

The Japan Times

WECC2015

Monday, November 30, 2015



Clockwise from top: engineering is creating something contributing to society using science and technology; The Lake Biwa Canal, which enabled water to be transported from Lake Biwa to Kyoto, was built in the Meiji Era when Japanese engineering was very advanced; Turning high technology into something to enrich human life is the role of engineering; Former Slovenia President Danilo Turk (front row, second from right) listens during a conference at the World Engineering Forum 2012, held in Ljubljana, Slovenia, in September 2012. ISTOCK, TERUHIKO YODA, KAZUMASA ITO

Studying problems facing engineers today

About 2,000 engineers and others involved in engineering are expected to participate in the World Engineering Conference and Convention 2015 (WECC2015), which is to be held in Kyoto from Nov. 29 to Dec. 2.

WECC2015, under the theme of "Engineering: Innovation and Society," covers a range of topics with more than 50 conferences and seven plenary lectures on engineering taking place at the Kyoto International Conference Center. Additionally, participating companies will showcase their engineering technologies at the same venue.

"Fruitful discussions should be carried out over issues such as the current level of engineering or problems facing modern engineering," said Junichi Sato, the president of The Japan Federation of Engineering Society and the chair of WECC2015 Organizing Committee, during a roundtable discussion with engineers and academics in June. "I'd like people to think about and discuss those issues in addition to broader issues such as how engineering develops in the future, or what engineering should look like."

The plenary lecturers include Shahbaz Khan, deputy director and senior science program specialist of UNESCO, whose background is in water and the environment; Han Seung-soo, the U.N. secretary-general's special envoy on disaster risk reduction and water; and Hiroshi Amano, who won a Nobel Prize for his research on blue LEDs.

Khan plans to discuss the 2030 Agenda for Sustainable Development, a plan of action for people, the planet and prosperity, promoted by the U.N., and the role of engineering in it. The agenda is to address major issues such as poverty eradication,

peace and security, safe and sufficient food, sustainable energy, pollution prevention and control, water and environmental resource management, disease control, mobility, natural and man-induced disasters, population growth, urbanization and sustainable cities.

Amano's presentation is titled, "Wide-bandgap Semiconductors as Tools for Realizing a Sustainable Society." The development of wide-bandgap semiconductors (WBGs) is essential for realizing a sustainable society as they enable manufacturing low-loss, high-power and high-frequency devices. GaN (gallium nitride) and related alloys are among the most important materials used in building WBGs.

The conferences cover many issues such as engineering education, the role of women in engineering, patents, robotics, energy management, next generation broadcasting systems, smart communities, railway technology and many other subjects.

The exhibitions cover construction and infrastructure for society, energy, the environment, machinery, medicine and life sciences, chemistry, electronics and other areas.

The conference is just the second to be held in Asia and the first to be hosted by Japan. Additionally, this year's event is the first to be called WECC, as the previous ones were known as World Engineering Conventions (WEC). The difference stems from a preference of the organizing committee of the WECC2015, according to the committee.

The first WEC, held under the theme "Humankind, Nature and Development," in Hannover, Germany, in June 2000, drew 3,500 participants. The second WEC

theme was "Engineers Shape the Sustainable Future," and was attended by 3,000 people in Shanghai in November 2004.

The third WEC was in Brasilia, Brazil, in December 2008, under the theme "Engineering: Innovation with Social Responsibility," and around 5,000 people participated. The fourth WEC, held under the theme "Engineers Power the World — Facing the Global Energy Challenge" in Geneva, Switzerland, in September 2011, drew about 2,000 people. The sixth will be in Melbourne in 2019.

The fact that the WECC2015 is held in Japan is significant to the world because Japan is advanced in many aspects of engineering. Japan has focused on how engineering contributes to society, especially in terms of disaster risk reduction, as the country has experienced so many disasters, such as earthquakes, tsunami, typhoons, floods and more. Because of this, Japan has managed to build infrastructure resistant to those disasters, and other countries can learn from this experience.

