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sustainable japan

Suntory preserves precious water for the future

Osaka Expo

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Water has nurtured life throughout our planet's long history and sustained human society. Water is the most precious resource shared by all living beings.

Suntory Holdings Ltd. has for decades dedicated itself to conserving water sources and realizing sustainable water cycles to ensure that water is carried forward to future generations. At Expo 2025 in Osaka, the company presents this philosophy to the world.

Water is the lifeblood of Suntory's business. Beer, wine, soft drinks and whisky alike cannot exist without high-quality water. Its source — groundwater — accumulates slowly, nurtured by forests over time.

To safeguard this precious resource for the future, the company has engaged in the conservation of water sources at 26 locations in 16 prefectures across Japan. This effort, which protects local ecosystems by fostering groundwater recharge through forest preservation and restoration, was launched in 2003 as the Natural Water Sanctuary initiative.

Today, the protected area has expanded to approximately 12,000 hectares. Guided by scientific research and close collaboration with communities, Suntory continues to cultivate forests with a forward-looking vision — one that spans decades, even half a century or more, into the future.

Suntory Park Cafe is a park-like waterside space where guests can enjoy familiar Suntory products. SUNTORY

This summer, while global attention turns to Expo 2025, Suntory has transformed the expo grounds into a stage for a diverse array of programs. Alongside water-themed shows and dining experiences, the company hosted a Children's Summit, an SDGs-focused initiative that invited younger generations to reflect on the future of water and air. Visitors also encounter Suntory products and services across the venue through food trucks and vending machines.

While the company has participated in three previous expos, each time with its own dedicated pavilion, its fourth appearance marks a new departure: a collaboration with air-conditioner maker Daikin Industries to create an innovative experience that combines the strengths of both companies.

The collaboration is deeply rooted in the origins and philosophies of both companies. Each was founded in Osaka, and over the years they have fostered a good relationship. Suntory is guided by its corporate message of "Sustained by Nature and Water" and Daikin by "Perfecting the Air," both essential elements for life. Much like Suntory, Daikin has long pursued the science of air quality while addressing social challenges across more than 170 countries and regions. Against this backdrop, the theme of Expo 2025 — "Designing Future Society for Our Lives" — naturally resonated with their ideals, paving the way for co-creation.

"Preparations began more than three years ago, with discussions starting from what message we should convey about the future of life," said Miyuki Maeba, senior general manager of the Expo 2025 Osaka, Kansai, Japan promotion department of Suntory Holdings Ltd. "Through that process, we first decided to stage a water-and-air-themed show and later added the restaurant Suikuu and a next-generation environmental program. These three initiatives became the pillars of our overall plan."

"Under the Midnight Rainbow," a spectacle of air and water, is a joint creation by Suntory and Daikin. SUNTORY

At the expo site, the Water Plaza hosts a large-scale water and air spectacle titled "Under the Midnight Rainbow." Designed to appeal to audiences of all ages, the show conveys the interconnectedness of water, air and life itself. In the performance, wind, mist and shifting air currents resonate with fountains, light, imagery and music, immersing spectators in a sweeping narrative. As an international stage, Expo 2025 offers a vital opportunity to share the value of conservation with the world and carry it forward into the future.

What if water and air could tell us about what they have observed on Earth for billions of years, and offer humanity clues for the future? From this idea emerges a festive tale, vividly painted across the night sky after sunset. Its protagonists, a child named Ao and a mysterious bird called Dodo, meet beneath a mystical rainbow of the night, where a grand celebration of living creatures unfolds.

"As for the title 'Midnight Rainbow,'" explained Maeba, "it comes from a rare natural phenomenon in which a rainbow — normally visible only in the brightness of day — appears at night when the air is rich with moisture. If we listen closely to water and air, which have quietly watched over the Earth throughout its long history, perhaps they can teach us the path humanity should follow. That idea lies at the heart of this story."

Dinosaurs and other extinct creatures also appear in the show, quietly reminding the audience of the importance of carrying life forward without interruption. While intended to be enjoyed by visitors of all ages, genders and nationalities, Maeba hopes the message will especially reach the children who will shape the next generation.

At the Water Plaza West Marketplace, a selection of Suntory's distinctive dining venues welcomes visitors, each offering menus that reflect strong commitments to water, nature and locally sourced ingredients.

Among them is Suikuu, a restaurant envisioned as a "highland retreat" where guests can savor a dining experience that evokes the sensation of being embraced by crisp alpine air. Incorporating advanced air-conditioning technology from Daikin, the space carefully regulates humidity and airflow to create an environment that gently engages the senses. Careful thought has also been given to how water is experienced. Each course begins with Suntory Tennensui mineral water, served not as a simple table drink but as an aperitif. "We want guests to recognize the intrinsic value of natural water itself, not just see it as ordinary water," Maeba explained. Complemented by visual, acoustic and multisensory effects, Suikuu offers a rare harmony of serenity and delight — an experience that lingers long after the meal.

