

HIGHLIGHTING
Japan

VOL.
190
MARCH
2024



BRIDGES OF JAPAN
<PART 2>

CONTENTS

VOL. 190, MARCH 2024

22



13



6



18

FEATURES

6 Japanese Bridges — Continuously Evolving Since the Time of Modernization

Interview with Professor Emeritus Yamada Kentaro of Nagoya University

10 Kesenuma Bay Crossing Bridge: A Symbol of Tohoku Reconstruction

Introducing the Kesenuma Bay Crossing Bridge, which the Japanese government has been developing as a major project to promote recovery from the Great East Japan Earthquake.

12 The Rainbow Bridge, A Symbol of Tokyo

Introducing the Rainbow Bridge, which opened as a multimodal transportation facility connecting the Tokyo Waterfront Subcenter and the city center. It celebrated its 30th anniversary in 2023.

14 Enjoying the Spectacular Panorama from Mishima Skywalk

Introducing the Mishima Skywalk, a pedestrian-only suspension bridge that offers simultaneous views of Mount Fuji, Japan's highest mountain, and Suruga Bay, the country's deepest ocean bay.

16 Seto-Ohashi Bridges — The Dream Bridge That Connects Honshu with Shikoku

Introducing the Seto-Ohashi Bridge, which consist of six bridges connecting Honshu and Shikoku.

18 The Kanmon Bridge — A Key Transportation Link Between Honshu and Kyushu Crossing the Kanmon Strait

Introducing the Kanmon Bridge, a 1,068-meter-long suspension bridge that connects Honshu and Kyushu.

20 The Beautiful Nirai Bridge and Kanai Bridge, Enhancing Okinawa's Landscape

Introducing the Nirai Kanai Bridge, a hairpin curve on Prefectural Route 86 in Nanjo City on the southern part of the main island of Okinawa.

22 Technology Inherited from Japan Supports the Maintenance of Democratic Republic of the Congo's Matadi Bridge

Introducing the Matadi Bridge, a suspension bridge in the Democratic Republic of the Congo that was built under an international cooperation project carried out by Japan.



ALSO

- 24 POLICY-RELATED NEWS**
Development of the Outcomes of the “Justice Affairs Diplomacy” Ministerial Forum: Initiatives to Further Promote “Justice Affairs Diplomacy”
- 26 SCIENCE & TECHNOLOGY**
Unmanned Helicopters Fly into New Fields: Control Devices Developed to Expand Utilization from Agriculture to Disaster Recovery
- 28 MY WAY**
Introducing Delicacies from Overseas, Including Ukraine and Central Asian Countries, to Japan
- 30 THE BEAUTY AND THE SPIRIT OF JAPAN: FROM THE JAPAN CULTURAL EXPO 2.0**
Great Hall of Traditional Okinawan Theatre: Performance and Promotion of *Kumiodori* and Ryukyuan Dance

THEME FOR MARCH: Bridges of Japan <Part 2>

Japan adopted Western bridge-building techniques as part of its extensive modernization, which began in the mid-to-late 19th century. Today, Japanese bridge-building is known for its world-class technology. In this issue of *Highlighting Japan*, readers will discover a number of very special bridges—one built as a symbol of recovery from the Great East Japan Earthquake, one that has become a city landmark, the bridges connecting islands, one built in the Democratic Republic of the Congo in a Japanese international cooperation project, and others.



The magnificent Kesennuma Bay Crossing Bridge spans Kesennuma Bay (Miyagi Prefecture) with a total length of 1344 meters.

COPYRIGHT © 2024 CABINET OFFICE OF JAPAN

The views expressed in this magazine by the interviewees and contributors do not necessarily represent the views of the Cabinet Office, Agency for Cultural Affairs or the Government of Japan. No article or any part thereof may be reproduced without the express permission of the Cabinet Office. Copyright inquiries should be made through a form available at:
www.gov-online.go.jp/eng/mailform/inquiry.html

WHERE TO FIND US

Tokyo Narita Airport terminals 1 ●JR East Travel Service Center (Tokyo Narita Airport) ●JR Tokyo Station Tourist Information Center ●Tokyo Tourist Information Center (Haneda Airport, Tokyo Metropolitan Government Building, Keisei Ueno Station) ●Niigata Airport ●Kansai Tourist Information Center (Kansai Int'l Airport) ●Fukuoka Airport Tourist Information ●Prefectural Central Libraries

PRODUCTION

FBI Communications, Inc.

MANAGING EDITOR

Fukuda Yasuhiro

EDITORS

Kato Naruho, Kimura Tetsuro, Kurosawa Akane, Koike Ginga, Hara Erika

CONTRIBUTORS

Fukuda Mitsuhiro, Murakami Kayo, Moribe Shinji, Morohashi Kumiko

DESIGN

Azuma Terutaka, Sawatari Rumi

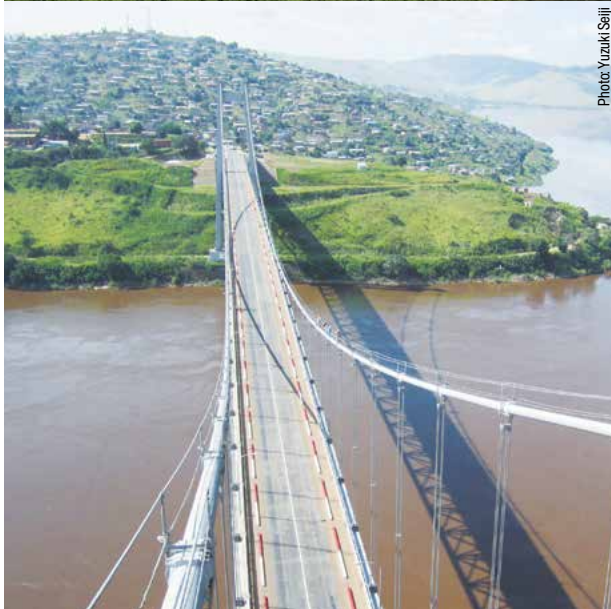
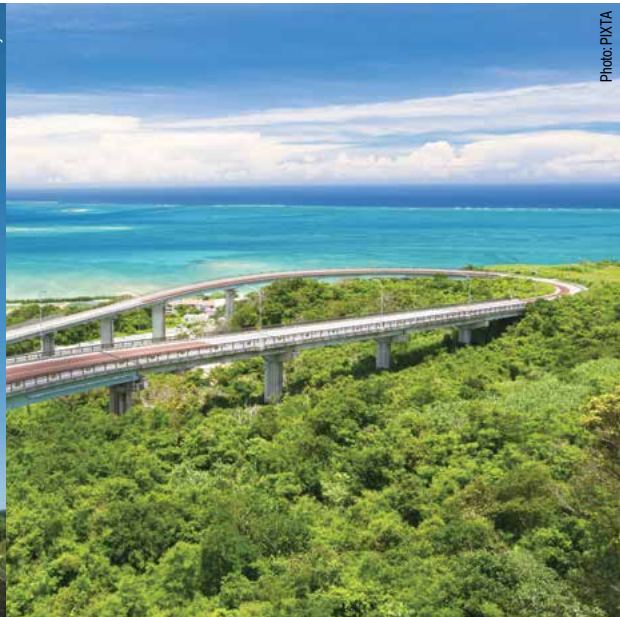
EDITORS' NOTE

Japanese names in this publication are written in Japanese order: family name first, personal name last.

FEATURES

Bridges of Japan

<Part 2>



Above left: A breathtaking view of Mount Fuji seen from Mishima Skywalk.

Above right: On clear days, visitors can enjoy the amazing scenery, which includes views of the Nirai Bridge and Kanai Bridge.

Below left: The deck of the Matadi Bridge. (Photo taken in 2014.) Below right: The illuminated Minami Bisan-Seto Bridge

Japan adopted Western bridge-building techniques as part of its extensive modernization, which began in the mid-to-late 19th century. Today, Japanese bridge-building is known for its world-class technology. In this issue of *Highlighting Japan*, readers will discover a number of very special bridges—one built as a symbol of recovery from the Great East Japan Earthquake, one that has become a city landmark, the bridges connecting islands, one built in the Democratic Republic of the Congo in a Japanese international cooperation project, and others.



Japanese Bridges – Continuously Evolving Since the Time of Modernization

As Japan's modernization progressed from the mid-to-late 19th century, the country adopted Western bridge¹ construction techniques. Today, Japan boasts some of the most advanced bridge-building technologies in the world. We interviewed Yamada Kentaro, Professor Emeritus at Nagoya University, about the historical background leading to today, the process of technological innovation, and examples of famous bridges.

As modernization progressed, Japan began to adopt Western technology for building bridges in the late 19th century. How have Japanese bridges changed after these developments, compared to what they were before?

