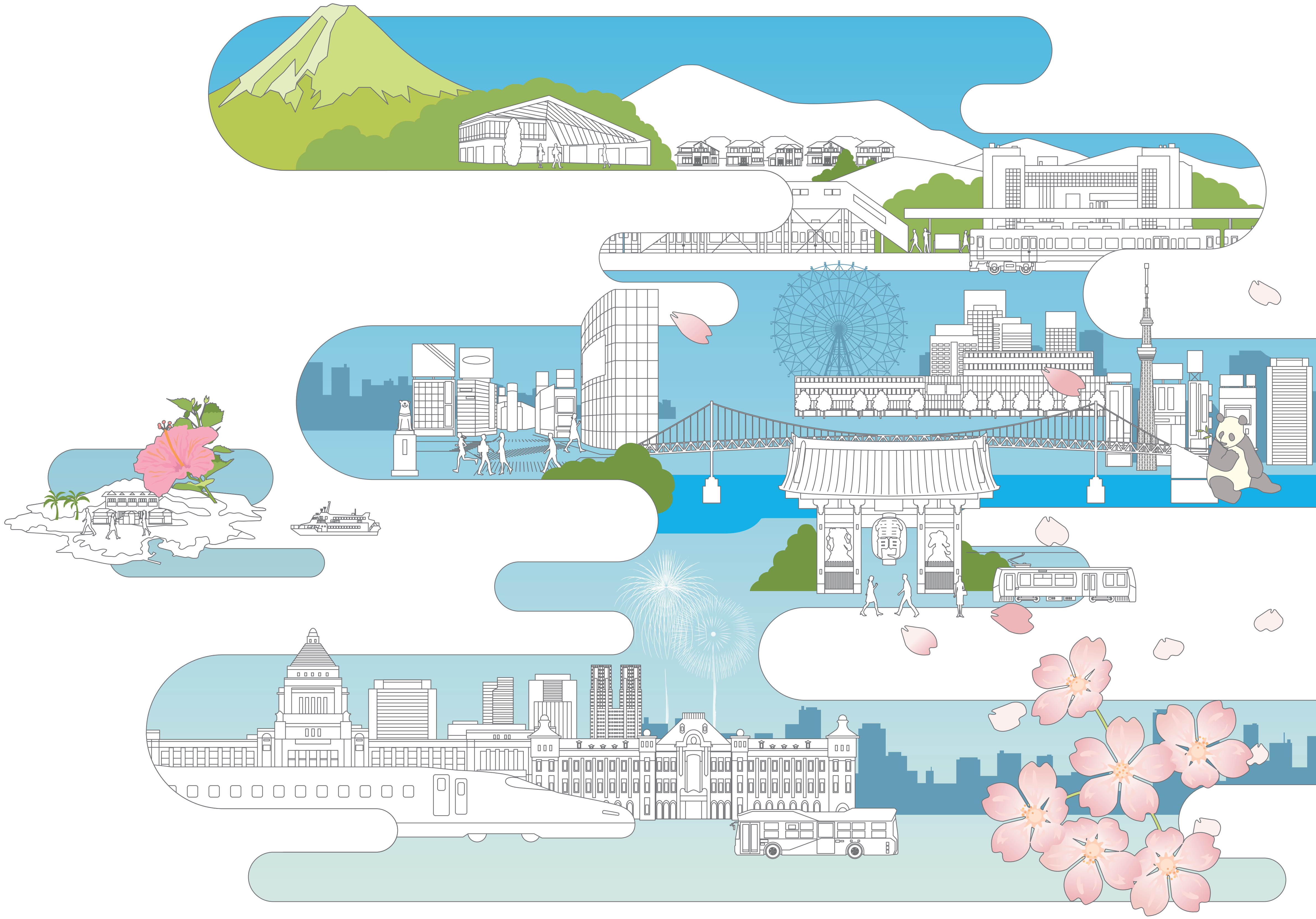
Tokyo

Spring / Summer 2018



TOKYO
METROPOLITAN
GOVERNMENT

Tokyo

Spring / Summer 2018

TOKYO 2020

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PARALYMPIC GAMES

HOST CITY

Tokyo is a publication issued periodically by the Tokyo Metropolitan Government with the aim to provide readers with the latest information on various aspects of Tokyo, including events, programs and experiences.

The image above is the new logo and slogan for Tokyo. The unique aspects of the city are conveyed in two different fonts representing the coexistence of old and new: The brushstroke expresses the traditions that date back to the Edo period (1603-1868), while the sleek block typeface expresses the cutting edge culture of a modern city and is done in sky blue to represent an innovative future. The traditional square stamp in red which graces the logo illustrates the famed crossing in front of Shibuya Station, one of Tokyo's symbolic landmarks.

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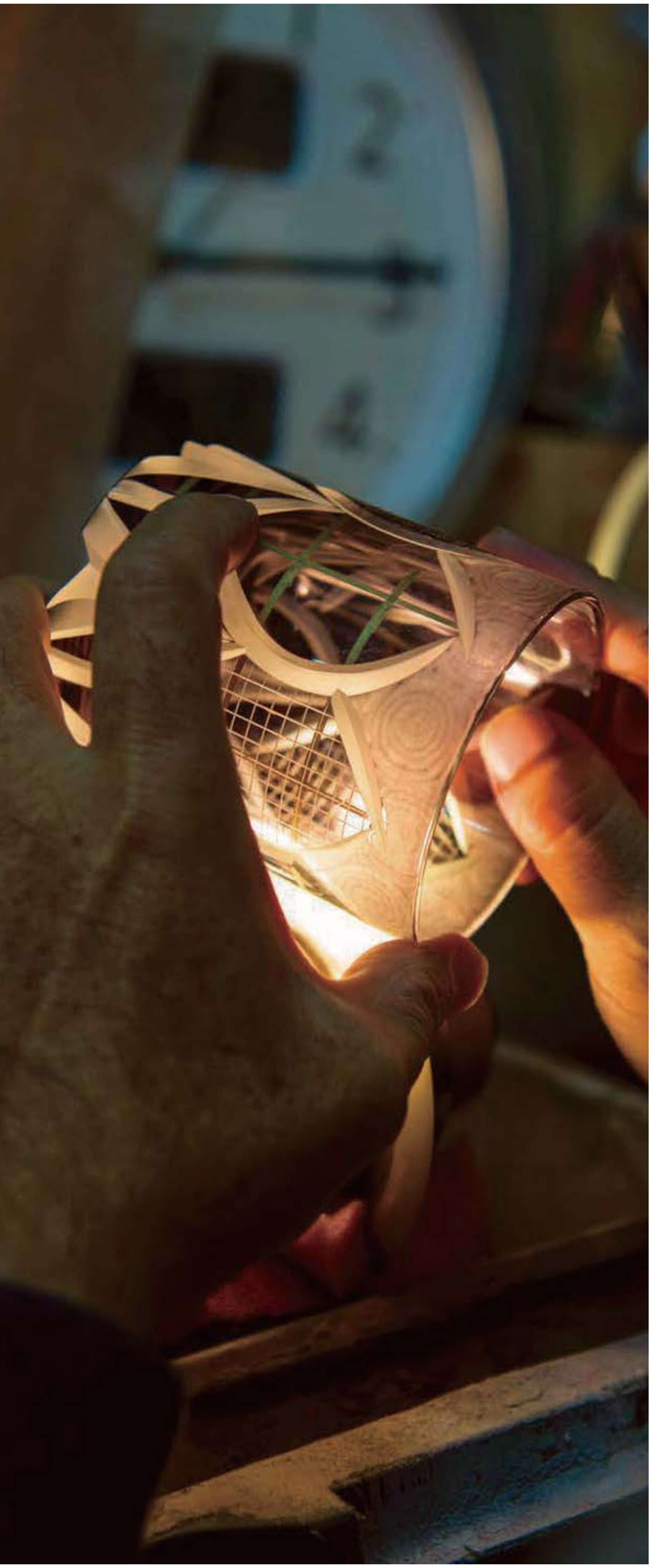


Cherishing Edo Expertise

A recent initiative has chosen a select number of traditional companies to enhance Tokyo's brand with their long history of innovation and cultural connections.

by Rico Komanoya

Japan's traditions run deep. And nothing better illustrates this than the more than 3,000 Tokyo-based companies that have been doing business in this city for over a century—and, in some cases, far longer.

This impressive history was one of the factors that led Tokyo Governor Yuriko Koike to spotlight traditional craftsmanship in the "Edo Tokyo Kirari Project," launched in November 2016. Like the Comité Colbert, founded in 1954 to preserve and promote French fine crafts and culture, the concept was to choose traditional companies that could help in globally branding metropolitan Tokyo as an attractive and inviting city.

Five firms made it through the strict selection process, including Hanashyo, which makes Edo *kiriko* (cut glass), and Ryukobo, which produces Edo *kumihimo* (braided cord). The others included Hirose Dyeworks, a maker of the fine patterns known as Edo *komon*, the knife maker Ubukeya and the NPO Japan Culinary Academy Tokyo Operations Committee.

Edo kiriko is a strikingly beautiful glassware craft first developed by Kyubei Kagaya at the end of the Edo period (1603–1868), and is even said to have attracted the eye of U.S. Commodore Perry at the time of his 1853 attempt to open the country to trade. The Edo kiriko production process involves laying colored glass over transparent glass, and then engraving traditional patterns into the surface. It concludes with polishing the surfaces until their transparency is crystal-clear. The main colors are red, dark blue, violet, green and blue.

Hanashyo began in 1946 as a supplier to a larger Edo kiriko enterprise. But Ryuichi Kumakura, the son of the founder, wanted to lead the company in a more artistic direction and in the 1980s, opened an outlet in Kameido named Edo Kiriko Hanashyo Co., Ltd. Another outlet in Nihombashi, where many traditional firms are located, was opened in 2016. He is now the company's chairman and head craftsman with 13 staff.

Ryukobo craftsmen use *kumidai* to braid the *kumihimo* (left). Bracelets and *obijime* cords (below) are braided in the same manner. The heroine wears a kumihimo in her hair in the hit animation film, *Kimi no NA ha*, *"your name."*

According to Chisato Kumakura, Ryuichi's daughter and director of public relations, "Hanashyo controls all the production processes from engraving and polishing to merchandising under one roof, and doesn't sell wholesale. We don't only use traditional design patterns in our engraving, but create original designs as well." Another appeal is that all their products are polished by hand.

Nine traditional design patterns were selected from hundreds of traditional motifs for Hanashyo's products, including *Yarai* (arrow-shapes), *Kagome* (basket weave), and *Nanako* (fish scales). Their original design patterns include *Tama-Ichimatsu* (dots in checks), *Itokikutsunagi* (chrysanthemum petals), *Asa-no-hatsunagi* (flax leaves) and *Kometsunagi* (rice grains), which have gained international recognition since kometsunagi wine glasses were chosen as gifts to the state guests at the G8 Hokkaido Toyako Summit in 2008.

Another Nihombashi-located firm selected for the Edo Tokyo Kirari Project is Ryukobo, which has a creative history of almost 120 years. Since the company establishment in 1963 by Mannosuke Fukuda, Ryukobo has been the leading producer of the braided cord known as Edo kumihimo. The company controls all aspects of production, from growing mulberry trees to raising silkworms, designing the patterns, dyeing and distribution.

Hanashyo's products feature traditional patterns as well as original designs (below), cut by craftsmen tracing roughly drafted lines on the glass (opposite).

