

sions, MHIEC has also developed systems such as its advanced exhaust gas recirculation, and is collaborating with other MHI Group companies. For instance, it has launched a demonstration carbon capture and recycling project with MHI Engineering as part of a local government CCU campaign. "The captured CO₂ from the flue gas of waste combustion will be sent to one of Japan's biggest gas utility companies to be converted into methane," Mr. Hishinuma explains.



www.mhiec.co.jp



Electro-Chlorination: utilizing electrolyte technology