In Japan, a country with many swift-flowing rivers and areas of poor ground conditions, most bridges were once simple structures made of readily available materials such as wood and stone. These bridges would easily collapse in the event of a disaster. However, as diplomacy flourished in the second half of the 19th century, people traveling on fact-

finding missions in Europe and the United States saw modern bridges built primarily of iron after the Industrial Revolution. And because of it, Western technology was brought to Japan, leading to an epoch of bridge construction that used imported cast iron and wrought iron.² Many famous bridges still standing today date from this period, such as the Hachiman Bridge in Koto City, Tokyo, and the Mikohata Bridge in Asago City, Hyogo Prefecture.

Later, after the state-run Yawata Steel Works began operations in 1901 in Kitakyushu City, Fukuoka Prefecture, steelmaking flourished domestically in Japan and steel was increasingly used in infrastructure facilities. The construction of iron (or steel) bridges also gradually took off. The term "steel bridge" refers to bridges whose main supporting components are made of steel. One particular event that triggered the construction of many steel bridges

was the Great Kanto Earthquake of 1923. By this earthquake, a large number of wooden bridges in the Tokyo area were destroyed or burned to the ground. So as part of the reconstruction effort, many of these new



Yamada Kentaro

Having served as professor at the Nagoya University School of Engineering and the Graduate School of Engineering/Graduate School of Environmental Studies, currently serves as Professor Emeritus at the same university. Also a senior researcher at the Nagoya Industrial Science Research Institute and an advisor to Central Nippon Highway Engineering Nagoya Co., Ltd.



The Hachiman Bridge built in 1878 (Koto City, Tokyo)



The Mikohata Bridge built in 1885 (Asago City, Hyogo Prefecture)



Photo: Yamada Kentaro

The Kiyosu Bridge built in 1928 (Chuo City and Koto City, Tokyo)

metal bridges were built. It was during this time that many of the bridges over the Sumida River, which runs through the eastern part of Tokyo, were built, including the Kiyosu Bridge, the Eitai Bridge, the Kachidoki Bridge, the Senju Bridge, and the Shirahige Bridge, all of which are still standing today.

In the period around the beginning of World War II (1939), large bridges were built using exclusively domestic materials and technology, partly due to the increase in nationalism. At that time, students who studied design overseas under European and American educational systems returned to Japan and became involved in bridge construction. This was also a time of dramatic technological advances. For example, the foundation techniques used for the Brooklyn Bridge in New York were applied to bridge

construction in Japan, where the soil was often weak. Many outstanding bridges built during this period are still in use today, such as the Nagahama Bridge (Ozu City, Ehime Prefecture), built in 1935, and the afore-



Photo: Yamada Kentaro

Built in 1940, the Kachidoki Bridge is one of the few double-leafed drawbridges in Japan. (Chuo City, Tokyo)

mentioned Kachidoki Bridge.

After World War II, as Japan entered a period of rapid economic growth, welding technology advanced along with the development of the steel and ship-building industries, and welding was adopted for steel bridge joints, replacing the riveted joints that had been used until then. Welding made bridge structures capable of withstanding heavier passing traffic than before. The launch of the Tokaido Shinkansen (bullet train) in 1964, by the way, can be attributed to this welding technology.

Today, Japan has world-class technology for bridge construction. Can you tell us why the technology have come so far?

Preparedness for natural disasters such as earthquakes and typhoons is a uniquely important issue for public buildings in Japan, where such events occur frequently. As a result, research and development of natural disaster mitigation measures for bridge construction flourished, and companies generously invested in research for material development and strength verification. Research conducted with an eye on the next 30 to 50 years produced remarkable technologies that have made Japan a world leader in this field.

Also, once Japan entered the period of rapid economic growth, technology improved along with the development of road infrastructure. Expressways were constructed throughout the country, and large bridges were built to connect road networks. A representative example is the construction of the Honshu-Shikoku Bridges.³ Launched as part of a national project to connect the Japanese archipelago with bridges and tunnels, their construction had a tremendous impact on the bridge industry in Japan, leading to technological advances in many fields.

Japan also excels in new types of bridge structures and rehabilitation technologies for aging bridges, such areas in which it is attracting global attention. The needs to address

vibration and design issues while making structures lighter and stronger, as well as the history of challenging natural disasters, have led to innovations in Japanese bridge projects.

In your opinion, what are some of the bridges that best represent the trends in bridge construction since the modernization of Japan?

The bridges on the Sumida River, which I mentioned earlier, represent disaster recovery efforts after the Great Kanto Earthquake and can also be explored from a boat. The Five Bridges of Amakusa in Kumamoto Prefecture, Kyushu, a route which was selected among the 100 Best Roads in Japan, form a beautiful landscape of bridges with distinctive structures stretching along scenic islands.

There are many modern steel bridges that I find beautiful. The aforementioned Kachidoki Bridge, one of the few drawbridges⁴ in Japan, and the Akashi Kaikyo Bridge, which is part of the Kobe-Naruto route of the three-route Honshu-Shikoku Bridges, are also impressive. Both bridges are worth seeing as construction projects that overcame technical difficulties.

Recently, bridges have become a tourist attraction, with guides offering bridge-crossing tours in vari-



The Miyoshi Bridge, raised during the Sunari Festival

ous locations in Japan. Do you have any bridges that you would recommend overseas visitors to see or cross?

For visitors who wish to enjoy scenery and experiences, I recommend the Onomichi Imabari Route of the Honshu-Shikoku Bridges, commonly known as the Setouchi Shimanami Kaido.⁵ Touring this route offers some unique experiences, such as crossing bridges on a rental bicycle while enjoying the beautiful scenery of the Seto Inland Sea. In addition, three bridges on the Ise Bay Expressway in Aichi Prefecture – the Meiko Nishi Ohashi Roadway Bridges, the Meiko Chuo Bridge, and the Meiko Higashi Bridge – known collectively as the Meiko Triton, are each extremely beautiful, must-see cable-stayed bridges⁶ over the sea. There is also a rare drawbridge called the Miyoshi Bridge in Kanie City, Aichi Prefecture, which is only raised during the Sunari Festival, an event designated as a UNESCO Intangible Cultural Heritage in 2016, when *makiwara-bune* (a festival boat decorated with illuminated lanterns) and *danjiri-bune* (a festival boat decorated with dolls) pass under it.

How do you think bridge construction projects in Japan will develop in the future?

I believe that bridge construction in Japan has reached

a turning point, in two ways. The first is that public works projects are now placing more emphasis than before on environmental protection and landscape-oriented design that takes the surrounding environment into consideration. As public structures, the values driving bridge design will change, placing even greater importance on continuity and consistency with the surroundings. The other is that the bridges built in the past are aging, and maintenance and management are becoming more important than ever. I believe that a major issue in bridge construction projects going forward will be how to pass on to future generations the famous bridges of historical value including the technology developed in our own country, such as the Ise Bridge, designed by Japan's leading bridge engineer Masuda Jun⁷ and built in 1934. ■

1. Structures erected over rivers, ravines, canals, etc., to facilitate traffic
2. Iron-making methods that predate the invention of the converter furnace, which could produce steel on a mass scale. Cast iron was made by pouring molten pig iron into molds. Wrought iron was made by rolling pig iron into iron bars called puddles.
3. A collective name for the bridges connecting the Japanese islands of Honshu and Shikoku across the Seto Inland Sea. There are three routes: Kobe-Naruto, Kojima-Sakaide, and Onomichi-Imabari.
4. A type of bridge in which part of the structure can be raised to allow ships to pass underneath.
5. See "Cycling Over the Sea: The Setouchi Shimanami Kaido," Highlighting Japan (gov-online.go.jp).
6. A bridge structure in which the bridge girders are directly supported by cables stretched diagonally from towers high above the girders.
7. Born 1883 in Kagawa Prefecture and died in 1947. Traveled to the US in 1908 to study Western bridge technology and then returned to Japan, where he worked in the field of bridge construction, including bridge design and construction supervision. Masuda was a remarkable bridge engineer who was involved in the construction of 80 major bridges in Japan and overseas, including the Shirahige Bridge and the Ise Bridge.



Photo: Yamada Kentaro

The Ise Bridge, built on National Route 1 (Kuwana City, Mie Prefecture)

The magnificent Kesennuma Bay Crossing Bridge spans Kesennuma Bay (Miyagi Prefecture) with a total length of 1344 meters.



Kesennuma Bay Crossing Bridge: A Symbol of Tohoku Reconstruction

Photo: PIXTA

The Japanese government has progressed with the development of the Kesennuma Bay Crossing Bridge (nicknamed ‘Kanae Ohashi’), as a leading project for reconstruction following the Great East Japan Earthquake that occurred on March 11, 2011. Here, we provide an overview of the bridge. (Text: Morohashi Kumiko)

Kesennuma Bay, located in Kesennuma City in the northeastern part of Miyagi Prefecture, faces the Pacific Ocean. The bay is divided into the eastern bay and western bay by Oshima Island (also known as Kesennuma Oshima) situated in the central part of the bay. Kesennuma Port, nestled in the depths of the western bay, is a natural harbor renowned for its abundant catch of bonito, Pacific saury, and sharks, making it one of Japan’s leading fishing ports. Aquaculture of oysters, wakame seaweed, and sea squirts is also conducted, capitalizing on the unique coastal terrain of the ria coastline.