Far more complex than the kumihimo popular with hobbyists around the world today, the intricately braided cords were once used by the ancient aristocracy to fasten their clothes, to bind religious scrolls and to lace samurai armor. They later began to be used as *obijime*, cords to tie on *obi* kimono sashes. "Edo people tended to be reserved in their outer appearance, using modest colors and patterns on their kimono," says Takashi Fukuda, Ryukobo's owner and a qualified craftsman. "But they would hide more flamboyant colors on the inside of the sleeves, or show them on the kumihimo."

Fukuda helps researchers who are looking into the murky area of past production processes, but also is passionate about taking the craft into the future. "I tend to pour my energy into things that others say are impossible," he says. His innovative craftsmanship has led to such kumihimo products as ball-point pens, bracelets and camera straps. There is a scene in which the heroine ties her ponytail with a red kumihimo in the box office-record-breaking film *Kimi no NA ha*, *"your name."* "Mitsuha's kumihimo" became an international sensation among anime fans, the result being a frenzy of orders for Ryukobo.

While both Hanashyo and Ryukobo are family-owned firms, they are international pioneers in a real sense, keeping history alive with energy, passion and the perfect combination of modern business acumen with incredible craftsmanship.

Rico Komanoya is an editorial producer, writer and author of books on art, crafts and subculture.

Unique Event Venues Boost Tokyo's Appeal

How would you like to hold your next convention at an art museum? Or in the green expanse of a traditional Japanese garden? Tokyo offers both . . . and more.

by Martin Foster

The traditional layout of the Hama-rikyu Gardens offers a picturesque contrast with the nearby business district.

The Tokyo travel industry is very interested in MICE—an acronym for Meetings, Incentives, Conventions and Exhibitions/Events—which is an increasingly important sector of the inbound travel business. Some estimates peg the value of the global MICE market between $280 and $300 billion, with the Asian market seeing growth of nearly 40 percent to $60 billion in the 10-year period leading up to 2016.

Now the Tokyo Metropolitan Government (TMG), in cooperation with private sector MICE-related companies, is taking the initiative in this business-to-business market with a number of inventive plans, including a choice of "unique venues," sites that offer special experiences to visitors.

The year 2016 saw the total number of overseas visitors to Tokyo reach 13.1 million, and the TMG has set an ambitious target of 25 million visitors in 2020 in its action plan, "PRIME Tourist Destination City Tokyo." In particular, Tokyo is aiming for an economic ripple effect from the business travelers likely to participate in MICE activities, who spend as much as 20 or 30 percent more than general tourists, and is looking to boost the number of repeat visitors.

At present, for example, the business area stretching roughly from Otemachi through Marunouchi to Yurakucho, and the Roppongi area of Tokyo offer the elements—such as conference centers, hotels and cultural facilities—necessary to host MICE events. In addition to providing focused support for these areas, the TMG is promoting efforts to use historic and cultural landmarks as unique venues.

The challenge for Tokyo, as it boosts the number of such unique venues, is to provide the type of hospitality that only the Japanese capital can provide, and avoid playing copy-cat with other cities overseas, such as Singapore and Seoul, each with their own agendas and claims to uniqueness. "Our sales pitch is that Tokyo is a location where tradition and innovation coexist," a TMG spokesperson says.

The Hama-rikyu Gardens, for example, are located on the site of a villa formerly owned by the Tokugawa family, who long ruled as the Shoguns of Japan. Located where the Sumida River meets Tokyo Bay, this facility was used for a MICE event on an evening in October 2017. Some visitors arrived by boat at the seafront pier to take advantage of its location. The juxtaposition of the 400-year-old gardens against the backdrop of the modernistic 21st-century business development of Shiodome worked to succinctly illustrate one of the underlying themes of a recent TMG strategy targeting overseas visitors—Tokyo Tokyo Old meets New.

Tokyo Sea Life Park is one of the unique venues.

"Hama-rikyu is a unique venue," said one of the organizers of the event. "The guests found the night lights were very impressive, creating a special spacious sensation different from the daytime atmosphere. I think they were very happy." At present, other unique venues in the program include the Tokyo Metropolitan Teien Art Museum, the Edo-Tokyo Open Air Architectural Museum and Tokyo Sea Life Park.

There was an element of trial and error in selecting and utilizing unique venues, such as convincing the managers of the venues to host meetings or receptions. But the TMG staff successfully created a win-win situation by persuading venue managers that visitors using the venue at a MICE event would deepen their understanding about its existence and original purpose. The resultant PR effect and heightened name value could persuade some to return as repeat visitors. After a few hiccups, more venues have gradually come to better understand the MICE project.

Private sector MICE organizing companies have been impressed by the efforts made by Tokyo's government. "I think it is really significant that the TMG is taking advantage of such unique venues," the CEO of a pioneering MICE agent in Japan says. "It is a chance to convey the great points about Japan and Tokyo, and have visitors not just read about these sites, but feel them up close and personal in a live format."

Input or feedback from such visitors is viewed as important in the selection and operation of unique venues. "We want to make an appeal based on a Japanese or unique Tokyo style," the TMG spokesperson says. "It is hard for the TMG to know the needs of the visitors, so we are collaborating with MICE organizers to identify those needs."

Tokyo is also looking to expand its outreach activities. Exposure to date has largely been restricted to specialist publications overseas, but the TMG recently produced a handsome pamphlet with detailed information on the unique venues. The commitment to this important industry sector is to help attract more overseas MICE planners and organizers.

Martin Foster is a freelance journalist focusing on environmental issues and sustainable energy. Special thanks to: JTB Corp., Japan Convention Services, Inc.

The Tokyo Metropolitan Teien Art Museum, a reception at the Teien Art Museum, and the traditional interior of a tea house at the Hama-rikyu Gardens.

***Uchimizu* is the traditional practice of cooling off summer streets and garden walkways by sprinkling them with water.**

Looking to the Past to Stay Cool

As climate change and urbanization leads to higher temperatures, some people are looking back to a traditional activity for hints on chilling out in Tokyo.

by Martin Foster

There are a number of things that signify summer to Japan's residents: the scent of burning mosquito coils, the gentle ringing of wind chimes, the scene of *yukata*-clad children setting off fireworks in the streets and the whine of cicadas.

Then there is *uchimizu*, the ages-old practice of sprinkling water in gardens and on the streets. It helps in several ways, both to keep down dust and to cool off, as it works physically on a hot surface, and aesthetically and psychologically on the visual level. And it has always been an attractive scene, with shrine or temple garden attendants and residents using ladles to scatter the water from hand-held containers onto the parched earth's surface.

The custom of uchimizu in urban areas had almost died out as the rising population concentration led to the replacement of the low-rise, traditional wooden structures with towering steel-reinforced concrete buildings that separate residents from the benefits of the practice. A decrease in green space and an increase in the air conditioning devices needed to cool the buildings have contributed to the heat island effect, the spike on temperature maps that show urban areas as "islands" of heat

compared to the surrounding rural areas.

"From the time Japan commenced full-scale weather monitoring in the 1880s until the present, the temperature of Tokyo has risen by about 3°C," says Ryozo Ooka, professor in the Department of Human and Social Sciences, Institute of Industrial Science at the University of Tokyo. "Of that about 0.5°C to 1.0°C can be accounted for by global warming, meaning approximately 2.5°C is due purely to the heat island phenomena."

The pressure to come up with solutions to cool off the city's surfaces has increased after Tokyo won the bid for the Olympic and Paralympic Games Tokyo 2020. They are scheduled to be held at the peak of the summer season, from July to September. It's no surprise, then, that one major issue in the run up to the Games is how to protect the athletes from the heat and humidity, since according to one estimate the average August temperature is 27.4°C, with humidity of 69 percent.

A number of projects have tested various methods to combat the soaring temperature problem. In one of them, begun in 2005 and since completed, the Tokyo Metropolitan Government and the then Ministry of Land, Infrastructure and Transport installed water-retaining pavement and sprinklers on a road adjacent to the National Diet Building. The system uses water-retaining materials to retain rainwater and pumps ground water up for use in sprinklers which use solar power. The water in the pavement evaporates, lowering the road surface temperature.

In 2008, Tokyo began an ambitious program in addition to the previous water-retaining pavement: installing solar heat-blocking pavement as a part of road maintenance and construction within areas of central Tokyo. Solar heat blocking is a method of applying a heat-insulating material to paved road surfaces that reflects the solar rays that cause road surface temperatures to rise. It can reduce the surface temperature by up to 8°C.

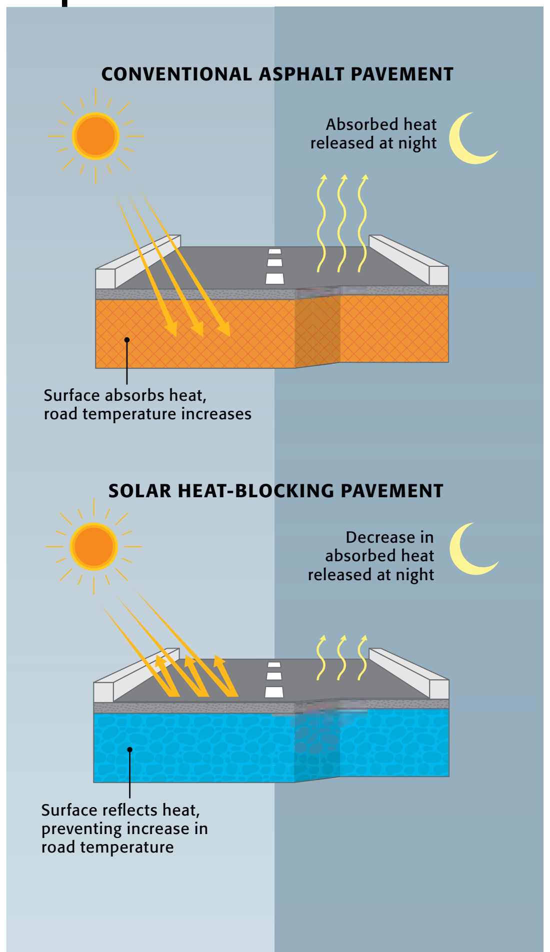
The TMG is providing subsidies for the installation of the solar heat-blocking pavement. By March 2017, 86 kilometers of road surface had been completed. Maintenance on roads that will be used for the Tokyo 2020 Games events is being given priority, and the plan calls for some 136 kilometers of water-retaining pavement or solar heat-blocking pavement to be finished by the opening.

Professor Ooka believes strongly in the efficacy of uchimizu, and claims that, even on a localized basis, the practice may lower temperatures by 2°C or 3°C. Others seem to agree. Communities throughout the Tokyo area now regularly engage in events in summer, with some estimates of up to four million people attending. In many recent uchimizu events, participants use rainwater or recycled water from their homes to respect the Japanese tradition of a no-waste society. Now there are even signs that uchimizu could become another word that is used and recognized internationally, like sushi or manga.

On April 24, 2017, Anna Solcerova, a researcher with Delft University of Technology in the Netherlands, made a presentation on uchimizu to the general assembly of the European Geosciences Union in Vienna, in which she claimed that extensive experiments she conducted at the university proved that "the simple old Japanese tradition of water sprinkling—uchimizu—is an effective way of reducing extreme heat in cities."

The traditional water sprinkling custom got a further boost when Tokyo Governor Yuriko Koike participated in an uchimizu event outside the Tokyo government buildings on July 20, 2017. If more local communities begin to engage people in the practice of uchimizu, then "cool" Japan just might get cooler.

Effects of installing solar heat-blocking pavement



Events promoting *uchimizu* are held throughout the metropolitan area to entertain and educate Tokyo residents.

Bringing Flavor Back from Extinction

A world-renowned chef and some progressive-thinking farmers have joined hands to bring refined traditional vegetables to a new audience.

by Rico Komanoya

Even many Tokyo residents are unaware that, amidst this city of 13.8 million people, some 10,000 households have maintained their small family farms—even holding onto their land as prices skyrocketed during the bubble economy years that ended in the early 90s. They've kept their operations alive by producing a selection of more than 10 varieties of the freshest fruits and vegetables at each farm and meeting the needs of local consumers through a direct marketing system.