On the first floor, the Suntory Park Cafe offers a signature menu item: shaved ice made with Suntory Tennensui mineral water. Guests are encouraged to take their first bite without syrup so they can appreciate the taste of the ice itself. Inside the cafe, the tabletops, tableware and glasses are crafted from thinned wood sourced from forests in the Natural Water Sanctuary initiative. By incorporating materials harvested as part of sustainable forest management, guests are invited to reflect on the gifts of nature and the possibilities of a sustainable society.

The restaurant Suikuu is a "highland retreat" collaboration with Daikin. SUNTORY

Maeba shared her hopes for visitors: "Above all, I want everyone to simply enjoy themselves. And if that enjoyment — the delicious food, the beautiful water, the moments of delight — can naturally inspire a sense of value that carries into the future, then we have achieved something meaningful."

Rain and snowmelt seep slowly through forest soil, filtered and purified over two decades before becoming groundwater that emerges as Suntory Tennensui mineral water. Reflecting on this long journey, visitors are reminded — both physically and emotionally — of the preciousness of water in daily life and for all living beings.

On the expo's global stage, Suntory delivers a gentle reminder: Water, the very source of life, must be safeguarded and handed down to the future. To instill this awareness is Suntory's mission — and a baton entrusted to each of us to pass on to generations yet to come.

The Sustainable Japan section highlights issues related to the environment and a sustainable society. For more information, scan the QR code.

Komatsu's machines, infrastructure aid sustainability

Mission: Sustainability

OSAMU INOUE
RENEWS

At the Super Taikyu Series Fuji 24 Hour Race, in which touring cars similar to commercially available cars are driven over a long distance, one apparent misfit was attracting attention on May 30: a hydrogen-powered excavator.

The prototype from Komatsu Ltd., a major Japanese manufacturer of construction machinery, was powered by the same hydrogen fuel cell stack as Toyota Motor Corp.'s Mirai, generating electricity to drive the hydraulic excavator and the vehicle itself. With no emissions apart from water and steam, the prototype is just one example of Komatsu's efforts to contribute to society.

Leading global industry

Komatsu makes hydraulic excavators, wheel loaders, bulldozers and large dump trucks used in mines. With overseas business representing over 90% of its total sales, Komatsu is considered the second-largest construction equipment maker.

Komatsu is also known as an industry leader on sustainability. This past February, the international nonprofit group CDP put Komatsu on its 2024 A lists. In April 2021, Komatsu defined its corporate identity for its 100th anniversary, expressing "our purpose" as "Creating value through manufacturing and technology innovation to empower a sustainable future where people, businesses, and our planet thrive together."

Construction machinery typically burns large amounts of diesel fuel, thereby emitting greenhouse gases, mainly carbon dioxide. To reduce emissions to net zero, it is necessary to fundamentally change the construction machinery industry, and Komatsu is tackling this challenge.

Improved fuel efficiency

"Construction machinery comes in various sizes," said Yoshie Ideura, the executive who heads Komatsu's Sustainability Promotion Division. "The machinery is also driven by varied power sources: It may be hybrid or battery-powered. It may be powered by hydrogen fuel cells or a hydrogen engine. That's why we are trying everything in a comprehensive manner."

In 2008, Komatsu launched the world's first hybrid hydraulic excavator, the PC200-8. According to government statistics, hydraulic excavators account for about 75% of all construction machinery in Japan.

Komatsu's lineup of hybrid hydraulic excavators has increased since then, and a total of 16 models, the largest number in Japan, have been certified as low-carbon construction machinery by the Ministry of Land, Infrastructure, Transport and Tourism.

Komatsu also introduced hydraulic excavators powered solely by electricity. In December 2023, a total of seven models of battery-powered and tethered electric hydraulic excavators were certified for the first time under the transport ministry's new "GX construction machinery certification program." Komatsu has a target of halving emissions of carbon dioxide from its construction, mining and forestry machinery from fiscal 2010 levels by 2030.

Mobile hydrogen supply

Since May 2023, Komatsu has been testing the hydraulic excavators equipped with Toyota's fuel-cell stacks. At the same time, is working on the development of mining trucks powered by hydrogen-fueled internal combustion engines.

Komatsu has thus been involved in the development of technologies for fuel efficiency, as well as electric, hybrid, fuel cell and hydrogen engines. But its development efforts are not limited to just vehicles. It also focuses on factors affecting their actual usage, including refueling. "Construction and mining machines are sometimes used in remote mountains. So if there's no viable infrastructure, even if you bring the machinery to a site in such a location, you cannot use it," said Takayuki Mamiya, general manager of the Environmental Affairs Department of Komatsu's Sustainability Promotion Division. "Therefore, you need to consider the whole picture, not just vehicle development. For example, if you calculate a work process, you may be able to operate it in a shorter time," he added. "Or you can reduce CO2 emissions by optimizing operation management."

These are attempts to contribute to sustainability through "soft" aspects rather than "hard" aspects such as vehicle or infrastructure development.