WECC2015 participants are very diverse because the event is co-organized by the World Federation of Engineering Organizations, which brings together national engineering organizations from over 90 nations and represents some 20 million engineers. Thus, the participants represent diverse social needs that require different types of engineering, depending on the stage of the countries' development.

In the early stages of development, social needs are life-related infrastructure, such as water supply systems, schools and hospitals. In later stages, they can be more diverse. For example, CONTINUED ON PAGE 2

The role of engineering and its impact on society

Junichi Sato
CHAIR, WECC2015 ORGANIZING COMMITTEE

The fifth World Engineering Conference and Convention (WECC2015) is now being held at the Kyoto International Conference Center from Nov. 29th through Dec. 2nd. About 2,000 people are attending this conference to discuss a variety of engineering issues relating to society.

How does engineering compare to science and technology? Engineering is the act of using science and technology to meet the needs of society and humanity through ingenuity, with consideration for the requirements and boundaries presented by society. Accordingly, scientific discovery and technological advancement lead to new innovation in engineering and enable engineering to propose to society how change and advancement should be realized.

Furthermore, engineering is often called upon in order to realize new innovations to solve the problems of society and humanity and build a better society. As new innovations implemented for society have a direct effect on humanity, those involved in engineering must consider numerous conditions and engage in the open exchange of opinions with society in order to achieve mutual understanding and trust.

The world is faced with numerous problems today. These include problems of population, poverty, energy and the environment. Global warming is closely related to these problems and steadily having more effect on the planet. The emission of greenhouse gases such as carbon dioxide is accelerating global warming.

Climate change causes effects such as drought, heavy rains, as well as extreme temperatures throughout the world. This affects the survival of plants and animals and has a major impact on food production. Engineering must intensely apply its proficiency to reduce carbon dioxide emissions in numerous fields, including in the development of diversified energy sources, as well as power generation, energy usage and energy conservation technologies.

We must make proactive efforts to address these issues through innovations in engineering. This is a must if we wish to ensure that all people can enjoy safe and comfortable lives. The primary theme of WECC2015 is "Engineering: Innovation and Society." This includes discussions on "Innovation for Sustainable Growth and Socioeco-



Junichi Sato

omic Development," "Engineering Research and Development for Innovation" and "Engineering for Society and Engineering in Society." The conference features seven Conference Plenary Lectures, technical programs covering every engineering domain and summary lectures for each of the technical programs.

The Conference Plenary Lecture series consists of seven lectures. These include a lecture on engineering and society by professor Shahbaz Khan of UNESCO, a lecture on the global water problem by U.N. Secretary-General Special Envoy professor Han Seung-soo, and a lecture on global energy issues by professor Nobuo Tanaka, former executive director of the International Energy Agency. There is also a lecture on automotive technologies and environmental issues by Takeshi Uchiyama, chairman of the board of Toyota Motor Corp., a lecture by the Minister of Land, Infrastructure, Transport and Tourism Keiichi Ishii on national resilience technology and its global impact and a lecture by the Minister of Economy, Trade and Industry Motoo Hayashi on engineering innovation and its global contributions. Finally, there is a lecture on LED lighting and environmental issues by professor Hiroshi Amano of Nagoya University, recipient of the 2014 Nobel Prize in Physics.

In the technical programs, major

topics of discussion are devoted to: "Resilient Infrastructure for Society," "Energy for a Sustainable Society, Natural Resources for a Sustainable Society," "Urban Development and Infrastructure, Mobility and Communication Technology," "Industry for Society," "Life Innovation, Engineering for Society and Engineering in Society," and "Engineering Education and Women in Engineering."

These topics were chosen by examining the current state of different fields of engineering in light of the problems faced by the Earth and humanity. Consideration was also given to future, coming innovations and their relationship with society. Each topic was then divided into six sessions covering different fields of engineering.

Approximately 200 leading experts in each of the fields of engineering playing an important role in the sustained development of society will give in-depth presentations on the current state of their respective fields and their directions for the next ten years and beyond, while participating in panel discussions to promote communication with attendees.