Some Tokyo farmers are using cultivation methods and seeds that have been handed down from the Edo period to focus on traditional produce called Edo-Tokyo vegetables. Thanks to the passionate efforts of some producers and chefs, these foods are gathering increased attention among consumers and in the culinary world.

World-renowned Chef Kiyomi Mikuni is the owner of a number of restaurants, including the flagship Hôtel de Mikuni in Tokyo's Yotsuya neighborhood. Mikuni, whose cuisine incorporates elements from French and Japanese traditions, began writing a series of articles about Edo-Tokyo vegetables for a magazine focused on sustainable lifestyles. He spent a year on the assignment, visiting local farmers, tasting their products and listening to what they had to say. He came away with in-depth knowledge about what these dedicated farmers had to offer and how rich their potential could be in a high-end produce market. He continues to visit with them to this day.

"The soil in Tokyo is better than many other parts of Japan," Mikuni says. "It consists of volcanic ash and drains well. That's an ideal environment for cultivating vegetables." He believes Tokyo farmers run their businesses in one of the greenest environments in the country, and that even if the harvest tends to be limited, the vegetables taste fresh and full of flavor. His fondness for local materials extends beyond vegetables to a variety of products such as seasonings.

In the kitchen of Hôtel de Mikuni, the chef creates two dishes from local vegetables. For the appetizer *Kaméido-daikon mariné, parfumé au "Yuzu,"* he uses Kameido daikon, a type of radish, which he marinates with yuzu citrus and Tokyo-sourced condiments. For the main dish, he uses a different kind of radish called Okura daikon to create a duck stew: *Pot-au-feu de canard et "Okura-daikon," gout miso et Yuzu Poivre*. Both plates showcase the distinct umami and texture of these Edo-Tokyo daikon.

Shigeyoshi Kimura sells his Kameido daikon and other produce through direct sales.

The kind of daikon used for the appetizer is grown in the fields of Shigeyoshi Kimura, the 14th-generation of the Kimura farm family. He has been farming for 18 years, after leaving a publishing firm to join the family business. He is actively trying to promote Edo-Tokyo vegetables by distributing them to neighboring schools for lunch and by writing an autobiographical novel with Kameido daikon as a main theme. He harvests some 4,000 Kameido daikon per month during autumn and winter, and sells out his entire crop to contracted restaurants and through his own direct sales outlet. "The distinct characteristic of the Kameido daikon is its size, which is very convenient for cooking," Kimura says.

Chef Kiyomi Mikuni (left) puts the finishing touches on a dish featuring Okura daikon. He also created this appetizer (below), using Kameido daikon.

The type of daikon used in the main dish is a specialty of Nobuyoshi Otsuka, the 10th-generation owner of the Otsuka farm in Setagaya Ward, where he has been farming for 45 years. The farm's summer specialties are tomatoes and eggplant; the winter products are carrots and the Okura daikon version of the large, white root vegetable. The area was known for this variety until the 1960s, when other, more disease-resistant and easier-to-cultivate species took over. Otsuka became concerned that the variety would become extinct and took on the task of reviving its popularity. Today, Okura daikon has become one of the most popular vegetables.

Both farmers share a common business strategy. Faced with a limited area for cultivation, they have shunned producing mass market vegetables and focus on the production of limited numbers of highly sought ones, while maintaining sustainable quality. It seems to be a recipe for success for a farming business that's operating in the midst of the city.

These two varieties are but two of the vegetables that can claim the Japan Agricultural Co-operative's Tokyo headquarters officially certified "Edo-Tokyo vegetables" brand name. The specification is only given to varieties that meet three criteria: they have been part of the food culture from the Edo period, the seeds are self-supplied or were handled by certain local merchants prior to the mid-1960s, and their production methods are based on traditional ways. At present, 48 species have the designation, among them certain varieties of eggplant, cucumber, pumpkin and carrots.

Nobuyoshi Otsuka has been farming in Tokyo for 45 years. He's holding an Okura daikon, a variety that he saved from extinction.

But Chef Mikuni is determined to strengthen recognition through collaborating with farmers and distributors to encourage the trend toward more locally grown and locally consumed food. And if the flavors of his dishes using the Tokyo-grown daikon are any indication, food lovers who visit the city from around the country and the world will have much to celebrate.

New Legs for Aspiring Champions

Researchers at the University of Tokyo are working with Paralympic athletes in pioneering new 3D-printed prosthetics.

by Tim Hornyak

Five mornings a week, Saki Takakuwa goes to a track and spends a grueling four hours sprinting and jumping in preparation for the Tokyo 2020 Paralympic Games. As if that's not challenging enough, she does it with a prosthetic leg.

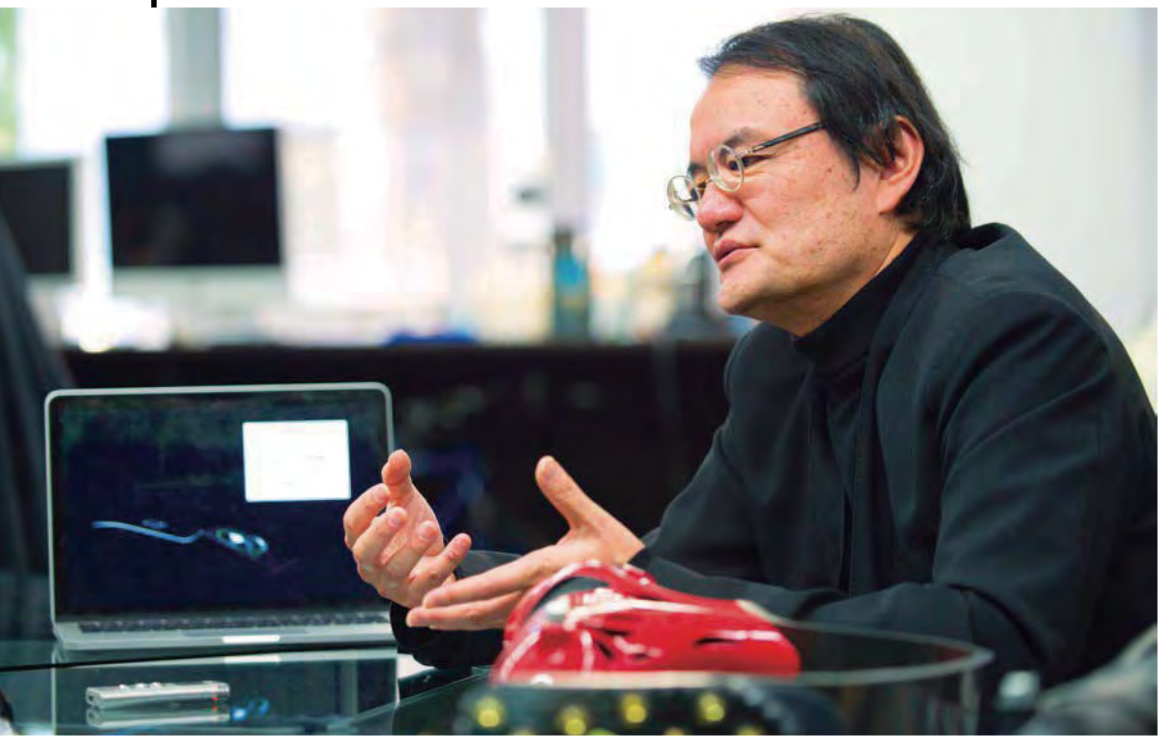
Takakuwa is setting new standards, using prototype running prosthetics that push the envelope in design and technology. Weighing about two kilograms, each "leg" consists of a 3D-printed socket that's laced with web-like crimson ridges and a blade forged from layers of carbon fiber, studded with running spikes. "This blade reproduces natural running to a high degree," says Takakuwa. "The movement is very close to that of a real ankle."

Born in Saitama Prefecture in 1992, Takakuwa was an aspiring, sixth-grade track athlete when she felt a pain in her left leg. Doctors soon discovered a tumor below her left knee, and the diagnosis was tragic: it was bone cancer requiring amputation of the lower leg.

Takakuwa didn't let her disability slow her down. After adapting to an artificial leg for daily use, she tried a sports prosthetic and was surprised by how quickly she could run. Inspired by the writing of Paralympian Mami Sato, whose impassioned presentation helped Tokyo win the 2020 Games, Takakuwa decided to join her high school track and field team and never looked back. She won gold in the 100-meter and the long jump at the Asian Youth Para Games, and placed seventh at the London 2012 Paralympic Games in the 100-meter sprint for her category. She now has her sights on the Tokyo 2020 Games.

"As an athlete, I'm looking for a fast prosthetic that can help me win medals in the Paralympics," says Takakuwa. "But designs that are cool or cute also increase my motivation, and can help change social perceptions of prosthetics."

Professor Shunji Yamanaka is an award-winning industrial designer who is developing prosthetics for up and coming Japanese Paralympians.



Takakuwa is collaborating with Professor Shunji Yamanaka, head of the University of Tokyo's Prototyping & Design Laboratory. An award-winning industrial designer, Yamanaka has created a wide range of slick concepts and commercial products including a luxury sedan, a 35mm film camera and a tabletop humanoid robot. Every day, millions of Tokyo commuters unknowingly use one of his greatest creations, the smart card readers at JR East turnstiles.

Visiting Yamanaka's lab, which he started five years ago, is like entering the workshop of a latter-day Leonardo da Vinci. Tucked into a museum-like structure on the Komaba Campus in Meguro, it's a hive of students fleshing out concepts on laptop screens. The walls are lined not only with design and architecture books but prosthetics and plastic skulls, a token of how Yamanaka draws inspiration from biology. He has designed the conference table and the ergonomic chairs we're sitting in as well as several robots and mysterious electromechanical devices littering the space. He even pulls out several panels of a science-fiction manga he illustrated, another example of his fertile imagination. It was a real-life event, however, that motivated him to enter the prosthetics field: the Beijing 2008 Olympic and Paralympic Games.

SKETCHES COURTESY YAMANAKA LABORATORY, INSTITUTE OF INDUSTRIAL SCIENCE, THE UNIVERSITY OF TOKYO

Sketches of the prototype prosthetic and the 3D-printed carbon fiber model, which is strong enough to withstand the effects of sprinting and jumping.

"I'm always thinking about the relationship between artifacts and humans," says Yamanaka, who began researching prosthetic legs in 2008. "I saw an athlete running at the Games and felt there was a kind of ideal relationship between him and his prosthetic legs. They were joined perfectly to his body and worked perfectly. I wondered how such harmony was possible, and began researching."

While standard, mass-produced prosthetics for everyday activities are widely available to people with impairments in Japan, sports prosthetics are handmade and expensive. Yamanaka met with many prosthetics users to learn about their needs. He saw how the J-shaped blades from an Icelandic manufacturer act like springs, propelling athletes forward while running, noting how they function without trying to look like a natural leg. This functional look is also a key part of Yamanaka's prosthetic design philosophy.

Yamanaka and his collaborators use 3D printers to create the sockets that Takakuwa has been experimenting with. The process begins when nylon powder is deposited as layers, then melted together with a laser. This builds up the material into a resilient structure that's tough enough to withstand the impact of sprinting and jumping.

Sprinter Saki Takakuwa, who lost her lower leg to cancer, appreciates both the performance and the look of her prosthetic leg.

"If we make these sockets with a 3D printer, we could provide them at low cost to many people," says Yamanaka. "When this technology is fully established, the computer will actually measure users' bodies and ensure a proper fitting." And that could not only help propel sprinter Takakuwa to the finish line, but be a potential life-changer for aspiring Paralympians everywhere.