In March 2011, the Great East Japan Earthquake

occurred, triggering a massive tsunami and subsequent large-scale fires, which dealt a devastating blow to the lives and industries of the people in Kesennuma City. In response, the Japanese government, in collaboration with prefectural and municipal authorities, formulated various reconstruction plans. Among these initiatives was the construction of the Kesennuma Bay Crossing Bridge.

According to the Construction Division of the Ministry of Land, Infrastructure, Transport and Tourism’s Minamisanriku National Highway Office, the project began in 2012. Initially, the focus was on selecting the route for the bridge, with a staff member emphasiz-



Photo: PIXTA

Kesennuma Bay landscape (Kesennuma Bay Crossing Bridge slightly to upper right)



Photo: PIXTA


Kesennuma Bay Crossing Bridge under construction

ing, “We conducted thorough investigations, taking into account the opinions of the local community.”

As a result, the construction of the bridge on the seaward route crossing Kesennuma Bay was decided, and the actual design process commenced. “When determining construction type for the bridge, we prioritized measures against natural disasters such as earthquakes and tsunamis. In addition, we ensured that the bridge’s placement would not obstruct rich fishing grounds or aquaculture sites. We also aimed to harmonize the design and color scheme with the surrounding natural environment.”

A simple design that harmonizes with the surrounding landscape was adopted. The land portion was to consist of a typical steel box girder bridge¹, while the sea portion was planned to be constructed as a cable-stayed bridge spanning the sea, supported by two main towers. “One of the distinctive technical features of the Kesennuma Bay Crossing Bridge is the implementation of a novel design method called ‘Damage-Control Design.’ Even in the event of disasters such as storms, earthquakes, or tsunamis, the bridge is expected to serve as an emergency transport route. So, careful analysis and examination of potential damages caused by such disasters were conducted on each component of the bridge, aiming to transform unexpected damage into anticipated outcomes.”

The bridge, spanning the Kesennuma Bay, was constructed by integrating insights gained from past experiences into cutting-edge technology, and stretches for 1344 meters. The nickname ‘Kanae Ohashi’ was chosen from names submitted by the public. ‘Kanae’ comes from the word ‘Kanaeru’ in Japanese, which means to fulfill hopes, dreams, and wishes. The bridge opened on March 6, 2021. This has led to the full opening of the approximately 126km extension of the ‘Reconstruction Road’² in Miyagi Prefecture being developed as part of the reconstruction efforts. It is also anticipated to contribute to the future development of local industries.

In 2021, which marked the 10th anniversary since the Great East Japan Earthquake, the bridge opened as a symbol of reconstruction. Its nighttime illumination has also received positive feedback, turning it into a new landmark for Kesennuma. It will no doubt continue to play a significant role in the development of not only Kesennuma City but also the entire Tohoku region. 

1. A bridge constructed by assembling steel materials into a box-shaped cross-section to form the girder. A girder bridge consists of a roadway deck for vehicles and pedestrians to pass over, supported by main girders.
2. Refers to the collective name for the Sanriku Coastal Road network (Sanriku Longitudinal Expressway, Sanriku North Longitudinal Expressway, and Hachinohe-Kuji Expressway), which was opened in 2021. It connects the coastal area from Hachinohe City, Aomori Prefecture, to Sendai City, Miyagi Prefecture.



Photo: PIXTA

The Kesennuma Bay Crossing Bridge is characterized by its smart design.



Photo: PIXTA

Kesennuma Bay Crossing Bridge illuminated at night

The Rainbow Bridge, A Symbol of Tokyo

The Rainbow Bridge, which opened in 1993 as a multifunctional transportation facility connecting the sub-center¹ of the Tokyo waterfront area and the city center, celebrated its 30th anniversary in 2023.

(Text: Morohashi Kumiko)



The Rainbow Bridge, serving as a suspension bridge connecting the heart of Tokyo and the waterfront sub-center, stands as a symbolic icon of Tokyo. We spoke with an official from the Bureau of Port and Harbor to learn about the construction of the bridge.

“The Rainbow Bridge, a new symbol of the Port of Tokyo connecting the waterfront sub-center and the city center, was jointly undertaken by the Tokyo Metropolitan Government and Metropolitan Expressway Public Corporation (now Metropolitan Expressway Co., Ltd). Construction commenced in January 1987, and the bridge was opened on August 26, 1993. The name ‘Rainbow Bridge’ was selected through public submissions, embodying the hopes of bridging towards the future like a rainbow. It serves an important role in facilitating the smooth operation of transportation and logistics functions, which are essential

for waterfront development in Tokyo.”

The bridge, spanning a total length of 798 meters, features a two-layer structure: the upper deck accommodates the Metropolitan Expressway, while the lower deck is designated for general roads, pedestrian walkways, and the New Transit Yurikamome² line.

“The bridge was built over the Port of Tokyo, a busy waterway for large vessels such as cruise ships. A suspension bridge design was chosen to preserve the width of the navigational route. In addition, height restrictions were put on the main towers to ensure the safety of aircraft taking off and landing at Tokyo International Airport, commonly known as Haneda Airport. Because it serves as the gateway to the sea and sky, the structure had to meet strict regulations. Additionally, the connection point on the Shibaura side takes on a loop bridge shape, as it must ensure the extension of the access road due to the surrounding



The Rainbow Bridge as seen from above




The Rainbow Bridge offers a panoramic view of Tokyo's city center. The tower on the left in the center is Tokyo Tower.

land use conditions and vertical gradient restrictions.”

The Rainbow Bridge is renowned for its beautiful, colored illumination. We had the opportunity to chat with Iijima Rina from the Management Planning Department of the Metropolitan Expressway Co., Ltd. to learn about the inspiration behind this captivating display. “The Rainbow Bridge’s illumination was planned in detail to establish the area as a visual icon of the waterfront sub-center. It was carefully considered from the perspectives of enhancing urban aesthetics, ensuring urban safety, and expanding the time and space of daily life. In 2020, the conversion of floodlights to LED technology was completed, allowing us to replicate the original design without modifying existing design while significantly reducing power consumption. From around 30 minutes after sunset until midnight, the entire surface of the main towers and the undersides of the bridge beams are illuminated, with the lower sections of the anchorages³ also brightly lit. The main towers are lit up in a cool white color during warmer months (April to October) and a warm white color during colder months (November to March). This, combined with the chang-

ing cable illumination (white, green, coral pink) depending on the time, adds a beautiful contrast to the nights of the Port of Tokyo.”

Iijima invites visitors to experience the captivating view of the Port of Tokyo at night, where the glowing main towers of the Rainbow Bridge blend with the bright white illumination covering the entire structure, while the cable lights add vivid contrast, changing with time and events. The pedestrian walkway beneath the bridge spans 1.7 kilometers, with current operating hours from 10:00 to 18:00. From here, visitors can enjoy views of Tokyo Tower and Tokyo Skytree, with the added spectacle of their illuminated facades during the evening hours. Starting from April, opening hours are extended from 9:00 to 21:00.

Whenever you get the chance, take a moment to enjoy the glittering night views of the city center and waterfront area from the bridge. 



The Rainbow Bridge illuminated at night



A view of Tokyo at night from the Rainbow Bridge

1. Areas that play a role in dispersing the functions of the city center, including Shibuya, Shinjuku, Ikebukuro, the waterfront district, etc.
2. An automated guideway transit (AGT) system line that connects Shinbashi Station in Minato Ward to Toyosu Station in Koto Ward.
3. A large concrete mass located at the end of a bridge structure, designed to anchor the cables of a suspension bridge.



The distinctive loop design on the Shibaura side of the Rainbow Bridge (toward the city center)



The Rainbow Bridge is designed with width considerations to accommodate the passage of large cruise ships.

FEATURES



A breathtaking view of Mount Fuji seen from Mishima Skywalk.

Enjoying the Spectacular Panorama from Mishima Skywalk

Mishima Skywalk is Japan's longest pedestrian-only suspension bridge where visitors can also enjoy two other records with a view of Japan's tallest mountain, Mount Fuji, and its deepest bay, Suruga Bay.

(Text: Morohashi Kumiko)

Mishima Skywalk, located in Mishima City, Shizuoka Prefecture, is Japan's longest pedestrian-only suspension bridge spanning 400 meters in length. Its official name is Hakone Western Foothills/Mishima Suspension Bridge, but it is affectionately referred to as the "Skywalk" due to the sensation of walking in the sky it provides. From the suspension bridge, which stands at a height of 70 meters above ground, visitors can simultaneously enjoy Japan's tallest mountain, Mount Fuji (3776 meters tall), and Japan's deepest bay, Suruga Bay (maximum depth of approximately 2500 meters).