To further promote these discussions, about 400 posters submitted by the public will also be presented. The discussions will foster a deeper understanding of the present and future conditions of each field, and this understanding will enable discussions on the unification of those fields and on engineering, science and technological directions.

On the afternoon of Dec. 2nd, the final day of WECC2015, a concluding lecture and discussion will be given regarding the technical programs. The results of the discussions will be compiled to produce the Kyoto Declaration, a final outcome document that will set forth a vision for the ideal future of engineering.

A key factor for progress in engineering is the culture that fosters it. In WECC2015 in Kyoto, we are planning to hold not only technical programs, but also cultural programs to enhance participants' understanding of industries in Kyoto that have roots in the community and culture.

There are many creative companies in Kyoto and their advancement is profoundly affected by the culture of the city. It is my sincere hope that all of the engineers will, through the WECC2015 conference, gain a fresh and more profound appreciation of the relationship between engineering, industry, culture and society.



Kenichi Suganuma, then ambassador of the Permanent Mission of Japan to the International Organizations in Geneva delivers a speech at the closing ceremony of the World Engineers' Convention 2011 in Geneva in September 2011. KAZUMASA ITO

WECC2015

Celebration of technology

Keiji Yamada
KYOTO GOVERNOR

I would like to extend my heartfelt congratulations to the World Engineering Conference and Convention 2015 (WECC2015), which is holding its fifth conference with great flair and is being attended by H.I.H. Crown Prince Naruhito. I sincerely welcome our guests from Japan and the rest of the world on behalf of the residents of Kyoto.

Also, I would like to express my deep respect for the enthusiasm and great efforts of Junichi Sato, chair of the WECC2015 Organizing Committee, and those who have contributed to organizing this conference.

I understand that the origin of the WECC is the World Engineering Congress, which was held in Tokyo in 1929 by the Japan Federation of Engineering Societies enlisting the maximum support of industry, government and academia. In 1968, the World Federation of Engineering Organizations (WFEO) was founded with the aim of promoting engi-

neering and international exchanges to achieve world peace and bring about the progress of the economy and society. With the WFEO as a core organization, the WECC's first meeting was held in Germany in 2000, and this year marks the fifth in the series of conferences.

The WECC is being held in Japan for the first time, and it is a great honor and privilege for Kyoto to host this conference. We believe this conference will help demonstrate that Japan is a land of science, technology and innovation that will achieve sustainable development in the 21st century. We also believe this conference will serve as a valuable venue for Japan to showcase to the world its engineering and technological prowess and human resources. These have been utilized for national reconstruction in the aftermath of a great number of national crises and are carrying us toward sustainable development through learning from those experiences.

As a leading academic center that was cultivated by a long history and culture

and as an industrial center where tradition and enterprising spirits blend, Kyoto, among many Japanese cities, is home to a sophisticated manufacturing industry. The industry, academia and government of Kyoto have been united in their efforts to foster the growth of start-up firms and small and medium-sized companies. While Kyoto has cherished its tradition as an old capital with a 1,000-year history, it has also produced numerous world-renowned companies at the forefront of industry. I hope that visitors will take a close look at Kyoto, which is an exquisite combination of the old and the new.

I am convinced that the conference in Kyoto will bring together wisdom from around the world, foster the exchange of opinions for the future of the earth, achieve significant results more than ever and further enhance the importance of WECC2015.

In conclusion, I would like to offer my best wishes for the WECC2015's success as well as good health and happiness for all participants.



Engineering needed for sustainable society

Daisaku Kadokawa
KYOTO MAYOR

I am very grateful that the World Engineering Conference and Convention 2015 (WECC2015) is taking place in Kyoto for the first time. It is a great honor that Kyoto was selected to host the WECC2015 where more than 2,000 engineers and researchers and other related people from all over the world will discuss energy, the environment, industry, urban planning and other important fields.

I also would like to pay my great respects to the World Federation of Engineering Organizations, which is engaged in various activities based on the noble motto of using engineering for world peace and development in economy and society, as well as the Japan Federation of Engineering Societies, the Science Council of Japan and UNESCO.

Kyoto is a city that has developed by way of a number of ongoing innovations in its 1,000-plus-year history.