Tim Hornyak is a freelance writer and author of Loving the Machine: The Art and Science of Japanese Robots.

A Shinto priest leads a series of chants meant to warm the body and give thanks to the mountain.

The writer stands in the freezing waterfall, cupping and shaking his hands in the ritual he has been taught by the priest.

A Breath-taking Mountain Pilgrimage

Not far from Tokyo's 21st-century charms, the city's western mountains offer a traditional retreat featuring warm hospitality and a frigid spiritual ritual.

by Matt Schley

"I'm still in Tokyo," I tell myself. I'm standing outside Mitakesan Station, the last stop on Mt. Mitake, a 929-meter tall mountain that is one of Tokyo's signature peaks, some 90 minutes from the city center. I've just gotten off a cable car after a steep ascent that felt more like an elevator, and am now in a charming mountain village of cafes, souvenir shops and cottages surrounded by lush greenery.

Takigyo is the reason I'm here. I've heard it translated as "waterfall bathing," but that doesn't quite do it justice. In fact, it involves hiking deep into the mountains, stripping down to traditional Japanese underwear called *fundoshi* (think sumo wrestlers) and performing a spiritual ritual under an ice-cold waterfall (women are given a short white robe). Suffice it to say, I'm excited, curious and more than a little nervous. I decide to make a short trek to the local shrine to pay my respects.

According to legend, Musashi Mitake Shrine was founded over 2,000 years ago, its guardian spirit a wolf who once helped legendary prince Yamato Takeru navigate the mountain. Understandably, the shrine is very dog-friendly: I spot several canines happily trotting the shrine grounds with their human companions. Those who maintain this shrine seem to have struck a perfect balance between preserving tradition and incorporating a bit of fun—the site is dotted with statues and decorations featuring modern versions of classic Shinto figures.

Then it's a quick walk to my inn. Komadori Sanso is a *shukubo*, a version of a Japanese inn closely associated with a temple or shrine. This one has been family run for centuries, and from the warm greeting I receive at the door to the cozy shared dining room, it feels like the home of an old friend.

The writer pays his respects at the Musashi Mitake Shrine.

There are several shukubo in the area, but there's a reason I'm here at Komadori Sanso. Yoshihiko Baba, the 17th-generation owner of this inn, is also a Shinto priest at Musashi Mitake Shrine and, most importantly, will lead me on my takigyo experience.

After a full-course spread of traditional cuisine prepared by Baba's effusive wife and daughter (a surprise—I'd expected a shukubo meal to be more ascetic), I sit down for a chat with the owner/priest. I imagined a stoic man of few words, but I'm greeted by a verbose, larger-than-life figure who regales me with the history of the mountain, his inn and takigyo. The waterfall ritual, Baba says, is a part of *Shugendo*, the practice of intense ascetic mountain training, and is traditionally reserved for its followers, the *yamabushi*.

Baba, however, has been leading sessions for the general public—including visitors from outside Japan—since 2000. I ask him why so many people are interested in standing under a cold waterfall in the near-nude.

"Who knows!" Baba responds with a laugh. "They often say, 'That was *great*,' and I always think, '*What* was great?!'" I'm not sure whether to be reassured or frightened by this comment, but regardless, it's off to bed: tomorrow's an early start.

I wake up before dawn and meet Baba, who's decked out in white Shinto robes, and we make our way through a mountain pass to the waterfall, the only sounds Baba's tinkling bell and the ever-increasing din of rushing water. Baba and I strip down to our fundoshi, and he leads me through a series of shugendo chants and stretches meant to both warm up the body and give thanks to the mountain.

Finally, it's time. I wade into the ice-cold water, splash it over my head and shoulders to help my body adjust to the temperature, then stand under the waterfall and perform the ritual Baba has taught me, cupping and shaking my hands in order to literally rock my *tamashii*—my soul.

The shock of the ice-cold waterfall puts my body into adrenaline-filled survival mode—and I feel *alive*. Takigyo participants typically enter the waterfall three times, with short breaks in between, and I actually find myself more than willing to keep plunging back in.

As the adrenaline wears off, and we begin the trek back to Komadori Sanso, the feeling that comes over me is one of cleanliness—or maybe the better word is clarity. In the city, we're constantly bombarded by a thousand stimuli, pressures and temptations, but for a brief moment, all those deadlines, Facebook invites and unanswered emails were washed away and the only thing that existed was me, my soul and the waterfall.

Takigyo isn't to be taken lightly—it's a taxing physical effort, and I'm amazed Baba does it nearly every day. I'm not sure I'll take the plunge myself again anytime soon—but I *do* know the next time I need a spiritual detox, I'll be back to visit this mountain retreat, so close to the hustle and bustle of everyday Tokyo, and yet a world away.

Matt Schley is a writer, editor and translator based in Tokyo.

The view from Mt. Mitake, one of Tokyo's signature peaks and only 90 minutes from the city center.

Making a Difference on the Global Stage

The head of the NPO AfriMedico believes that a unique, traditional Japanese distribution system can help solve some of the healthcare-related problems facing contemporary Africa.

by Julian Ryall

Eri Machii manages a life filled with family matters and operating an NPO that is breaking new ground in African health services.

Eri Machii has always wanted to help people in need. She studied pharmacy at university in order to provide people with better healthcare and volunteered at a hospital set up by Mother Teresa in the Indian city of Kolkata. She later volunteered at a hospice in her native Osaka for people with cancer before working for two years in the west African country of Niger, where she instructed local people about the dangers of mosquito-borne diseases and the importance of preventive measures.

"I was working in six villages close to the town of Gaya, which is a six-hour bus ride from the capital of Niamey," she says. "They had lots of questions for me about malaria and how they could protect themselves."

Then a member of the Japan Overseas Cooperation Volunteers, Machii said that when she arrived in the country, only 20 percent of the people in the area understood that mosquitos could infect them with malaria. By the time she left, 80 percent of the villagers were aware of the link.

Yet while they understood that the insects were a danger, other problems, both economic (the nets were too expensive) and logistic (nets were unavailable) arose at times. "It was frustrating that I could not get them to change their behavior entirely, but my experiences in Africa made me more determined to gain new skills so that I could do something to help," Machii says.

Back in Japan, Machii decided to make a difference on the organizational and management side of the equation. She entered graduate school where, as part of a six-month business planning course, she devised a scheme that would help the people of Africa obtain medicines when they most needed them.

Her plan was based on a very old and respected Japanese method of marketing medicine. "*Okigusuri* is a traditional system that was first used in Japan in the Edo period (1603–1868) more than 300 years ago," Machii says. "I changed it slightly to meet the specific needs of people in Africa."

The system began in Japan as a way to gain customers' trust at a time when most people could not afford to buy medicines to keep around. Salesmen would leave the medicines with them and collect payment for whatever was used on a subsequent visit.

To introduce the system to countries where it was most urgently needed, Machii founded the non-profit organization AfriMedico in 2014 and presently serves as its chairperson. In the year of its launch, AfriMedico won first prize in the inaugural Tokyo Metropolitan Government's Tokyo Startup Gateway award, with the one million yen prize money immediately used to buy medicine and fuel in Africa, among other expenses.

Many people in the most inaccessible parts of Africa have very limited access to medicines, in part because of their remoteness but also because of the relatively high costs. As a result, people who should have been treated early and would have recovered swiftly do not receive adequate care until their health has already deteriorated significantly.

In AfriMedico's model, boxes containing 10 of the most frequently used medicines are left with each community for dispensation in a timely manner to anyone who needs them. These include drugs such as analgesic and gastrointestinal medicines, eye drops, insect repellant and kits to test for malaria. Among changes Machii made to the original Japanese system was the introduction of a smartphone application for money collection.

Having immediate access to the basic remedies, Machii says, makes a very big difference. "We started the system in Tanzania, where we now have 10 people working for the organization and we are working hard to teach the local people about okigusuri," she says. "I think we are slowly getting there."

Eri Machii in Shakanwa village, Niger, when she was with the Japan Overseas Cooperation Volunteers program.

PHOTO COURTESY AFRIMEDICO

Based in Tokyo, where she oversees AfriMedico's 26 staff, Machii today spends most of her time promoting the work of the organization and speaking with private companies and individuals to raise funds. She says that Tokyo is an ideal place to build an organization, thanks to the ease of information access and the large, highly qualified work force. She is also the mother of one-year-old daughter Yuika, and insists that the solution to balancing her work and personal life is to integrate the two rather than to deal with each component individually.

"Having my own child, I have come to understand how mothers in Africa think," she says, "and their universal desire for good health, education and food. Because I can relate to them better, I believe I can provide them with the things that are relevant to their lives."

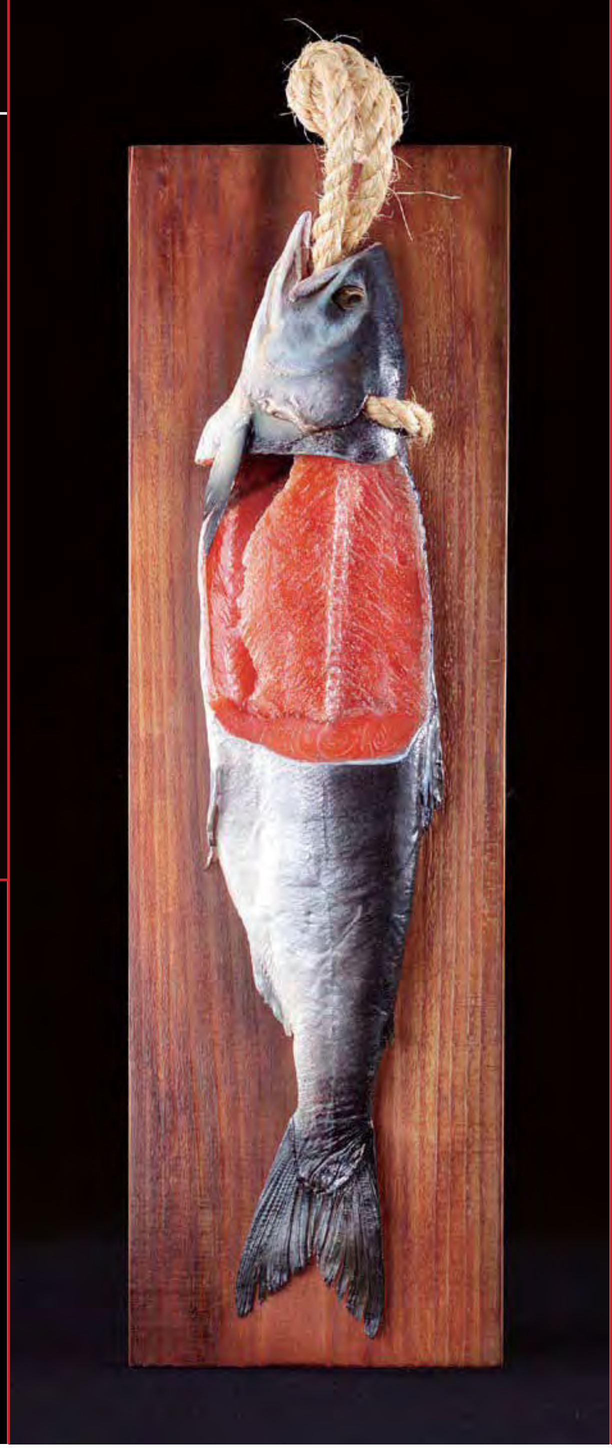
Nevertheless, Machii says she intends to return to Africa in the future to help the project expand. "The first step has been to establish ourselves in Tanzania, but I am hoping that we will soon be able to go into other countries in the region—perhaps Uganda, Kenya or Ethiopia—to meet the needs of the people there," she says.