In 2001, Komatsu made Komtrax, a GPS-based system for managing machine operations. In 2013, the company launched the world's first bulldozer equipped with a function to automatically control blades using position information, and in 2014 launched the world's first hydraulic excavator equipped with a semiautomatic control function. "It's an epoch-making product for reducing CO2 emissions on construction sites," Ideura said.

Yoshie Ideura and Takayuki Mamiya OSAMU INOUE

Reviving mountains

Komatsu believes solutions that address both "hard" and "soft" aspects are indispensable for reducing carbon emissions. For this reason, it redefined its vision for itself as a "collaborative partner committed to optimizing safe, productive, and clean workplaces." Symbolic of this philosophy is the Komatsu Greenhouse Gas Alliance, launched in 2021.

The first target is the "power-agnostic truck." Work is underway to develop an ultralarge dump truck that can operate on any power source. "We have held [promotional] events at a large trade show. We hope to expand the possibilities of this alliance through various initiatives this year. In addition, we've been also focusing on forestry recently," Ideura said.

This initiative is contributing to the digital transformation of forestry through Smart Forestry, which uses drones and advanced information technologies.

These are all just some of the diverse ways in which Komatsu contributes to sustainability.

Scan the QR code to read the full version of Komatsu's article, which was originally published on Aug. 30 in Sustainable Japan Magazine.

Digital transformation reshapes urban planning involving public

ESG/SDGs

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The Land Readjustment and Urban Development Forum held in Tokyo last October brought together professionals from municipalities, academia and the private sector to examine digital transformation in community development. Themed "Land Readjustment and Digital Transformation — From Disaster Prevention and Consensus Building to Urban Management," the event featured speeches and discussion on data-driven approaches to town planning involving multiple land parcels.

Unlike previous gatherings, the forum's panel discussion included experts from external organizations such as NTT, reflecting the industry's growing awareness.

Embracing new perspectives

Moderated by Takayuki Kishii of the Institute of Behavioral Sciences, the panel featured professor Hideo Nakamura of Nihon University, Masanao Oue of the city of Osaka's Urban Development Bureau and Wakana Matsumura of NTT's Research and Development Market Strategy Division.

Nakamura envisioned digital transformation as making "inconvenient things convenient" and creating new value. He identified three categories where it can enhance land readjustment: community-building, construction and administration. While integration across these categories is not essential, optimization within each one is critical.

He emphasized the importance of developing standard digital tool kits, improving literacy and cultivating personnel capable of connecting land readjustment professionals with local communities.

Professionals from diverse fields debate development issues. SSPP

Oue outlined Osaka's practical approach, highlighting small-scale, flexible projects with high digital compatibility. These projects involve fewer stakeholders, making it easier to reach consensus and implement cutting-edge technologies. Crucially, Oue emphasized the importance of regional well-being, a point often overlooked in traditional approaches. He stressed that relocating buildings is "not about moving objects, but about moving people," so it requires human-centered implementation that considers each individual's happiness and life plans.

NTT's community initiative

Matsumura shared NTT's comprehensive approach to community development through digital technology. In 2020, NTT launched the Sustainable Smart City Partner Program (SSPP), aimed at maximizing residents' well-being. As a telecommunications infrastructure company with facilities nationwide, NTT views local vitality as a strategic priority and is integrating its technological capabilities to promote sustainable community growth.

The cornerstone of SSPP is Sugatami, a visualization tool that evaluates 18 aspects of urban life, including health, education, the environment and governance. Unlike traditional economic indicators, Sugatami incorporates well-being and sustainability metrics, offering municipalities data-driven insights into their strengths and challenges. Sugatami is used in citizen dialogue sessions, informs long-term planning and serves as a framework of key performance indicators for monitoring progress.

Insights on implementation

The panelists emphasized that digital tools work best when used with trust-based communication and measurable indicators, including metrics on well-being. They highlighted improved stakeholder responsiveness and the need for professionals who can bridge technology, policy and community contexts.

The forum underscored the ongoing shift from infrastructure-centered to people-centered planning, in which digital transformation is not simply an overlay of technology but a framework for harmonizing urban functions with residents' quality of life. NTT's model, combining data visualization, structured dialogue and training programs, was presented as an example of how corporate expertise can support municipal goals.

Future directions

The forum identified emerging possibilities for integrating information technology into land readjustment practices. While acknowledging that clear implementation frameworks are still under development, the panelists highlighted potential pathways for combining technical innovation with community-centered urban development approaches. These discussions revealed that Japan's urban planning sector is ready to embrace digital transformation while prioritizing human well-being. This alignment with University of Tokyo Executive Director and Vice President Atsushi Deguchi's vision shared in the forum — in which well-being itself serves as a smart-city monitoring tool through quicker verification and enhanced citizen participation — suggests a fundamental shift in planning philosophy. As efforts to build sustainable communities oriented toward well-being continue to advance, collaboration between traditional planning expertise and innovative technological solutions points toward a more responsive and inclusive future for urban development.

The SSPP Forum, organized by NTT, which also participated in the current forum, is scheduled to take place on Oct. 14. Like this forum, it will focus on themes such as community development and well-being, offering further insights into the practical intersection of urban management and digital transformation.

SSPP

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