For example, traditional ceramics have led to modern cutting-edge ceramics, sake brewing has led to biotechnology and Buddhist altar manufacturing has helped precision equipment development.

In the Meiji Era, Sakuro Tanabe, a graduate of an engineering university that later became the Engineering Department of the University of Tokyo and with a close connection with the Japan Federation of Engineering Societies, played a leading role in creating the Lake Biwa Canal, the first large-scale modern civil engineering project undertaken by only Japanese. The canal supplied water from Lake Biwa to Kyoto, enabling commercial hydroelectric power generation in Kyoto, which later became the first city in Japan to run an electric train, thanks to the water carried along the canal.

I strongly feel it is very significant that Kyoto, with such a history, will host discussions among many engineers and people related to engineering from all over the world, under the theme of "Innovation and Society." I hope the participants will share their intelligence and share many excellent achievements.



Additionally, I heard some of the conference programs, such as the "Engineering Cafe," which will introduce Kyoto's industries and culture, will accept participation by the general public. Kyoto is currently working on the promotion of MICE (Meeting, Incentive tour, Conference or Convention and Exhibition) events participated in by residents. I am grateful the WECC2015 is planning programs along the same lines the city is taking.

Engineering is indispensable to achieving a sustainable society. I hope the participants and others related to WECC2015 will be even more successful in what they do after the conference and contribute to building a sustainable society.

I have the firm belief that Kyoto's strengths, which are its many traditional and cutting-edge industries, numerous universities and its accumulation of unique knowledge, will open the path to a better future. I will do my best to support activities in various fields to achieve this future.

Playing a key role in reducing disaster risk

CONTINUED FROM PAGE 1

environmental issues do not arise until a country reaches a certain level of development with factories emitting pollutants.

But even when Japan was in the early stages, it possessed a high level of engineering prowess.

For example, the Lake Biwa Canal was a huge project in the Meiji Era (1868 to 1912) that used advanced technology to supply water from Lake Biwa to Kyoto.

Now that Japan is in the later stage, its social need, more than anything, is reduction of disaster risks, said Hideo Nakamura, president emeritus of Tokyo City University, in the same round-table discussion, adding that WECC2015 is the perfect place for Japan to showcase its superiority in engineering for disaster risk reduction.

"Japan is notorious for having many natural disasters. It has many more disasters than other developed countries," he said. "We can't rely on other countries to come up with solutions to reduce disaster risk. Nobody will do it unless Japan does."

Therefore, Japan must play a leading role in predicting disasters, reducing risk

and recovering from disasters, he opined.

Ironically, the great Hanshin Earthquake in January 1995 and the Great East Japan Earthquake in March 2011 have put Japan at great advantage in engineering for disaster risk reduction. For example, Japanese high-speed train systems utilize some of the highest technologies in quake resistance.

Although it is not widely known, Tokyo successfully hosted the World Engineering Congress in October, 1929, just five days after Oct. 24, 1929, known as Black Thursday when the U.S. stock market crashed that triggered the Great Depression. The era also saw the emergence of Fascism and the build up to World War II.

The 1929 WEC was the very first international conference of engineers and about 4,500 participants came from around the world, said Yumio Ishii, the chair of the Steering Committee of WECC2015 in a newsletter.

It was Dr. Elmer A. Sperry of the American Society of Mechanical Engineers who proposed holding the 1929 conference in Japan. The patron of the first engineering event in the world was then-Prince Chi-



The opening ceremony of the World Engineering Congress, was held in Tokyo in October 1929. WECC2015 ORGANIZING COMMITTEE