Julian Ryall is Japan correspondent for The Daily Telegraph.

Artistry You Can Almost Taste

Japan's replica foods are superbly constructed, charmingly designed and appealing to the eye. They're also big business in a country that is fascinated by food.

by Rico Komanoya



Replica food subjects can range from classical dishes like croquettes (opposite) and sushi (top), to a roped salmon (left) and a playful stacking game of pork ribs (above).

Imaginative creations replicate Western snacks (left and above) and Japanese favorites, like this twist on an octopus dish (below).

PHOTOS COURTESY IWASAKI BE-I

Viewing one of Japan's replica foods can be a truly mouth-watering experience. They range from popular standards to what can only be called "high art." When used for their original purpose—as window dressing for the eyes of passersby—they can be effective both as a very visual menu and an innovative promotional tool for the establishment.

Replica foods were said to have been invented in the 1920s, but the business took off when the "father" of today's industry, Takizo Iwasaki, began making very realistic wax samples. He founded Iwasaki Factory (currently Iwasaki Company Ltd.) in Osaka in 1932, and spent a lot of time improving the quality of the products. The postwar era saw him establish the current business model of installing showcases for the replica foods in restaurants for a small monthly fee. This style became the standard of the food service industry.

The main ingredient of the replica foods at the time was wax colored with oil paints. Those production materials, however, were replaced by vinyl resin and silicon in the 1970s and 80s, a modification that led to more elaborate reproductions and wider usage—like their adoption as a nutritional guidance tool in schools and hospitals.

The production process consists of a number of crucial steps. It starts with taking detailed notes of the actual dishes provided by the clients. Then the factory staff categorizes the requests into those that can be satisfied with off-the-shelf items and those requiring the production of new or custom products. The latter are placed in the hands of the most qualified craftsmen—who take them through mold-making, shaping the plastic resin, using airbrushes and brushes to do the detailed coloring and on to final arrangement and inspection.

Apart from their daily regimen, the factory staff also joins in an internal competition, where they can freely focus on works inspired by their own imaginations. Some of their most eye-catching results are visible in the window display of Ganso Shokuhin Sample-ya, a shop in Kappabashi, Tokyo's most prominent kitchenware shopping area, that is directly managed by Iwasaki. Here is the pork cutlet rice bowl frozen at the moment it is being slid from the pan into the bowl and the human-shaped carrot enjoying a hot and steamy brown stew "bath."

But as whimsical as those replicas may be, this is a serious business. While Iwasaki claims to manufacture 80 percent of Japan's samples, there are some 50 producers all together, concentrating on a market that is worth an estimated 6.8 billion to 10.2 billion yen annually. Perhaps that is easier to understand when noting some of the prices in Iwasaki's catalog: While a standard bowl of miso soup can be had for 8,000 yen, a superbly crafted handmade replica of a *kurodai*, a type of sea bream, goes for 180,000 yen.

While the custom of using replica foods in showcases has not become an international standard, that hasn't stopped these products from becoming popular gift items for many foreign visitors. Another reason both Japanese and tourists from overseas visit the Kappabashi store is to take part in workshops (reservation required), where they can try their hand at making their own replicas using the traditional wax production method.

Before shopping for the many popular gifts that line the shelves, such as magnets, keyrings and straps featuring food items, beginners can try making tempura and a lettuce leaf, something that will ensure a renewed respect for the craftsmen behind the real goods. "Some are surprised to hear that our goal is not to make the replica food exactly the same as the original food," says Asako Chiba, the shop manager and workshop leader. "Our passion is to create replica food items that appear even more attractive and mouth-watering than the real thing."

A Day in the Life of a Sumo Fan

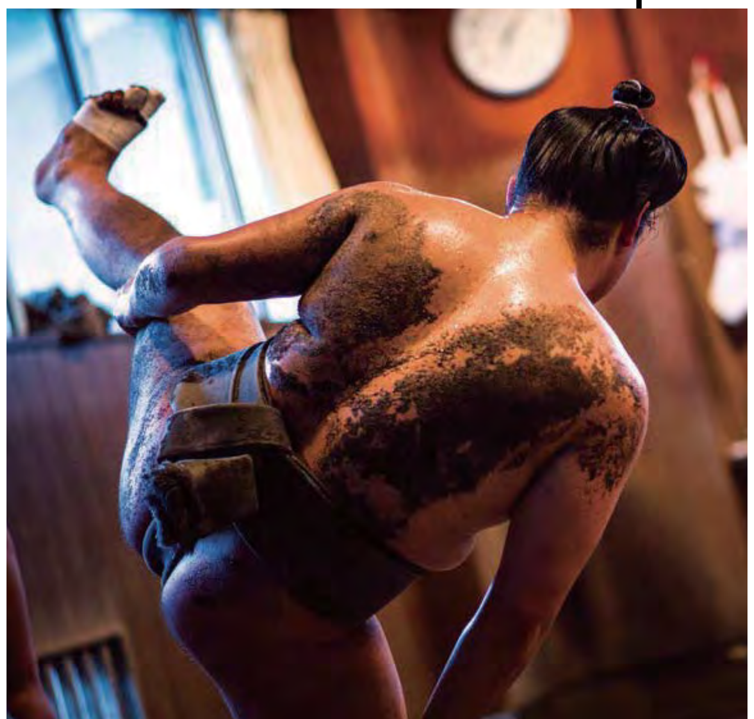
It's one of the world's most unique traditional sports, and there's nothing like experiencing it live.

by John Gunning

Sumo has aficionados all over the globe who are able to follow Japan's ancient traditional sport on television and the Internet. But for the true fan, no experience rivals attending one of the six yearly *basho*, or tournaments. They each last 15 days and three of them are held in Tokyo's Ryogoku Kokugikan in January, May and September. Let's follow the route a true fan would take in order to best experience a day of live sumo.

Having gotten permission to watch morning practice, our day begins at 7:30 a.m. at a local sumo stable, where the wrestlers sleep, eat and train. We sit cross-legged behind the stablemaster, only a couple of meters away from the *rikishi* (sumo wrestlers), who are already sweating profusely from the 300 leg raises that begin each training session. Pushing practice follows, and then the fights begin, starting with the lowest ranks and ending with the higher-ranking *sekitori* wrestlers. Around 10 percent of all rikishi that join sumo—there are some 640 at the present time but the number fluctuates—reach this rank and are able to claim a salary.

At their stable, wrestlers take part in grueling practice bouts (above) and hundreds of leg raises (below), before heading over to the tournament site.



Soon, the mouthwatering smells emanating from the kitchen signal that practice is almost over. We make our way to the Kokugikan venue, easily spotted by the colorful flags with wrestlers' names that line its entrance. Once inside the arena, we stop a moment to look at the large cabinet filled with trophies. Displayed proudly in the center is the massive Emperor's Cup, made of silver and weighing 29 kilograms.

We've purchased first-floor box seats close to the *dohyo* ring, and looking up past the suspended Shinto roof with its four colored tassels representing various spirits and directions, we can see the giant portraits of the 32 previous tournament winners lining the rafters.

Bouts take place from about 8:30 a.m. to 5:45 p.m., starting with the lowest of the six divisions. There is less pageantry early in the day and things progress quickly with new wrestlers fighting every two minutes or so. The rules of the sport are very simple: Down or out. If you touch the ground inside the ring with any part of the body except the soles of the feet or go outside the circle, you lose. Hair-pulling, eye-gouging, punching with a closed fist and kicking above the knee are among the few rules that are illegal. The clashes between these large men can be earth-shaking, sometimes lasting only a few seconds, occasionally going on for several minutes.

The ring is 4.55 meters in diameter and made of hard packed earth with straw bales. As a throwback to when sumo was performed outside, four of the bales are offset to allow rainwater to drain away. A fine layer of sand around the bales helps judges determine if a wrestler has touched the ground outside them.

We watch the ring announcers, or *yobidashi*, call the wrestlers up to fight, sweep the ring and keep everything running smoothly. While the bouts are overseen by the colorfully dressed *gyoji* referee, five judges in black traditional dress have the final say. When the result is a close call, they step onto the ring for a conference and the head judge will then announce their decision. There are three options: confirm the referee's decision, reverse it, or call for a rematch.

We applaud for our favorites as the higher-ranking wrestlers are introduced to the crowd in ring-entering ceremonies, one at around 2:00 p.m. for the second division and one at around 3:40 p.m. for the top division. These are colorful affairs, as the wrestlers don highly decorative aprons with pictures of cranes, dragons and Mt. Fuji among them. For their bouts, they wear the simple, loincloth-like belt called a *mawashi*.

Like other sumo fans, we appreciate the tense anticipation of the four minutes of preparation time before the match. The wrestlers stomp, throw salt, go to the corner, face off and

PHOTO COURTESY NIHON SUMO KYOKAI

At the Ryogoku Kokugikan, the hall where the Tokyo tournaments are held, a large Shinto roof is suspended over the ring.

The ring is made of hard packed earth. The referee, or *gyoji*, oversees the bouts in his colorful traditional clothes.

then…repeat the whole sequence a few more times. We closely watch the referee's *gunbai* war fan, for when he holds it towards the front rather than to the side it means time is up and it's time to fight.

The excitement increases as the day's climax approaches with the bouts featuring the *yokozuna*. Only 72 men have ever attained the rank of yokozuna; their entire existence is supposed to embody the spirit of sumo, and unlike all other wrestlers they can never be demoted. If they aren't contending for every tournament title they are expected to retire rather than disgrace the sport.

Today, all the yokozuna win and the crowd seems satisfied. As a designated wrestler mounts the ring to perform the bow-twirling ceremony that signals the end of a long day of sumo, we gather our belongings and join the crowd heading for the exits.

John Gunning is a sumo commentator and presenter for NHK as well as a columnist for The Japan Times *and other publications. Photos by John Gunning except as noted.*

The awe-inspiring domes of Tokyo's iconic station have been restored with great attention to detail, including the statuary.

Gateway to the City: the Many Facets of Tokyo Station

Tokyo's iconic landmark has itself become a destination, as visitors flock there to dine, shop and lodge. Now it's even having an effect on its surrounding environs.

by Julian Ryall

PHOTO COURTESY THE TOKYO STATION HOTEL

The lobby lounge of The Tokyo Station Hotel features high molded ceilings and contemporary European design.

The GRANSTA shopping area inside the ticket gates features a wide variety of shopping choices and broad hallways.

The signage is easy to understand and placed in prominent locations to enhance access.

Tokyo Station handles well over 4,000 trains every day, has 14 above-ground railway lines operated by the East Japan Railway Company (JR East) and sees 430,000 people pass through its doors on an average day. It is the starting point for the famed Shinkansen bullet trains that set out like clockwork to destinations all over the country.

But it is developing into so much more: on one hand it is becoming a tourist target on its own, finding original ways to attract visitors, first-timers and repeaters, to its many facilities. On the other hand, the station is increasingly playing an important role as a gateway to Tokyo, offering visitors easy access to the surrounding areas. This is the goal of the Tokyo Station City vision, as its slogan suggests: "Station to city and city to station."

"The role of this station is no longer only about providing trains for passengers," says Kunihiko Koike, managing director and the 25th station master of Tokyo Station. "Although we take our role as the hub of the network very seriously, we have also become a destination for tourists and shoppers."

Tokyo Station has served as the hub of both the capital and the nation ever since it first opened in 1914. Within easy walking distance to the Imperial Palace and the bustling Marunouchi business district, the building was the focus of a redevelopment project started in 2007 and completed in 2012 that returned the landmark to its early glory.