Mishima Skywalk is constructed and managed by a local private company, Fujiko Co., Ltd., which operates in the tourism and amusement facility business.

According to Noda Eri, a public relations staff member, "The area surrounding Mishima Skywalk in Sasahara Shinden, Mishima City, was underdeveloped, known only to a few, mainly mountain climbers. To allow more people to enjoy this scenery and to contribute to the local community, approximately ¥4 billion was invested in the construction of the suspension bridge."

The bridge includes various innovations so that as many people as possible will be able to enjoy the beautiful scenery safely. "Given its height of around 70 meters, safety considerations are vital," explains Noda. "The main towers and cables are designed to safely accommodate a load of 200kg per square meter. As a precautionary measure, seismic dampers have



The amazing view of Japan's deepest bay, Suruga Bay, from the Skywalk.



Spaced suspension cables (vertical cables) are an innovation enabling an excellent view.



Photos: Mishima Skywalk


Springtime view from the Skywalk. With seasonal landscapes and Mount Fuji as highlights, every visit promises a unique experience.

been installed to absorb energy in the event of a major earthquake. Furthermore, with a walkway width of 1.6 meters, ample space has been provided to allow wheelchair users to pass each other with no difficulty.”

After nearly a decade of planning, the suspension bridge finally opened in December 2015, boasting an exceptional view that captivates all who visit.

“To make it easier to see the incredible scenery from the Skywalk, a high-transparency mesh structure was used for the railing¹. In addition, the main cables were raised higher and the spacing between suspension cables (vertical cables) was widened further than a typical pedestrian bridge,” comments Noda. “Throughout the seasons, the suspension bridge provides ever-changing views, from Mount Fuji and Suruga Bay to the expansive sky and the beautiful colors of the sunset. From spring to summer, the surrounding trees display a captivating vibrant fresh green. During the rainy season, around June, visitors

can enjoy the hydrangeas spread across the walking paths beyond the suspension bridge. Among the 205 varieties and 13,000 hydrangea plants, there are original varieties exclusive to the location, offering a truly impressive sight. No matter the season, visitors can savor an extraordinary experience amid the abundant nature of Mishima.”

The popularity extends not only to the suspension bridge itself but also to the activities offered beyond. “The ‘Long Zip Slide,’ where participants slide down towards Mount Fuji and Japan’s longest suspension bridge in one go, is particularly well-liked. You can slide down with your family or friends while enjoying the breathtaking scenery,” says Noda. Since its opening, this popular attraction has welcomed over seven million visitors, and we encourage everyone to enjoy it to the fullest. 

1. The barrier installed on both sides of the bridge to prevent falls, typically having a height that makes it difficult for people to cross over easily.



Photos: Mishima Skywalk

Above left: Visitors can fully enjoy the abundant natural scenery from the suspension bridge, regardless of when they visit.

Below left: Scenic walkways during the rainy season around June with some 13,000 hydrangea plants.

Right: Experience the breathtaking Long Zip Slide, gliding 560 meters round trip in a flash.

Seto-Ohashi Bridges — The Dream Bridge That Connects Honshu with Shikoku

There are currently three crossing routes for the bridges that connect Honshu, the main island of Japan and Shikoku, but the first of these to open was Seto-Ohashi Bridges, which has six bridges and is part of the route between Kojima in Okayama Prefecture and Sakaide in Kagawa Prefecture.

(Text: Morohashi Kumiko)

Fujita Kenji, a spokesman for Honshu-Shikoku Bridge Expressway Company Limited (hereafter “Hon-Shi Expressway Ltd.”), explains. “A long-held dream of the people living in the Seto Inland Sea region was to build a bridge across the Seto Inland Sea to connect Honshu and Shikoku.”

“Construction of Seto-Ohashi Bridges began in 1978, and it took nine and a half years to complete. It consists of three suspension bridges and three elevated-bridges. Its most distinctive feature is the two-tiered structure, which holds a motorway on top and a

railroad on the bottom. It was recognized by Guinness World Records in 2015 as the world’s longest¹ bridge system for combined use of road and rail traffic.”

Since the suspension bridges and cable-stayed bridges² that make up Seto Ohashi Bridge were in danger of swaying or bending due to the running of heavy trains, as well as typhoons and earthquakes, their strength was tested and verified repeatedly.

“We carried out tests on a large model of the bridge and designed it to be able to withstand a large-scale natural disaster. There was also a risk that a train



Three routes with bridges connect Honshu and Shikoku, and Seto-Ohashi Bridges is the Kojima-Sakaide route.



Shimotsui-Seto Bridge, spanning from Mt. Washu to Hitsuishijima Island



Photo: Hon-Shi Expressway Ltd.

Above: View of Hitsuishijima Bridge (This bridge and Iwakurojima Bridge are known as “twins.”)

Below: The illuminated Minami Bisan-Seto Bridge



Photo: Hon-Shi Expressway Ltd.



Photo: PIXTA

A panoramic view of the bridge from the observatory at the Yoshima Parking Area

running on it could make bridge girders expand or contract significantly at the abutments, or bend and cause a derailment. To reduce this risk, ‘buffer girders,’ which ease girder stretching and bending, were developed and installed.”

The foundation of the bridge (abutments and bridge piers) had to be built on solid underwater bedrock, and the cables used to hold the bridge were forged by bundling together 30,000 5mm-thick wires. Much of the construction work was on a scale never seen before, making the project extremely difficult to complete.

“Seto-Ohashi Bridges was designed and built to last over 100 years using the bridge technology at the time, but these days we carry out detailed preventive maintenance, with minute inspections, servicing, and repairs carried out on a daily basis, aiming to ensure a service life of 200 years or longer.”

Fujita recommends one place in particular for viewing the bridge with the hope to be passed on to the next generation.

“The view from the observatory at the Yoshima Parking Area, which is located on an island near the midpoint of the bridge, is amazing. There you can feel the presence of the huge Seto-Ohashi Bridges looming over the blue waters of the Seto Inland Sea area. I hope everyone will come and experience it for themselves.”

It’s nice to enjoy a drive on Seto-Ohashi Bridges by car, but crossing it on a train also has its charm. The Seto-Ohashi Line (West Japan Railway Company and Shikoku Railway Company) runs from Okayama Station (in Okayama City), which is also a Shinkansen stop, to Takamatsu Station in Taka-

matsu City, the central city of Kagawa Prefecture. From atop Seto-Ohashi Bridges, train riders can enjoy a spectacular view of the Seto Inland Sea, dotted with islands, in the distance. Some say that the view of the Seto Inland Sea is as if you are looking at it while flying through the sky. According to Mr. Fujita, “If your timing is good, you might see the Anpanman Torokko³ trolley train that crosses the bridge.” In Kurashiki City, Okayama Prefecture, Kaze no Michi, a 6.3-km pedestrian and bicycle path offers spots where visitors can see Seto-Ohashi Bridges up close.

If you have a chance, we hope you’ll get to enjoy Seto-Ohashi Bridges in various ways. ㊦



Photo: PIXTA

A view from a railroad car running on Seto-Ohashi Bridges.



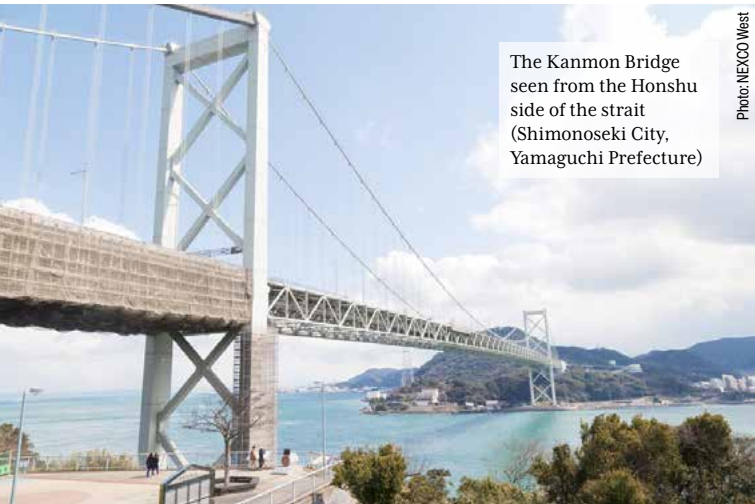
Photo: Kurashiki City Tourism Council

Seto-Ohashi Bridges as seen from the pedestrian/bicycle path, Kaze no Michi (“path of the wind” in Japanese).

1. The Guinness World Record certificate states 12.3 km.
2. A type of bridge distinguished by a structure in which cables strung diagonally from towers are directly connected to bridge girders for support.
3. A special train decorated with popular children’s characters, Anpanman and others that runs across Seto-Ohashi Bridges between Okayama and Kotohira, and between Okayama and Takamatsu.