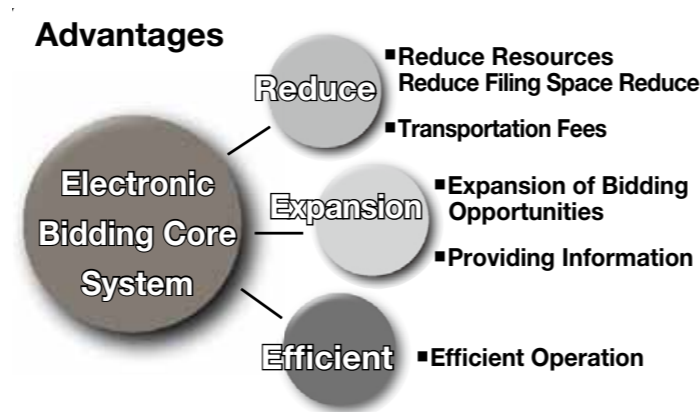
chibu, with then-Prime Minister Osachi Hamaguchi as honorary president and Baron Koi Furuichi, the president of Japan Federation of Engineering Societies, as the president.

Also during the round-table discussion, Sato tried to answer the basic question of "what is engineering?"

Engineering is distinguished from science and technology in a way that it turns science and technology into something

tangible and useful to society, he said. Manufacturing equipment, cars, houses, factories and infrastructure involve engineering that uses science and technology.

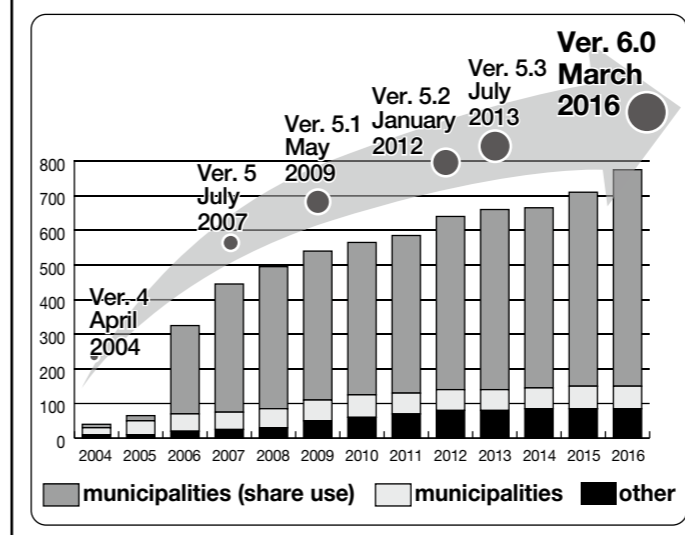
"Engineering is an act of planning and designing something that contributes to society by using and arranging science and technology," Sato said. "This does not mean science equals engineering. Engineering is creating something based on the needs of society."



Electric Bidding Core System by JACIC

In bidding for public works projects, procurement organizations require reliability, fairness and transparency. The Japan Construction Information Center (JACIC) has developed an Electronic Bidding Core System (EBCS), a software program that allows them to meet those criteria. EBCS was designed to standardize electronic bidding systems. As of the end of March 2014, 763 public works procurement organizations have adopted the system. Of them, six were national ministries, 19 were public corporations or organizations, 46 were prefectures and 692 were municipalities, including 20 so-called ordinance-designated mega-cities.

The latest version of Electronic Bidding Core System is Ver 5.3. JACIC is planning the release of Ver 6.0 in March 2016. Currently (October 2015), 777 organizations are using this software.



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WECC2015

WECC2015 program and schedule

The World Engineering Conference and Convention 2015 (WECC2015) is being held at Kyoto International Conference Center in Kyoto through Dec. 2.

Conference plenary lectures

• **Date and time:** Nov. 30, 10:30 a.m. to 12:30 p.m.

• **Venue:** Main Hall

Part 1: "Science and Technology for Water in a Carbon-Constrained World" by Han Seung-soo, the U.N. secretary-general's special envoy on disaster risk reduction and water; former prime minister of the Republic of Korea

Part 2: "Engineering-Society Interface for Delivering New Agenda 2030" by professor Shahbaz Khan, director and representative, Regional Science Bureau for Asia and the Pacific, UNESCO Office, Jakarta

Part 3: "Energy Security and Sustainable Nuclear Technology" by Nobuo Tanaka, former executive director, International Energy Agency, visiting professor, the University of Tokyo; director, Chiyoda Corp.

• **Date and time:** Nov. 30, 2 p.m. to 4 p.m.