The iconic red brick exterior was restored along with the matching domes at either end of the structure, and the detailed reliefs that previously decorated the interior halls are seen once again. Koike, who joined JR East in 1978, has overseen a number of service improvements as well. He points to signage in four languages—Japanese, English, Chinese and Korean—and a recently launched app that provides translations. "We have a number of university student translators to help foreign visitors," says Koike, "and we've increased foreign language announcements within the station and on our trains."

With the Olympic and Paralympic Games Tokyo 2020 on the horizon, new initiatives are also being introduced—including more barrier-free facilities, staff education programs and luggage storage areas—to smooth the way for the hundreds of thousands of visitors who are expected to attend the sporting extravaganza.

JR East also teamed up with retail outlets and service providers to create one of the largest *eki naka* areas in the country. The term literally means "inside the station" and the concept behind it is to provide every facility that a traveler, tourist or passing commuter could ever need. These range from cafes to bookshops, bakeries, convenience stores, restaurants, grocery stores and more.

A key partner in that development has been the company that has operated the GRANSTA retail area since 2007 and recently completed a major expansion of its retail area to 5,440 square meters. "We felt this was a good opportunity and set ourselves the challenge of introducing facilities that are helpful and convenient for anyone who uses the station," says the president of the company.

The station building, recognized as an Important Cultural Property of Japan, is also home to The Tokyo Station Hotel, superbly renovated with 150 guestrooms, which first opened in 1915. "When we set about the redevelopment, the objective was to recreate the value of the landmark and then hand that on to future generations," says Managing Director and General Manager Hitoshi Fujisaki of the historic property.

Today, a broad cross-section of guests—including many foreign visitors—stay at the hotel. Its convenience for travelers is an obvious plus, as are its proximity to famous business districts, its impressive facilities and eye-catching design elements. But Fujisaki believes that the hotel's heritage also plays a part in its popularity. "There are so many luxury hotel brands in and around the Marunouchi district, the best way we can be distinctive is by being independently minded," he says.

As for the station's role as a gateway? Just last December, an expansive people- and traffic-friendly plaza opened on the Marunouchi side of the station, highlighting the station's architecture while creating a transparent transition between the hub and the city it serves. It is clear that the Tokyo Station City concept has already spread beyond the immediate station area into the business district and the broader community.

Tokyo's Nearest Volcanic Island Getaway

A short hop from the city by sea or air, this unique island location offers some spectacular views, rare landscapes and uncommon dishes.

by Melinda Joe

On a clear day, the view from the placid island of Izu Oshima makes me catch my breath. As we drive along the road between the villages of Nomashi and Mabushi, beyond the verdant slopes to our right that culminate in rocky beaches, a cluster of islands floats on the shimmering surface of the Pacific Ocean. On our left, we pass the striated rockface of the Senba Stratum Section, a sedimentary formation that was created by countless volcanic explosions and stretches for more than 800 meters.

"This is the view on our daily commute," says Masashi Okada of the Oshima Tourism Association Secretariat, gesturing to the surreal stone expanse. "The oldest layer is 20,000 years old."

Oshima is the largest of the Tokyo Islands that stretch south of Sagami Bay and fall under the administration of the Tokyo Metropolitan Government. A mere 120 kilometers away from the city center, Oshima is easily accessible–one hour and 45 minutes by jetfoil from Takeshiba Pier, or 25 minutes by plane from Chofu Airport.

The island was designated as a Geopark in 2010, with roughly 97 percent of the area protected under Japan's Natural Parks Act. The unique landscape has been shaped by Mt. Mihara, the 764-meter volcano at the center of the island. One of Japan's most active volcanoes, the mountain was revered in ancient times as *gojinka-sama*, literally "the fire of god." Access to the caldera is restricted, but visitors can trek along the gentle trails that circle the crater's edge.

Oshima is graced with gorgeous views of the other Tokyo Islands and the lush blossoms of camellia trees.

Behind Mt. Mihara lies one of the island's most striking features—the Urasabaku "desert." Formed by an amalgamation of volcanic ash and craggy scoria rock, its stark, black surface has an austere and alien beauty. According to Toshiro Nakabayashi, a certified guide at Izu Oshima Geopark, wild plants sprout when rain falls—thanks to the porous rocks that prevent seeds from being swept away by the harsh winds that scour the island.

Oshima's complex geography, diverse ecosystems and unique history have given rise to a distinct and fascinating food culture. People began living on the island around 8,000 years ago. The early inhabitants took advantage of the bounty of the ocean, and by the late Edo period (1603-1868), the port town of Habu Minato was thriving as a fishing hub. While the island is also famous for its pristine sea salt, until the late 1600s most was shipped to the mainland as government tariffs, says historian Takayoshi Tokie, who researches ancient documents.

The topography of the island is incredibly varied, from volcano craters to this 800-meter striated rockface that borders the coastal road.

"Salt was not for ordinary people," he tells me, explaining how the commodity's rarity led to the invention of a fish sauce used to flavor dishes and preserve foods. The technique of preparing *kusaya*, one of Oshima's most iconic fish delicacies, evolved out of the local fish sauce tradition. Typically made with horse mackerel, the fish are steeped overnight in an enzyme-rich brine the color of dark chocolate before being dried on nets and left to undergo lactic fermentation. The process gives the dish its characteristically pungent aroma and intense, umami-dense flavor.

At Zakoya Kiyomaru, a casual eatery on the west side of the island, I sample grilled kusaya, along with *bekko-don*, another local specialty. The dish consists of a bowl of rice topped with slices of white fish marinated in local soy sauce spiked with green chilies, which are often used in lieu of wasabi. The name of the dish means "tortoiseshell"—a reference to the speckled, translucent appearance of the fish. I also order *ashitaba*, a vigorous green vegetable that can be found virtually everywhere on the island.

The leaves come briefly blanched, doused in a slightly sweet soy-based sauce and dusted with roasted sesame seeds. Another way the vegetable is served in the region is as tempura—battered and deep-fried in camellia oil, one of the region's most important staples, which is also used as skin and hair moisturizer.

The estimated three million camellia trees on Oshima are valued for more than their oil. The hardy plants flourish in the volcanic earth, protecting the island from strong winds as well as soil erosion. During the camellia festival from late January to the end of March, the more than 10,000 trees that grace Oshima Park and Tsubakihana Garden are in full bloom, electrifying the landscape with sprays of vibrant red, pink and purple blossoms.

"It's one of the best seasons in Oshima," says the tourism association's Masashi Okada, a smile creeping across his face. "The colors are just so beautiful."

From these lovely colors to the monotone, volcanic tones of the heights of Mt. Mihara and the emerald blues of the surrounding Pacific Ocean, there is much more to discover in this land of dramatic landscapes, starry skies and hidden culinary gems.

Melinda Joe is an American journalist based in Tokyo who has written for Forbes Travel Guide *and specializes in food and drinks for publications including CNN and* Newsweek.

Two local food favorites: Grilled *kusaya*, a fermented fish dish (above) and *bekko-don*, a rice bowl of marinated white fish (left).

Shielding Tokyo from a Changing Climate

The subway system isn't this city's only underground claim to fame. Some mega construction projects are protecting citizens while staying largely invisible.

by Chiho Iuchi

The massive Kanda River/Ring Road No.7 Underground Regulating Reservoir protects a large area of Tokyo from flood damage.

Most of the drivers making their way down Ring Road No.7, one of Tokyo's most important thoroughfares, have no idea what lies under their wheels. But deep below them is a massive underground facility that protects the city from flood disasters on a vast scale.

It's the Kanda River/Ring Road No.7 Underground Regulating Reservoir, a huge tunnel around 40 meters under the surface and 4.5 kilometers long with an inner diameter of 12.5 meters. With a capacity of approximately 540,000 cubic meters, it is the biggest of 12 underground reservoirs currently in operation.

The impressive project is part of Tokyo's disaster prevention program. Japan is located at the eastern end of the East Asian monsoon, a flow that reaches from the Indian Ocean. Tokyo's annual average rainfall is 1,700 millimeters, equivalent to about twice the global average, and it's concentrated from June to October.

In the 1940s, 42 percent of the land around the Kanda River, which runs through eastern Tokyo, was still forests or fields that absorbed the water back into the soil. "However, due to rapid post-war urbanization and economic growth, the fields were paved to make way for roads and residential areas," says a Tokyo Metropolitan Government (TMG) official in charge of the project. "The rainwater had no outlet and flowed into the river all at once, often causing overflows."

After several major flooding events, the Tokyo government began implementing measures such as flood control channels and reservoirs. The common method of flood prevention is to increase the volume of water the river can hold, either by broadening or deepening the river. In crowded urban areas where available land is limited, however, this is easier said than done. Tokyo instead turned to constructing facilities utilizing the space under the roads and parks owned by the TMG as a valid and feasible way to limit flooding damage.

The Ring Road No.7 project, which was launched in 1988 and took some 20 years to reach its present structure, has dramatically proved its worth. In August 1993, a typhoon caused significant flood damage in the middle basin of the Kanda River when a rainfall of 288 millimeters inundated 85 hectares of land and 3,117 houses.

In October 2004, when the first half of the project was completed and the latter stage was under construction, a similarly strong typhoon with a rainfall of 284 millimeters hit the same area. Thanks to the parts of the underground reservoir that had already been completed, however, the amount of flood damage was significantly reduced. Only four hectares of land and 46 houses were inundated.

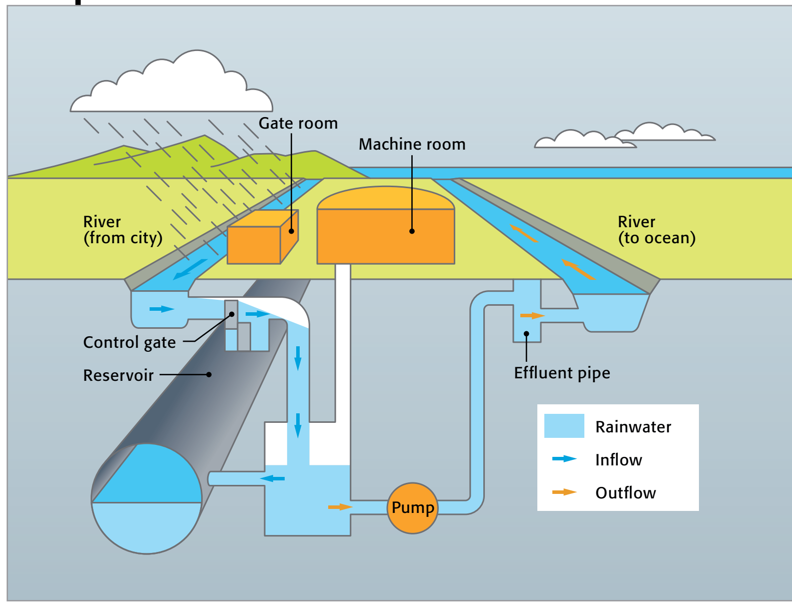
The regulating reservoir is comprised of three main facilities: the intake, where floodwaters from rivers are guided into the underground tunnel; the tunnel where the inflowing floodwaters are reserved and temporarily stored; and the control building that operates, controls and monitors water inflow and discharge facilities.

"Once the water level of the rivers reaches a certain level, the gate opens and the excess water flows into the underground reservoir through the vertical drop shaft," the TMG official says. "The water in the drop shaft forms a whirlpool that acts to suppress noise and vibration, as the facility is located in a very quiet residential area."