The Kanmon Bridge

— A Key Transportation Link Between Honshu and Kyushu Crossing the Kanmon Strait



The Kanmon Bridge seen from the Honshu side of the strait (Shimonoseki City, Yamaguchi Prefecture)

Photo: NEXCO West

The Kanmon Bridge, which connects Japan’s main island of Honshu and Kyushu, the large southerly island, is a 1,068-meter-long suspension bridge built using an innovative construction method. It represents a milestone in the history of suspension bridges in Japan.

(Text: Morohashi Kumiko)

Photo: NEXCO West

The Kanmon Strait separates two of Japan’s large islands, Honshu and Kyushu. Shimonoseki City of Yamaguchi Prefecture is on the Honshu side of the strait and Kitakyushu City of Fukuoka Prefecture is on the Kyushu side. Since ancient times, this waterway has been an important transport route, and it has seen much overseas trade. The first bridge in history to span the strait, the Kanmon Bridge was built as part of the Kanmon Expressway, looking to solve the problem of increased traffic in the Kanmon Roadway Tunnel passing through the undersea, which opened in 1958. Construction of the bridge began in 1968 and was completed in 1973. Fukamatsu Noriyuki from the Public Relations Department of West Nippon Expressway Company Limited (NEXCO West) tells us about the Kanmon Bridge.

“The Kanmon Strait continues to be an important logistical and transport hub with a lot of heavy vessel traffic. Approximately 60,000 vessels of 500 gross tons or more traverse the straight each year, averaging out to about 500 vessels per day.¹ When deciding on the type of bridge structure,² therefore, the engineers had to consider the need to ensure a smooth navigational channel for ships passing through the strait. Consequently, the Kanmon Bridge was built as a long-span³ suspension bridge. With a height of approximately 61 meters above sea level (at high tide) and a central span



The Kanmon Bridge has a suspension structure that ensures a clear navigational channel for vessels passing through the Kanmon Strait.

(distance between towers) of 712 meters, the bridge was one of the top ten largest in the world at the time it opened.”

The two main cables supporting the suspension bridge, one on each side, are approximately 66 cm in diameter, and each cable uses 14,014 galvanized steel wires bundled in parallel to form a parallel wire cable. This project was the first time this construction



Photo: Yamaguchi Prefectural Tourism Federation

View of the illuminated Kanmon Bridge from the Shimonoseki side

method was used in Japan.

“Previously, cables were twisted to make them easier to handle on the construction site. Twisting increased the total weight by 10%, which could result in a loss of strength. For this project, however, the engineers adopted a method of using the cables without twisting them. In the new method, called Prefabricated Parallel Wire Strand (PPWS), 91 wires were bundled into parallel strands in advance at a factory, wound on reels, and shipped. At the construction site, the strands were unwound from the reels and installed in a single operation. This method was also used in the construction of the Akashi Kaikyo Bridge, and it went on to influence other bridge construction projects.”

In addition, the bridge’s location across the Kanmon Strait exposes it to constant sea winds. This induces a severely corrosive environment, making maintenance and management challenging. To solve this problem, the engineers took a step rare for that time, applying an anti-corrosion coating to the stiffening girders⁴ that support the roadway. This was the first attempt at a large-scale application of this highly durable coating method, which has since been employed for a large number of public buildings.

“The knowledge and technology gained from the construction of the Kanmon Bridge were later used in the construction of the Honshu-Shikoku Bridge (see page 16: *Seto Ohashi Bridge — The Dream Bridge That Connects Honshu with Shikoku*) and other long-span bridges built in the 1980s. It is a truly historic bridge that set an important precedent for the subsequent development of bridge projects in Japan.”

The Kanmon Bridge cannot be crossed on foot,

but it is possible to walk back and forth across the Kanmon Strait through a 780-meter-long undersea tunnel called the Kanmon Pedestrian Tunnel. The Mekari Seaside Promenade on the Kyushu side of the Kanmon Strait in Moji Ward of Kitakyushu City (Fukuoka Prefecture) offers a spectacular close-up view of the Kanmon Bridge. It is also fun to watch the various ships passing by and ponder the history of the ancient battlefield of Dan-no-ura.⁵ The Kanmon Bridge is especially beautiful in the evening when it is illuminated. The area around Moji Port near the promenade is called Mojiko Retro.

Many overseas tourists visit this atmospheric district, which still retains many historical buildings. On the other hand, Shimonoseki City, where the Kanmon Bridge touches the ground on the Honshu side, offers a wide variety of seafood dishes, including the famous *fugu* (blowfish).

If you have an opportunity, a visit to the Kanmon Bridge and the surrounding areas is highly recommended. **7**



Photo: mojiko retro

Many historic Western-style buildings, including the Former Moji Mitsui Club built in 1924, are preserved in the Moji Port in Kitakyushu City, Fukuoka Prefecture.



Photo: NEXCO West

Sunset view from the observation deck of the Mekari Parking Area, the entrance of Mekari Seaside Promenade

1. <https://www.pa.qsr.mlit.go.jp/kanmon/t1/about/index4.html>
2. Structures erected over rivers, canals, etc., to facilitate traffic
3. The distance between piers (support points)
4. To ensure the stability of the girders in high winds (wind stability), suspension bridges are often reinforced with truss structures, which are created by joining girders into triangles. These structures are called stiffening girders.
5. In 1185, the Heike clan, which had held political power since the mid-12th century, was pursued by the rival forces of the Minamoto clan and, defeated and destroyed in the final decisive battle of Dan-no-ura.

FEATURES

The Beautiful Nirai Bridge and Kanai Bridge, Enhancing Okinawa's Landscape

Situated along Prefectural Route 86 in Nanjo City in the southern part of Okinawa's main island, the Nirai Bridge and Kanai Bridge offer breathtaking views of the Pacific Ocean, attracting numerous visitors from both within and beyond Okinawa Prefecture.

(Text: Morohashi Kumiko)

Nanjo City, located approximately 12 kilometers southeast of Naha City on the eastern coast in the southern part of Okinawa's main island, is home to the Nirai Bridge and Kanai Bridge. These bridges connect Prefectural Route 86 (Haeburu Chinen Line) to National Route 331, forming a popular driving route from the city to the cape.

In ancient Okinawan culture, 'Nirai-Kanai' represents an ideal paradise believed to lie beyond the sea or beneath the ocean. According to local myths, gods

from Nirai-Kanai visit the human world, bringing prosperity and abundance.

The explanation of Nirai Bridge and Kanai Bridge by the Okinawa's southern civil engineering office is as follows. "Despite appearing as a single long bridge, it is actually two bridges with different structural types connected. The Nirai Bridge curves downward from the north, tracing the natural slope from the mountains to the sea, whereas the Kanai Bridge stretches outward from a switchback point adjacent to a monu-

On clear days, visitors can enjoy the amazing scenery, which includes views of the Nirai Bridge and Kanai Bridge.





Photo: PIXTA


The Nirai Bridge is located on the mountain side, while the Kanai Bridge is situated on the sea side.

ment, curving until it reaches a destination known as Yoshitomi.”

According to Okinawa’s Road Administration Division, “The construction plan for the bridges incorporated significant curves to accommodate the challenging terrain, with an elevation difference of 80 meters, ensuring proper vertical alignment.” This design transformed the bridges into scenic viewpoints, offering wonderful panoramic views of Cape Chinen. Additionally, the completion of Prefectural Route 86 significantly enhanced transportation accessibility from the Chinen area to Naha. “The bridges are also featured in the Shouhashi Half Marathon, an annual event in Nanjo City that attracts numerous participants.”

The combined length of the two bridges is approximately 660 meters, and visitors have the option to explore the area on foot. The Tourism and Commerce Section of the Planning Department at Nanjo City Hall recommends the bridges as a must-visit destination. “The bridges offer expansive views of the sea and sky,

presenting breathtaking scenery. On clear days, you can marvel at the beauty of the deep blue sea and sky, resembling a picturesque painting. Descending towards the sea, you’re greeted with the most magnificent views from your car window, especially as you emerge from the tunnel, revealing the stunning expanse of the sea before you. The view from the bridge, arching dramatically toward the ocean, is truly spectacular. These panoramic views truly embody the concept of ‘paradise beyond the sea.’ For the optimal ocean views, consider visiting around noon. Visitors can gaze upon Cape Chinen and Kudaka Island¹, also known as the ‘Island of the Gods’ in Okinawa, visible in the distance amid the cobalt blue sea. Access to Kudaka Island is available through high-speed boat or ferry services.”

Why not take some time to soak in the view from the bridge and reflect on the spirit of Okinawa? 

1. In Okinawan myths and rituals, *Amamikiyo*, revered as the deity from which the Ryukyuan civilization is believed to have originated, is thought to have descended from Nirai-Kanai, the realm of the gods, to Kudaka Island.



Photo: PIXTA

A stunning view of the sea unfolds beyond the tunnel.