• **Venue:** Main Hall

Part 4: lecture by Minister of Land, Infrastructure, Transport and Tourism Keiichi Ishii

Part 5: lecture by Parliamentary Vice-Minister of Economy, Trade and Industry Tsuneo Kitamura

Part 6: "Building a Hydrogen Society: Toyota's Strategy for Environmental Technology" by Takeshi Uchiyamada, chairman of the board, Toyota Motor Corp.; vice chair of Keidanren (Japan Business Federation)

Oral and poster sessions

The overall theme of the conference "Engineering: Innovation and Society" will be discussed at 50 oral sessions categorized according to subjects as follows:

Resilient Infrastructure or Society; Energy for a Sustainable Society; Natural Resources for a Sustainable Society; Urban Development and Infrastructure; Mobility and Communication Technology; Industry and Society; Life Innovation; Engineering for Society



The exhibition will include cutting-edge technologies. KAZUMASA ITO

and Engineering in Society; Engineering Education and Women in Engineering; and Groundwork for Future. Also, there will be various poster sessions in Sakura Hall.

Exhibition

WECC2015 Exhibition will include cutting-edge technologies developed by research institutes and enterprises in industrial fields encompassing electrical and electronic goods, ICT, machinery, chemicals, materials, resources, energy, environmental technology, transportation systems, construction medical treatment, life sciences, and services.

• **Date and time:** Nov. 30 and Dec. 1, 9 a.m. to 6 p.m.; Dec. 2, 9 a.m. to 4 p.m.

• **Venue:** Event Hall and Annex Hall, Kyoto International Conference Center

Information derived from the official website of the World Engineering Conference and Convention 2015. For more information, visit www.wecc2015.info/index.html.

More seeking disaster-risk reduction tech

Kozo Keikaku Engineering (KKE) Inc.'s disaster-risk reduction technology is needed globally, especially in those Asian countries prone to earthquakes.

After the 8-magnitude earthquake hit Nepal in April, KKE, which has consulted on the structural designs of various well-known buildings, including the Guam Palace Hotel, Shanghai World Financial Center and Istanbul's Swissotel The Bosphorus, has received a number of inquiries on its technology and services. Businesses and governments in countries that do not have Japan's level of quake-resistant technology are asking KKE to evaluate their key structures.

In addition to others, this year KKE has received inquiries on school buildings in Nepal and fire stations in Bangladesh. To meet growing demand and pursue the possibility of providing its engineering technology in Asia, the company established a subsidiary in Singapore this year. KKE employs a variety of technologies to reduce risks of earthquakes, tsunami and other disasters. It designs structures, evaluates and retrofits existing structures and provides new structures with solutions with respect to seismic isolation.

Quake-resistance evaluations for existing structures and subsequent structure reinforcements are among KKE's areas of expertise. The company has inspected about 1,700 buildings so far. The types of structures evaluated range from hotels, residential complexes and hospitals to historic structures, one of which is the Faculty of Law Bldg. 3, University of Tokyo, built in 1927 and registered as a Tangible Cultural Property of Japan in 1998. Since the disaster in March 2011, demand rose in and outside of Japan for quake-resistance evaluation due to a general increase in awareness of disaster risk reduction.

KKE has received an increasing number of such requests, especially from schools and hospitals that typically become shelters in case of emergency.

Mio Mochizuki, a young architect with KKE, has been working with the company's core technology and currently works



Mio Mochizuki

on evaluating the quake resistance of structures and providing advice to solve customer problems.

Mochizuki says that most structures that were built before the amendment of Building Standard Act in 1981 do not meet the current standard or could be more vulnerable in a major seismic event. Old buildings that underwent remodeling or expansion could also have a low seismic performance, thus seismic evaluation is considered significant nowadays, especially with facilities such as hospitals, hotels and schools where many people gather.

Based on requests from customers such as factories, hospitals and residential building operators, KKE conducts evaluations and retrofits in a way that allows them to continue regular operations, by using its seismic-isolation equipment.