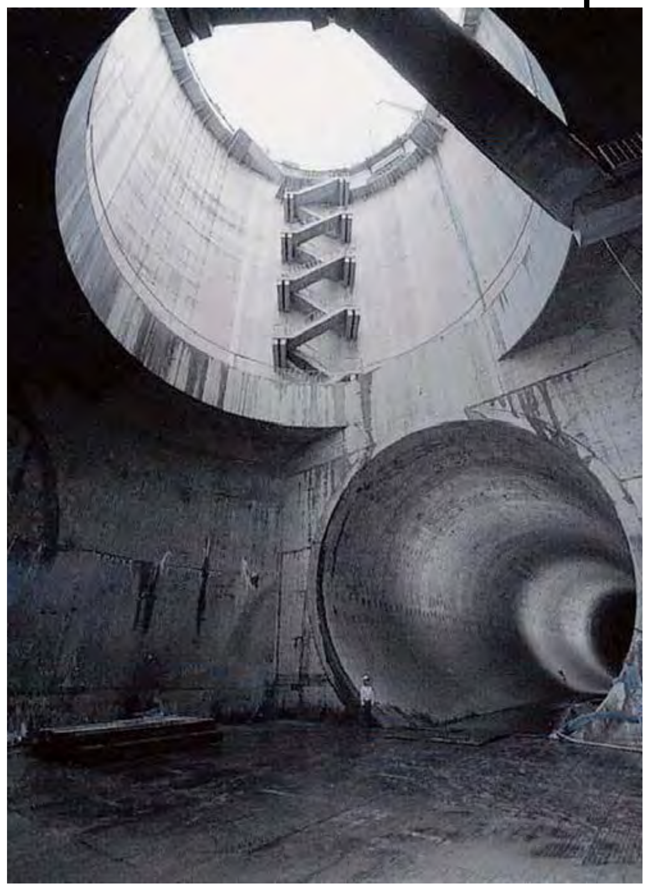
Construction is now underway to connect the existing underground reservoirs at Kanda River and Shirako River. Once the connection is completed as scheduled in March 2026, it will function as the Ring Road No.7 Underground Multi-basin Regulating Reservoir—featuring a breathtaking 13.1 kilometers in length and a storage capacity of around 1,430,000 cubic meters, a large part of Tokyo's planned total reservoir capacity of 3,600,000 cubic meters. With intake facilities that can share overflow from five rivers, it will make history with its capacity to handle even the most torrential local downpours.

The Kanda River/Ring Road No.7 reservoir receives a number of visitors from abroad, including China, South Korea and Southeast Asia, eager to learn the Japanese methods of flood control. "I hear that Malaysia uses a similar system using underground motorway tunnels as temporary reservoirs at the time of heavy downpours," says the Tokyo official.

Zenpukuji River Water Intake Facility



The vertical shaft of the Kanda River/Ring Road No.7 Reservoir.



Preparedness is more important than ever. As climate change is expected to bring even more frequent torrential rainfalls and powerful storm surges, Tokyo's vast flood prevention plans look increasingly prescient.

Chiho Iuchi is a freelance writer and frequent contributor to The Japan Times.

Rakugo **storyteller Katsura Shinnosuke performs before a rapt audience at the Shinjuku Suehirotei theater.**

The Art of Telling Stories on a Solo Stage

A traditional Japanese performing art called *rakugo* shares glimpses of life with theater goers through tales ranging from the humorous to the sentimental.

by Chiho Iuchi

As stage performances go, it doesn't get much simpler than this.

Dressed in a chic kimono, a solitary storyteller sits on a cushion, his legs tucked under him as he acts out funny, heart-warming stories set in downtown Edo, as Tokyo was once called. He uses only voice changes, gestures and facial expressions to differentiate between various characters—male, female, young and old, samurai and merchant—and turns his head to the right or left to switch roles during a conversation. The audience is drawn into the monodrama, laughing at wordplay interspersed in the story while awaiting the punch line that often concludes the tale.

This is *rakugo*, the traditional Japanese art of storytelling that developed as a form of entertainment for the common people during the Edo period (1603–1868). "With films or plays, audiences are exposed to a story through the same images," says Yanagiya Sankyo, a master *rakugoka*, or storyteller, and member of the board of directors of the Rakugo Kyokai, one of the major associations of the performers in Tokyo. "But rakugo inspires each listener to enjoy it in their own imagination. That is its biggest appeal."

Although performances have been broadcast on radio and TV, distributed on CDs, DVDs and through the Internet, there is nothing like the live performances held at theaters called *yose*, where shamisen and drum music accompany the entrance of the rakugoka. The performer begins with a preliminary talk called *makura*, often featuring gossip about recent events or anecdotes that grab the attention of the audience. Then, with an abrupt change of tone, he calls out a character's name, marking a segue into the feature story.

The rakugoka's only props are a folding bamboo fan and a hand towel. He can make the fan resemble a cup, a cigarette, a pen, chopsticks, or even a sword; the hand towel is used to mimic a wallet, a letter and so on, to express various situations in the narration.

"At live performances, the storyteller and the audience share the same air," Master Sankyo says. He describes how the storyteller is like the pivot at the base of the fan, directly connected to each member of the audience through the spread of the bamboo ribs. "This is something only possible at live shows," he says.

At the peak of Edo culture in the 18th century, each community had its own theater, where neighbors gathered to enjoy performances. Although the number has decreased, there are still venues that keep up the traditions, hosting live performances almost every day.

The yose are usually open from around noon to 9 p.m. "You can enter any time, and you can stay as long as you like. At most, tickets are just 3,000 yen," says Yuichi Tazawa, secretary general of the Rakugo Geijutsu Kyokai, another major Tokyo association of rakugoka. According to Tazawa, the theater style has remained unchanged since the Taisho period (1912–1926). "It's important for traditional arts to repeat the same patterns," he says.

Classical rakugo stories come in various types, including *otoshi-banashi* stories that end with a joke or pun, *ninjo-banashi* stories portraying the human drama and ghost or theatrical stories. They have been passed down over the ages, and audiences delight in hearing contemporary performers add

their own perspective to an old standard. "Some of the stories featuring elements from old Japan, such as the red-light district, are hard to understand today," says Master Sankyo. "But I try to re-interpret the feelings of the characters and make the story relevant to present-day audiences. Adapting them to the times is how the classical stories survive."

The many new pieces that have been created by the storytellers themselves are another matter. "Often, the humor depends on the speaker's own character so much that it is not easy for other rakugoka to perform them," Tazawa says. "But if the piece is interesting and well-structured, it may be picked up by other rakugoka and handed down to the next generation."

Recently, the rakugoka associations are working to attract more audiences from abroad. At a performance at a traditional Tokyo shrine in September 2017, simple English words and manga illustrations were projected on the stage behind the rakugoka. "We just gave brief hints to help non-Japanese speakers understand the story and focus on the funny gestures and facial expressions," Tazawa says.

The Rakugo Kyokai is also planning rakugo shows for non-Japanese speaking audiences. Master Sankyo, who has performed in the U.S. and Europe since 2006, says, "It's difficult for such audiences to understand the wordplay in Japanese, but human emotions are something that we all have in common."

It will be interesting to see how rakugo storytelling can maintain its Edo traditions while finding new audiences and new themes. But it will surely continue to bring laughter and smiles to long-time yose fans.

Stylized lanterns decorate the traditional façade of the Suehirotei theater.

Visualizing a Life with Robots

A robot hub is leveraging partnerships to design smart machines that will be able help out in a rapidly changing society.

by Tim Hornyak

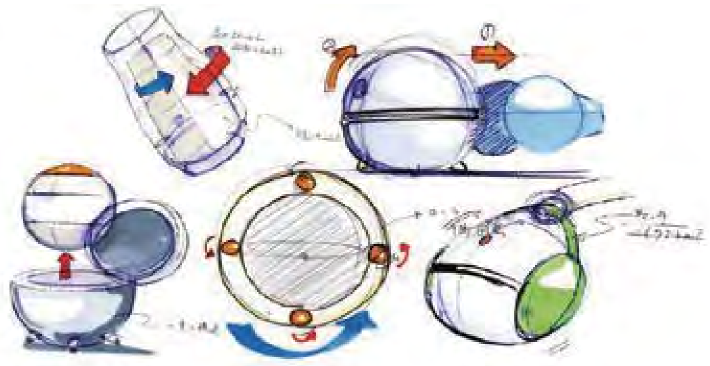
When you step out of the very ordinary elevator in a very ordinary building in the western suburbs of Tokyo, you'll get a very extraordinary greeting: visitors are met by about a dozen service robots, ranging from pint-sized droids with iPhone faces to smart scooters for seniors on the go. Welcome to serBOTinQ, where some unique intelligent machines are being born.

SerBOTinQ, which stands for "service robots (or "serbots" for short) incubation hub", was launched in March 2016 as part of Tokyo Metropolitan University's Graduate School of System Design. A service robot can be thought of as any intelligent machine that helps humans with burdensome tasks such as housecleaning, but not including manufacturing. According to the International Federation of Robotics, service robots are already big business, with about 6.7 million in use worldwide for personal and domestic purposes in 2016, an increase of 24 percent from 2015. Japan is especially keen on developing service robots because of its technological prowess and shrinking workforce.

This area is home to many small businesses and industrial parks, and is fertile ground for collaborations. "We have been working with SMEs (small and medium-sized enterprises) in the area and with other universities to foster new, innovative businesses," says Naoyuki Kubota, a professor in the university's Graduate School of System Design and member of serBOTinQ. "We aim to use robot technology to deal with the issues of the declining birthrate and aging society."

Service robots greet visitors to the lab (opposite), where researchers (above) are collaborating with companies and other universities on robot development.

Pakuhako (above), a trash bin that automatically opens, and prototype design sketches of some new ideas.



SKETCH COURTESY TOKYO METROPOLITAN UNIVERSITY

Professor Keiko Kasamatsu, also of the Graduate School of System Design, points to a prototype smart door as an example. From the outside, it looks like a fairly standard, if slickly designed, front door, with no hint of its concealed sensors for touch, motion and distance or its voice recognition unit. On the inside, it features a large touch-screen panel that can display contents such as daily schedules.

Equipped with a cloud data service, the door can show who's knocking, track those going in and out and help protect residents—not by force, but with calming words. The door could even query residents about where they're going and report potential problems to caregivers. "It could serve as a communication function to help reduce incidents of night-time wanderings, for example," says Professor Kubota.

SerBOTinQ is built on the concept of balancing design philosophy, communications design, workshops and agile prototyping, for which it has tools such as laser cutters and 3D printers. As one example of the many early designs in this workshop, Kubota shows off a shoebox-sized sensor array with scanning rangefinders on each corner. When he activates it, a linked laptop screen lights up with a 3D representation of the room and its occupants, each of whom is outlined by a constellation of dots. Its spatial perception could assist the navigation system of a mobile robot or act as a tool to help out at home.

The serBOTinQ hub is all about collaborating—within the university, with companies and anyone who has ideas about making new products; homebuilders, zoos and computer manufacturers have been some of the partners. Working with Taiwan's National University of Tainan, students are developing a humanoid robot system that can instantly translate between Chinese, Japanese and English; they hope to deploy it at the Olympic and Paralympic Games Tokyo 2020.

Meanwhile, in a recent industry-academia seminar initiated by Kasamatsu, 50 students worked alongside 10 staff from an electronics manufacturer to develop new product ideas. One project featured in the event was Pakuhako, a garbage bin with an ultrasonic sensor and an iris-like lid that automatically opens when you hold a piece of trash over it. The fruit of robotics and design students working together, Pakuhako was featured in an online video that was retweeted 46,000 times in just three days.

SerBOTinQ is home to Japanese and foreign researchers and hosts several dozen students, including those from overseas. Foreign students take the same graduate courses as their Japanese peers in addition to language classes. While working on their graduate theses, the students also spend time at partner corporations and develop research projects.