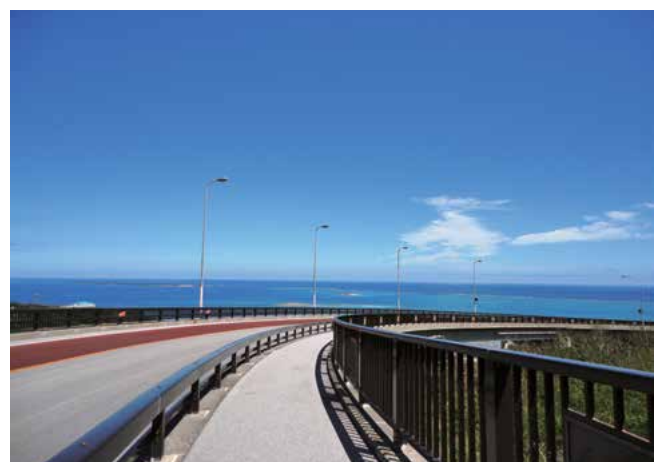


Photo: PIXTA

Crossing the bridge offers a chance to view the beautiful cobalt blue sea.

Technology Inherited from Japan Supports the Maintenance of Democratic Republic of the Congo's Matadi Bridge

Located in Africa about 150 km inland from the Atlantic Ocean, just downriver from the port of Matadi in the Democratic Republic of the Congo (DRC), the Matadi Bridge is a suspension bridge that was constructed in an international cooperation project carried out by Japan. We conducted an interview to find out more about this bridge, which is the only fixed crossing over the lower or middle stretches of the Congo River. (Text: Morohashi Kumiko)



2023 marked the 40th anniversary of the Matadi Bridge's opening.

Tatsumi Masaaki, a technical adviser to Oriental Consultants Global Co., Ltd., who took part in the support project that constructed the Matadi Bridge in the DRC, explained the background of the project to us.

“From the eastern DRC into Zambia is a region called the Copperbelt¹ that is rich in mineral resources. In 1971, when then-President Mobutu was hoping to enable integrated transport of these mineral resources to ports on the Atlantic Ocean, then-Prime Minister of Japan Sato Eisaku agreed to provide support. The construction of the Matadi Bridge was part of this transport plan.”

Featuring a total length of 722 meters and a main



The Matadi Bridge is located in the city of Matadi (shown just below center left in the map to the right), about 350 km from the DRC's capital of Kinshasa, which sits just below the equator. (Provided by JICA)

span of 520 meters, the Matadi Bridge was designed to incorporate a roadway on the upper deck and a railway below. The Organization for Equipment of Banana-Kinshasa (OEBK) was established in affiliation with the country's National Transport Office.

“A total of 74 JICA specialists from organizations



Photo: JICA

The Matadi Bridge opened in 1983.



Photo: Yuzuki Seiji

The deck of the Matadi Bridge.
(Photo taken in 2014.)

Photo: Taisumi Masaaki

Staff from Japan and OEBK celebrate the completion of construction.



Photo: HI Infrastructure System Co., Ltd.

Local staff inspect the bridge using maintenance techniques learned from Japanese specialists.

including the then-Japan National Railways (JNR), the then-Honshu-Shikoku Bridge Authority, and the then-Japan Railway Construction Public Corporation (JRCC) were dispatched to OEBK during the periods of preparation, construction, and initial maintenance of the bridge.”

Construction began in 1979, bringing together a range of the latest technologies from Japan, and finished in 1983, the year the bridge opened.

“In Japan, while the Matadi Bridge project was in the planning stage, research on technical challenges with planning and construction in the Honshu-Shikoku Bridge Project was being carried out in cooperation between industry, government and academia. (See page 16: *Seto Ohashi Bridge — The Dream Bridge That Connects Honshu with Shikoku*). The Matadi Bridge had features in common with the Shimotsui Seto Ohashi span, which makes up part of the Seto Ohashi Bridge, including their suspension bridge forms and their sites’ geographical features, so a similar design was adopted for it. This included a structure incorporating both a railway and roadway, as well as a design as a suspension bridge spanning the river where the waterway was narrow. Also, the results of technical research conducted as part of the Honshu-Shikoku Bridge Project, such as approaches to ensuring a wind-resistant design, were utilized everywhere in the bridge’s design.”

Despite the large-scale of the bridge construction project, the build time came in 14 months quicker than originally scheduled, earning high acclaim for the project.


“One of the main factors allowing the shorter construction time was that the Japanese companies responsible for carrying out the project employed cutting-edge construction equipment. Also, at the same time, the work of the locally hired *tobishoku*² construction workers greatly contributed to the success as

well, I would say. This was when the peak construction period for the Seto Ohashi bridge construction project in Japan was approaching, so we even joked about wanting to bring these great workers back to Japan with us.”

The work of the Congolese OEBK engineers who were responsible for the actual operations was outstanding, as well.

“For about 20 years, after riots broke out in Kinshasa in 1991, on-site support from Japan stopped. During this period, the Matadi Bridge was maintained mainly by Mr. Madiata and Mr. Kalombo, the leading local engineers. I revisited the site myself when Japanese support resumed in 2012, to inspect the cables. The bridge had been repainted and looked the same as when it was newly constructed. It really impressed me to see how wonderfully it had been maintained. This is a testimony to their passion for maintaining the bridge and the patient effort they put into the work.”

In June 2023, a ceremony celebrating the 40th anniversary of the Matadi Bridge’s construction was held in a commemorative park on the right bank of the Congo River.

“While the people who were involved with the project at the time have mostly moved on from the site, I earnestly hope that young Congolese and Japanese engineers will maintain communication with each other and continue to collaborate on this project, so that in the future the 50th and even 100th anniversary of this symbol of friendship between the Congo and Japan, the Matadi Bridge, can be celebrated as well.” 

1. A region about 500 km long and 80 km wide extending from the southern African country of Zambia into the Democratic Republic of the Congo. Contains some of the richest copper ore deposits in the world. The region is estimated to contain more than 10% of the world’s land-based copper resources.
2. A term for workers in the Japanese construction industry who specialize in carrying out work in high locations. Also referred to as *tobi*, *tobi no mono*, and *tobi-ko*.

Reference URL

https://www.jica.go.jp/english/information/press/2023/1514503_25258.html

https://www.jica.go.jp/english/information/topics/2023/20230612_11.html



The First Expert Meeting of the Anti-Corruption Task Force for Ukraine (term:December 5-6, 2023)

Photo: Ministry of Justice

Development of the Outcomes of the “Justice Affairs Diplomacy” Ministerial Forum: Initiatives to Further Promote “Justice Affairs Diplomacy”

The Ministry of Justice of Japan (MOJ) invited the justice ministers and attorneys general of the ASEAN and G7 Member States to the “Justice Affairs Diplomacy” Ministerial Forum in Tokyo on July 6-7, 2023. The Forum held as part of its “justice affairs diplomacy” policy which promotes values such as the rule of law and respect for fundamental human rights throughout the international community. And the Forum consisted of three ministerial-level meetings: the ASEAN-Japan Special Meeting of Justice Ministers, the G7 Justice Ministers’ Meeting, and the ASEAN-G7 Justice Ministers’ Interface. This article presents the follow-up initiatives of these meetings.

Anti-Corruption Task Force for Ukraine

The G7 Justice Ministers’ Meeting agreed to establish the Anti-Corruption Task Force for Ukraine (ACT for Ukraine), based on Japan’s proposal.

Supporting Ukraine in its strengthening of anti-corruption measures is an extremely important issue that contributes not only to ensuring fair and equitable use of reconstruction resources and building a better country, but also the country’s accession to the EU. Therefore, it’s a matter of vital interest to both Ukraine and the G7, including Japan.

The Task Force, with the Government of Japan serving

as the Secretariat, will support Ukraine’s reconstruction by bringing together the wealth of knowledge of experts from the G7 and international organizations.

As part of these efforts, the MOJ held the First Expert Meeting of the Anti-Corruption Task Force for Ukraine (ACT for Ukraine) in Tokyo on December 5-6, 2023.

Five experts from five Ukrainian government agencies involved in the country’s fight against corruption (the Ministry of Justice of Ukraine, Prosecutor General’s office, National Anti-Corruption Bureau, Public Prosecution and Representation in Court of the Specialized Anti-Corruption Prosecutor’s



Video message from Minister of Justice Koizumi Ryuji of Japan at the First Expert Meeting of the Anti-Corruption Task Force for Ukraine on December 5, 2023

Photo: Ministry of Justice



Logo mark of ACT for Ukraine (abbreviation for the Anti-Corruption Task Force for Ukraine)

Office, and the High Anti-Corruption Court) came to Japan to participate in the meeting, which was also attended by many officials from the justice ministries of the G7 countries, anti-corruption experts from the United Nations Development Programme (UNDP), and others (including online participants).

Experts from the United Nations Asia and Far East Institute for the Prevention of Crime and the Treatment of Offenders (UNAFEI), the International Cooperation Department (ICD) of the Research and Training Institute of the Ministry of Justice, and the Japan International Cooperation Agency (JICA) also attended the meeting and contributed the extensive expertise they have accumulated over many years of providing assistance for anti-corruption measures and legal technical assistance.

At the First Expert Meeting, the participants held discussions seeking to confirm the future course of action of the Task Force and understand the current situation and problems of corruption in Ukrainian society. The Ukrainian representatives outlined the current status of anti-corruption measures and presented their needs for assistance. Participants also shared their awareness of anti-corruption initiatives and assistance provided by various countries and organizations.

To further flesh out support for Ukraine's anti-corruption efforts in the future, the MOJ held the second expert meeting on the 5th March of this year (2024) and will hold the third expert meeting around November. Going forward, the Gov-



The Ukrainian experts made a courtesy visit to State Minister of Justice Kadoyama Hiroaki of Japan (third from right) on December 6, 2023.

Photo: Ministry of Justice

ernment of Japan will effectively support Ukraine's anti-corruption measures as taking a leadership role at the meetings, and demonstrate its presence in the international community.

ASEAN G7 Next Leaders' Forum

The ASEAN-G7 Justice Ministers' Interface, the first-ever occasion to bring together ASEAN and the G7 members in the field of law and justice, was held at the initiative of Japan, the only Asian member of the G7. The Interface reaffirmed the long-term continuation of the ASEAN-G7 dialogue to deepen mutual understanding and decided to establish the ASEAN G7 Next Leaders' Forum, as proposed by the Government of Japan.

The goal of this forum is to promote long-term mutual understanding and foster trust between ASEAN and the G7 countries in the future. These objectives will be achieved by promoting discussion among young government officials from the justice ministries of ASEAN and the G7 countries on common issues in the field of law and justice, transcending national borders and differences in culture and areas of expertise, and through visits to legal affairs-related facilities of the Government of Japan. In addition, a network of Forum alumni will be established to facilitate networking among ASEAN and the G7 across generations.

The First Forum will be held in person in Tokyo in July 2024.



Logo mark of the ASEAN G7 Next Leaders' Forum



Industrial-use unmanned helicopter (the RMAX G1 L201 model: full length 3,630mm, full height 1,220mm, full width 1,220mm, maximum takeoff weight 94 kg)

Photo: Yamaha Motor Co., Ltd.

Unmanned Helicopters Fly into New Fields: Control Devices Developed to Expand Utilization from Agriculture to Disaster Recovery

In the past, industrial-use unmanned helicopters did not become popular because they were difficult for unskilled people to operate. However, dramatic advances in control devices have made operation easier, and utilization has expanded at an accelerating rate. Recently, unmanned helicopters have made significant contributions to solve various social issues, such as volcano monitoring, as well as information gathering and transportation of materials in disaster areas.

Fukuda Mitsuhiro

Industrial-use unmanned helicopters (hereinafter, “unmanned helicopters”) were developed in the mid-1980s primarily for the purpose of spraying agricultural chemicals. Operating an unmanned helicopter requires a well-balanced control of the upward, forward, and backward forces that counteract the aircraft’s gravitational pull. In the case of agricultural chemicals, a helicopter had to be operated from a distance of 150 meters to maintain a course with precision in the range of tens of centimeters while constantly keep-

ing track of the impact of changes in wind and atmospheric conditions, in order to properly spray the chemicals. Thus, unmanned helicopters have been slow to catch on because they required expert skills to operate.

In the mid-1990s, ten years after their development, the operability of unmanned helicopters was greatly improved with the development of reaction control systems to properly maintain the aircraft’s flight attitude. In addition, with the installation of GPS sensors and the development of speed control systems that detect the position and speed of the aircraft in flight, unmanned helicopters evolved

to the point where even beginners could easily operate them. These advances gave unmanned helicopters the advantage of being able to fly at lower altitudes than manned helicopters, and to carry more agricultural chemicals and fly longer than drones, which have a smaller body. Consequently, 40% of Japan’s rice fields now employ unmanned helicopters to spray agricultural chemicals.

As a result of this advantage, the use of unmanned helicopters is also expanding overseas to include insect pest control and herbicide spraying. Manual spraying cannot keep up with pest reproduction rates, but manned



The eruption of Mount Usu in Hokkaido was the world's first to be observed using an autonomously flying unmanned helicopter.

Photo: hassii.noc / PIXTA

An unmanned helicopter carries equipment on its way to photograph Nishinoshima's volcanic crater.

Photo: Yamaha Motor Co., Ltd.

helicopters flying at high altitudes risk dispersing chemicals too widely into the surrounding area. So, spraying by unmanned helicopters is considered the preferred method. For example, unmanned helicopters are being used on Norfolk Island, an Australian territory in the South Pacific, to eradicate an invasive species of noxious ant, and in California, the United States, to eliminate phylloxera,² a pest that damages premium wine grapes.

In parallel with the improvement of the precision of operation control systems, development of control equipment for autonomous flight has advanced to enable unmanned helicopters to operate in places inaccessible to humans, such as areas affected by intense volcanic activity. The eruption of Mount Usu in Hokkaido in 2000 was the world's first to be monitored using an autonomously flying unmanned helicopter. When Nishinoshima, a volcanic island in the Pacific Ocean about 1,000 km south of Tokyo, erupted in 2013, an autonomous unmanned helicopter was successfully used to record, in precise

detail, the process of land formation as eruption material accumulated.

In recognition of these achievements, four researchers and engineers who developed a series of technologies that contributed to the advancement of unmanned helicopters received the 2019 Award for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology (Development Category). The award recipients were Professor Sato Akira of the Shizuoka Institute of Science and Technology, Junior Associate Professor Nakanishi Hiroaki of the Kyoto University Graduate School, Okawa Hirohisa, President of IS Co., Ltd., and Nakamura Katsu, Senior General Manager of the Unmanned System Section, Robotics Business Unit, Yamaha Motor Co., Ltd. (All positions are as held at the time of receiving the award.)

Unmanned helicopters, which were first developed for agricultural use, could not initially carry much cargo. Today, however, by increasing the diameter of the main rotor, which is the key component of the loading

and generates the helicopter's lifting power, unmanned helicopters can carry up to 50 kg of cargo. In the aftermath of the Noto Peninsula Earthquake in January 2024, which caused extensive damage in Ishikawa Prefecture, unmanned helicopters flew autonomously to survey the damage and quickly transport emergency supplies to isolated areas where the road network was cut off.

In this way, the utility of unmanned helicopters has increased significantly as the scope of their utilization has expanded to include disaster recovery and the transport of materials to remote areas.



An unmanned helicopter sprays agricultural chemicals evenly over rice paddies.

Photo: Yamaha Motor Co., Ltd.

1. GPS stands for "global positioning system." It is also called "global wireless positioning system." GPS is a satellite-based geographic information and measurement system. It is utilized as a mechanism that can identify the latitude, longitude, and altitude of any area on Earth.

2. An aphid-like insect that infests the roots and leaves of grapevines, stunting their growth or killing them

Introducing Delicacies from Overseas, Including Ukraine and Central Asian Countries, to Japan

Victoria standing at the entrance to her store, Aka no Hiroba, in Tokyo's Ginza district

Photo: Miyabe Victoria

Ukrainian-born Miyabe Victoria operates a business that imports and sells food products from Ukraine, its neighboring countries, and Central Asian countries. She runs Aka no Hiroba, a specialty imported food store in Tokyo's Ginza district that brings foods from overseas, including her native Ukraine and Central Asian countries, to Japanese consumers.

Murakami Kayo

Originally from Donetsk in eastern Ukraine, Miyabe Victoria came to Japan in 2000 after marrying a Japanese man. At first, she founded a modeling agency, but in 2008 her career took a turn. Victoria gave her Japanese friends sugar-free chocolates she bought in her home country as gifts and they loved them. Since she had originally studied economics at university in Ukraine and was interested in business, this experience inspired her to change careers and start her own import business. She began importing delicacies from her homeland, such as jams and chocolates that were popular with her friends, and distributing them to major department stores and travel agencies in Japan.

Due in part to the popularity of these products, her business steadily expanded. Victoria began handling a variety of food products imported from Russia, Belarus, Armenia, Kazakhstan, Tajikistan and other countries of the former Soviet Union. When the Great East Japan Earthquake struck in 2011, she donated three truckloads of imported food to the disaster area. Later, her company began selling products online to make them more accessible to the public, and also opened a real shop, Aka no Hiroba (literally “Red Square”) in Ginza, Tokyo.

“At first, I was worried whether the store would do well because there are very few specialty stores in Japan that sell food from Ukraine, Russia, and Central Asian countries, but I

wanted to create a store where people could easily see the actual products. Initially, my target customers were Russians living in Japan, but in fact, the store attracted a lot of Japanese customers.”

Among the products Victoria imported to Japan, the most popular



Miyabe Victoria

Photo: Miyabe Victoria



The store offers a diverse lineup of food products imported from Ukraine, its neighboring countries, and Central Asian countries.

Photo: Miyabe Victoria



The store also carries a wide selection of sausages, cheese, and sweets.