"We are also interested in the concept of robots as life hubs, just as Steve Jobs proposed Macs as digital hubs in 2001," says Kubota. "People can communicate through robots and share information, enhancing their quality of life."

As AI grows in sophistication, robots are being developed to better understand the world and perform useful tasks such as delivering hot meals, as well as washing and even folding clothes. We may not have imagined that robotic caregivers will watch over us in our old age, but with serBOTinQ's focus on usability with a human touch, its droids are bringing the stuff of sci-fi fantasy to the real world.

Steve Yen, a vice president at the financial software firm Numerix, shared his thoughts about working and living in Tokyo.

FinTech and Tokyo: a Match Made in Heaven

Steve Yen and his firm Numerix are part of a booming industry that may help Tokyo once again reign as a top global financial center.

by Martin Foster

When Steve Yen joined the U.S. FinTech firm Numerix in 2012, he probably didn't realize that the industry was going to be part of an attempt to boost Tokyo back to a preeminent position as an Asian hub for the global financial market.

FinTech—short for "*Fin*ance *Tech*nology"—is the application of computer software and advanced technologies to improve and reduce costs in financial processes like money transfers, payments and investing. Many consider it to hold the key to the future of international finance. As Pierre Gramegna, Luxembourg's minister of finance, said in a May 2015 speech, FinTech is "not only an enabler but the driving engine."

In recent years, Tokyo has been lagging behind the fast-rising regional powerhouses of Singapore and Hong Kong as a financial center. Gone are the days of the 1980s when Tokyo even rivaled New York and London for luring global business.

But now, the Tokyo Metropolitan Government (TMG) aims to drive the Japanese capital back to the top, through such projects as attracting some 40 foreign asset management or FinTech specialists to establish businesses in Tokyo by the end of March 2021. According to the Yano Research Center, FinTech firms' sales could rise from 4.8 billion yen in the year ending March 31, 2016 to 80.8 billion yen by 2021.

What makes Japan an extremely favorable location for FinTech development is its position as the sixth wealthiest country in the world in private household savings and home to 5 of the world's top 20 banks by asset holdings, and its place as a world-beating technological innovator. What makes Tokyo a strong contender to host FinTech is that the city accounts for approximately 20 percent of Japan's GDP.

Steve Yen has already made Tokyo his base of operations. "The city is definitely an attractive market for starting a FinTech business," says Yen, vice president of business development for the Asia-Pacific region at Numerix, a New York-headquartered company focused on providing derivatives and risk analytics software. "It's an important market for us because this is where we first started when we came to Asia."

A locally-based company introduced Yen to the TMG programs, and also helped his company to identify potential business leads, including setting up meetings for him. Yen speaks highly of the city's aggressive moves. "The TMG has been actively approaching us to help us to grow. No other city or state government has provided us with the services that the TMG offered," he says.

The TMG is continuing to target new FinTech firms with new ideas. In November 2017, the Tokyo government released a report detailing their vision entitled "Global Financial City: Tokyo," which outlines incentives to attract asset management and FinTech companies to set up shop in the city. Incentives and support measures include joint initiatives with the national government to reduce corporate taxes, establishment of a fast entry system that expedites administrative procedures for financial companies and the creation of an easier living environment for staff sent to work in Tokyo, such as allowing non-Japanese doctors to treat foreign patients who visit Japanese hospitals.

Yen has adapted well to life in the Japanese capital, and his reading habits help him blend in: "I have been a big fan of manga and anime since I was a child," he says, "and I still follow *Dragon Ball Super* and *Detective Conan* today!" After work, he takes advantage of the city's endless number of dining spots serving excellent food and drink. "I am a big beer drinker, and have visited many restaurants and bars in the Yurakucho and Shimbashi areas," says Yen. "In recent years, I have really enjoyed exploring the Ebisu area as well."

For further relaxation, Yen tries to get out of town on the weekend, taking advantage of the *onsen* hot springs, many of them within easy reach of the Tokyo area. "I definitely love onsen! During the weekends, I often go to Karuizawa or Hakone for a short getaway."

Yen lists more reasons why he believes Tokyo will continue to be attractive to international businesses. "It has a strong transportation infrastructure, highly qualified talent and a strong customer base," he says. "It's just a great city to live and work in. And when I'm away, I always miss the friendliness and the quality of the service."

Tokyo Basics

Population

Total Population of Tokyo (2017)

13,756,063

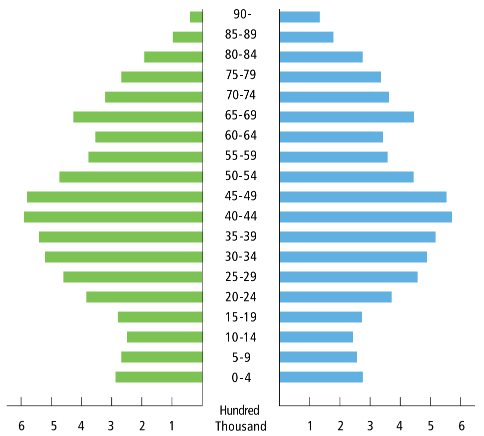
Population Age Structure by Gender (2017)

Men (2017)

6,776,007

Average Life Expectancy (2015)

81.07



Women (2017)

6,980,056

Average Life Expectancy (2015)

87.26

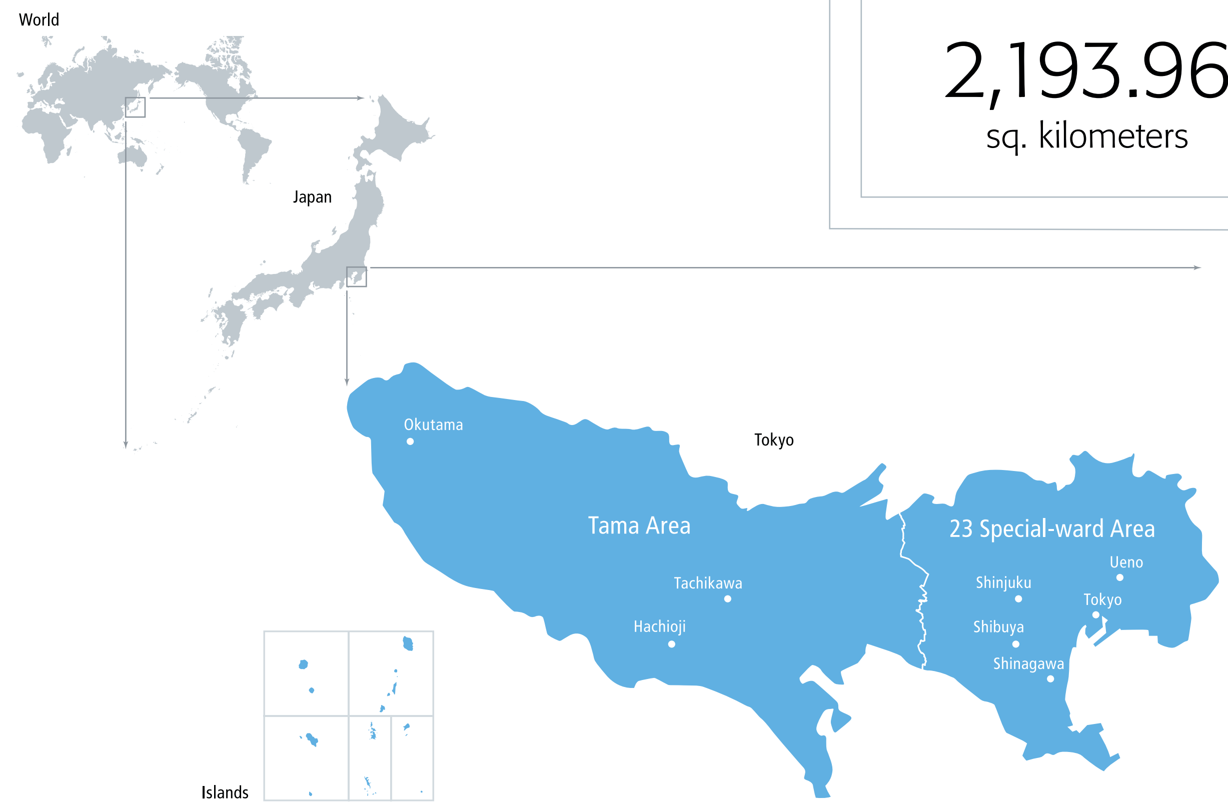
Foreign Residents (2017)

486,346

People Over 100 Years Old (2017)

5,547

Location

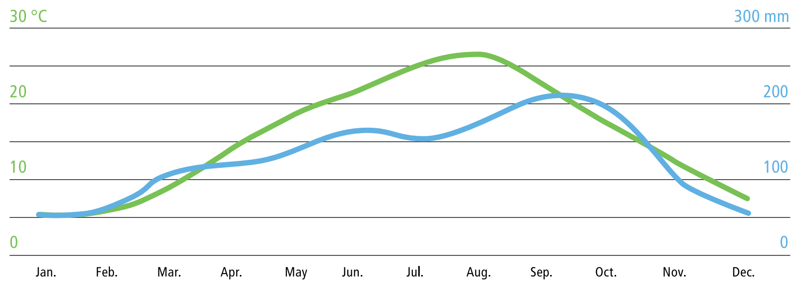


Area

2,193.96

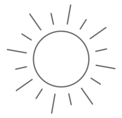
sq. kilometers

Average Monthly Temperature and Rainfall



(Source: Japan Meteorological Agency, 1981-2010)

= Average temperature = Average rainfall



Average Annual Temperature

15.4°C

(59.7°F)

Average Annual Rainfall

1,528.8 mm

Sister and Friendship Cities / States*

1. New York (USA)
2. Beijing (China)
3. Paris (France)
4. New South Wales* (Australia)
5. Seoul (South Korea)
6. Jakarta (Indonesia)
7. São Paulo* (Brazil)
8. Cairo (Egypt)
9. Moscow (Russia)
10. Berlin (Germany)
11. Rome (Italy)
12. London (UK)

Annual Foreign Tourists (2016)

13.1

million

A 10.2% increase over 2015

Tokyo's GMP[1] (Nominal) as a Share of Japan's GDP (FY2014)

Japan ¥489.6 trillion

Tokyo

¥94.9

trillion[2]

19.4% of Japan's GDP

[1] GMP: Gross Metropolitan Product

[2] $863.4 billion

(2014 annual average conversion rate ¥1 = $0.0091)

Tokyo's Budget (Initial FY2017)

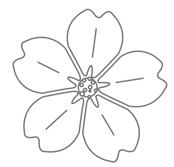
¥13,054

billion*

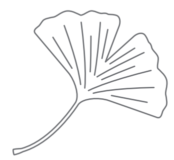
* $116 billion

¥1 = $0.0088 (Bloomberg, January 5, 2018)

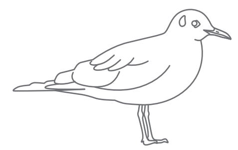
Symbols



The *Somei Yoshino* cherry tree was developed in the late Edo period to early Meiji era (late 1800s) by crossbreeding wild cherry trees. The light-pink blossoms in full bloom and the falling petals scattering in the wind are a magnificent sight to behold.



Ginkgo biloba is a deciduous tree with distinctive fan-shaped leaves that change from light green to bright yellow in autumn. The ginkgo tree is commonly found along Tokyo's streets and avenues and is highly resistant to pollution and fire.



The *yurikamome* gull has a vermillion bill and legs. It comes south to Tokyo in late October every year and sojourns in the surrounding ports and rivers until the following April. A favorite theme of poets and painters, it is also called *miyakodori* ("bird of the capital").

TOKYO
METROPOLITAN
GOVERNMENT

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