Photo: Miyabe Victoria

was a cake called *syrok*, a chocolate-covered cheese bar. Although it is a standard cake in Russia, it was almost unknown in Japan. Victoria took notice and began selling *syrok*, many people came to buy as repeat customers, and sales grew.

However, in recent years, the company has been forced to stop handling such products due to import procedures. In addition, Victoria says that the conflict that began in 2022 and the weak yen have also had a significant impact on the company's operations, making it urgent for her to find new hit products. Nevertheless, she is trying to enjoy these challenging circumstances.

"I want to find appealing foods that are not yet known in Japan and introduce them here. For this purpose, I am now traveling to various countries, especially in Central Asia. Whenever I find a local food product that interests me, I visit the production site to ver-

ify with my own eyes that safety and hygiene are being maintained, and I only sell products that I truly believe are good. Starting in the spring of 2024, I plan to add to the assortment of the store new food products that I discovered in Kazakhstan and Lithuania. I am sure that many people will be pleased with their taste."

After more than 20 years in Japan, life here has become so commonplace and familiar to Victoria that even when she goes abroad on business, she wants to return to Japan as soon as possible and have some Japanese food. Meanwhile, Victoria has taken on a variety of challenges, but she says there are still many things she wants to do.

"I have a lot of business ideas. For example, one of our current goals is to reorganize the store's product shelves by country. For this purpose, I want to find more foods in different countries that will be well received in Japan.

There are days when I find the business quite challenging and the future seems uncertain, but I maintain a positive attitude and intend to make my dreams come true one step at a time."

Note: Country names are given in abbreviated form.



Canned foods for a taste of traditional Uzbek cuisine.

Photo: Miyabe Victoria



Visit to a supplier company (Kyrgyz)

Photo: Miyabe Victoria



Great Hall of Traditional Okinawan Theatre: Performance and Promotion of Kumiodori and Ryukyuan Dance

Mekarushi, a *kumiodori* play created by Tamagusuku Chokun (1684-1734), the founder of *kumiodori*, based on Ryukyuan folklore concerning a robe of feathers.

Photo: The National Theatre Okinawa

The Japan Cultural Expo 2.0 aims to build momentum for the upcoming Expo 2025 (World Expo 2025 Osaka, Kansai), to support renewed interest in inbound travel to Japan, and to encourage further demand for domestic tourism. It also features a focus on “The Beauty and The Spirit of Japan,” promoting Japanese cultural arts and spreading awareness of their diverse and universal charms within Japan and around the world. This is a large-scale project with Japanese cultural facilities, arts organizations, and many others hosting and participating in a diverse range of projects and events. In this article, from among these participants, we will focus on efforts being made by the National Theatre Okinawa.

Moribe Shinji

Maintaining and Promoting Kumiodori, a Theatrical Form with a 300-Year History

The National Theatre Okinawa opened in Urasoe, a city located at the boundary between the southern and central areas of Okinawa’s main island, in January 2004. For over twenty years since then, the theatre has held performances of traditional Okinawan performing arts. These include *kumiodori*,¹ a form with a 300-year history featuring elements of song and dance, Ryukyuan dance,² *Okinawa shibai*³ (Okinawan plays), and *sanshin*⁴ music. (See photos)

At the same time, the theatre focuses on providing training programs using a systematic curriculum to help foster the next generation involved with the performing arts, striving to preserve and promote *kumiodori* in particular. Furthermore, the theatre works to collect valuable *kumiodori*-related materials such as scripts, costumes, and stage props both old and new, as well as to collect and publicly exhibit a wide range of materials related to the folk performing arts of Okinawa. The theatre has also hosted performances of theatrical programs from mainland Japan, which has deep connections with Okinawan performing arts, and performing arts groups from the Asia-Pacific region, including Indonesia.

For the Japan Cultural Expo, in which The National Theatre Okinawa participated in fiscal 2020, the theatre produced bilingual pamphlets in Japanese and English and promotional videos in multiple languages to help viewers – mainly tourists, including visitors from outside Japan – deepen their understanding of traditional Okinawan performing arts. Also, for the performances, the theatre introduced the use of audio guides and tablets with subtitles offering support for multiple languages to provide



Example of an Okinawan play appreciation class. The National Theatre Okinawa holds a range of promotional performances such as theatre appreciation classes for parents and children to help viewers deepen their understanding of such traditional performing arts.

Photo: The National Theatre Okinawa

explanations of highlights and the background of *kumiodori*, Ryukyuan dances, and more. Workshops offered before performances, providing English-language interpreting, received favorable receptions as well.

Special Performances Commemorating the 20th Anniversary of the Theatre's Opening

For the Japan Cultural Expo 2.0, the theatre has worked to further expand and develop such efforts. This has included having commercials for traditional Okinawan performing arts shown onboard Okinawa-bound passenger planes, offering backstage tours accompanied by English-language interpreters, and providing workshops

at sightseeing destinations. One specific example is holding *kumiodori* workshops on guided tours of Shuri-jo Castle⁵ in Naha, one of the most popular sightseeing spots in Okinawa, in cooperation with the Okinawa Churashima Foundation. Around 250 people, including visitors from outside Japan, took part in these workshops.

The National Theatre Okinawa, which marked the 20th anniversary of its opening in January 2024, has a range of commemorative performances and theatre appreciation classes planned for the year. Geographically and historically, Okinawa served as a hub for interaction in the



Ryukyuan Dance Appreciation Class, a promotional performance

Photo: The National Theatre Okinawa



Kumiodori workshop on a guided tour of Shuri-jo Castle

Photo: The National Theatre Okinawa

Asia-Pacific region. To consider cultural exchange in the vast Asia-Pacific region through viewing and appreciating traditional performing arts rooted here in Okinawa is a greatly significant matter.

The National Theatre Okinawa website
<https://www.nt-okinawa.or.jp/english>



The National Theatre Okinawa, which has marked the 20th anniversary of its opening

Photo: The National Theatre Okinawa

1. *Kumiodori* is a theatrical form combining narrative lines, music, gestures, and dance. It is said to have been created based on ancient Ryukyuan performing arts and traditions.
2. While the foundations of classical dance were established during the same period as *kumiodori*, new dance forms incorporating folk songs and popular songs, including *zo-odori* (mixed dances) and *sosaku buyo* (creative dances), subsequently developed. These came to be known as *Ryukyu buyo* (Ryukyuan dance) and took root as performing arts of the common people.
3. When a playhouse first opened in Naha around the 1880s, musical dramas and plays featuring narration in the local Ryukyuan dialect came to be performed, dealing with the customs and manners of the common people. These came to be known as *Okinawa shibai* (Okinawan plays).
4. Classical music and folk songs performed on the *sanshin*, a three-stringed instrument originally brought from China around the end of the 14th century.
5. Royal castle of the Ryukyu Kingdom (1429–1879). After the end of World War II in 1945, reconstructions were carried out in 1992. It has also been designated a UNESCO World Heritage Site. Although a fire destroyed the main courtyard structures of the castle in 2019, there is now ongoing work being performed to reconstruct and restore them.

Enaga

Long-Tailed Tit



The long-tailed tit is distinguished by its long, narrow tail.



The *shima-enaga*, a subspecies of the long-tailed tit, is found in Hokkaido.

The long-tailed tit is a tiny bird with a total length of about 13-14 cm, a round body and long tail feathers that cover almost half its body. It is found all over Japan, having an eye-catching color of body with contrasting black and white areas. Hokkaido (the northernmost region and a prefecture of Japan) is home to the *shima-enaga* (striped long-tailed tit), a subspecies of the long-tailed tit known as the “snow fairy” due to the cute image of its pure white body flying around a snow-covered forest.

It is said that the Japanese name *enaga* comes from the long handle of a ladle called a *hishaku* that is used in the Japanese tea ceremony to spoon out water. The bird’s long tail is said to be named after the long handle (from the phrase “*e ga nagai*” in Japanese) of this ladle.

During the breeding season from spring and summer, long-tailed tits build ball-shaped nests by covering moss and spider thread on the outside and spreading with feathers, etc on the inside. The species exhibits a rare “helper” behavior in that birds will feed other parents’ chicks and help with child-rearing. Long-tailed tits act in flocks, feeding on insects and spiders on the tips of tree branches, and pecking at fruits and seeds.



Ladle used in Japanese tea ceremony. This long-handled ladle is the source of the bird’s Japanese name.

All photos: PIXTA

HIGHLIGHTING

Japan

PLEASE VISIT the top page of Highlighting Japan for links to all our past issues including videos.

www.gov-online.go.jp/eng/publicity/book/hlj/



HIGHLIGHTING JAPAN



www.instagram.com/highlightingjapan/



ALL PAST ISSUES available online

PLEASE VISIT the Government of Japan’s official English-language website



JAPAN GOV
THE GOVERNMENT OF JAPAN

<https://www.japan.go.jp/>

KIZUNA



The official magazine of the Government of Japan