With such constraints and limits KKE adopts the best approach to address the structural deficiencies by considering continuity of building operations, functionality, cost and construction workability.

For example, in a project on the Tajima Joint Government building in Fukushima Prefecture, the retrofit construction was carried out with most of the furniture and building contents unremoved, allowing office work not to be disturbed by the retrofit work.

"There are some cases when a client with cultural value structures, such as brick buildings erected more than a hundred years ago, wishes to maintain the structure's exterior appearance. In such cases, we make proposals after discussing how the client plans to use the structures. For instance, we have proposed reinforcement construction that involves installing support devices or building support walls inside," she said.

Evaluating and retrofitting cultural heritage sites contributes to the preservation of landmark structures and the revitalization of remote areas. It is not easy to find the best solutions for cultural heritage structures, which have no guidelines on quake resistance, by using analytical technology.

But KKE makes it possible with its expertise to combine professionals in not only structural design, but also ground solidity evaluation and structural analysis.

"There are many cultural structures that have never been inspected. I would like to be more involved in those kinds of jobs in the future," Mochizuki said.

Before her work on evaluation retrofit-

ing for existing buildings, Mochizuki was in a department dealing with KKE's seismic isolation systems for new buildings, giving her valuable experience for her current job.

Seismic isolation systems function as a cushion between the earth and a structure, reducing the shaking of the structure dramatically during a major earthquake.

In 2009, KKE installed a 3-D seismic isolation system, which reduces both horizontal and vertical shaking using "Hyper Air Suspension" technology, under a residential building in Tokyo's Sugunami Ward. That was the first instance in the world in which a residential building had a 3-D seismic isolation system installed.

The company had begun the project of 3-D seismic isolation systems after a huge quake hit Niigata Prefecture in 2004, when a designated national treasure, Jomon pottery, fell and broke from a seismically isolated table designed to mitigate horizontal vibration. In Japan, there are many active fault lines that could possibly experience inland quakes, which could cause heavy damage due to vertical vibration. Because of this, prompt and effective countermeasures were needed.

KKE has close connections with universities, including one with a professor who has been working on a 3-D seismic isolation project.

When it was thought the 3-D seismic isolation system became technically viable, KKE raised its hand to test it and built a building that implemented the 3-D seismic isolator.

"In one of our engineering teams, more than half of its members are non-Japanese. As the world requires earthquake-resistant technologies more than ever, we are increasingly interested in expanding business overseas," said Mochizuki, who is planning to obtain further architectural certifications to broaden the scope of her career.



The Faculty of Law Bldg. 3, University of Tokyo KKE

Nobel Prize laureate lecture open to public

Conference Plenary Lecture Part 7 is open to the public, as well as WECC2015 participants.

• **Date and time:** Dec. 1, 9 a.m. to 9:50 a.m.

• **Venue:** Kyoto International Conference Center, Main Hall

"Wide-bandgap semiconductors as tools for realizing a sustainable society" by 2014 Nobel Prize laureate professor Hiroshi Amano, director, Center for Integrated Research of Future Electronics, Institute of Materials and Systems for Sustainability, Nagoya University.

Simultaneous interpretation is available. Admission is free.

Online preregistration is required at <https://convention-net.jp/pg/wecc/new1.php>

Rocket Software launches office in Japan to boost business

Rocket Software Inc. is a global software development firm that builds mission-critical software products for enterprises across four segments: business intelligence and analytics; storage, networks, and compliance; application development, integration, and modernization; and database servers and tools. About 1,200 Rocketeers on five continents are working every day to build and deliver software solutions for more than 15,000 enterprise customers and 10 million end users.

Many of the company's software products are delivered with Rocket Soft-

ware as an original equipment manufacturer. The company is actively engaged in business and technology partnerships with IBM, EMC, HP Enterprise Services, Fujitsu Australia and UK, Hitachi Data Systems, Avaya, Epicor and many other technology companies.

In addition to celebrating its 25th anniversary this year, the Waltham, Massachusetts-based company in April also opened a Japan office in Yokohama to better serve customers in Japan.

Rocket Software was founded on the premise that it would build products that matter for people and it has never

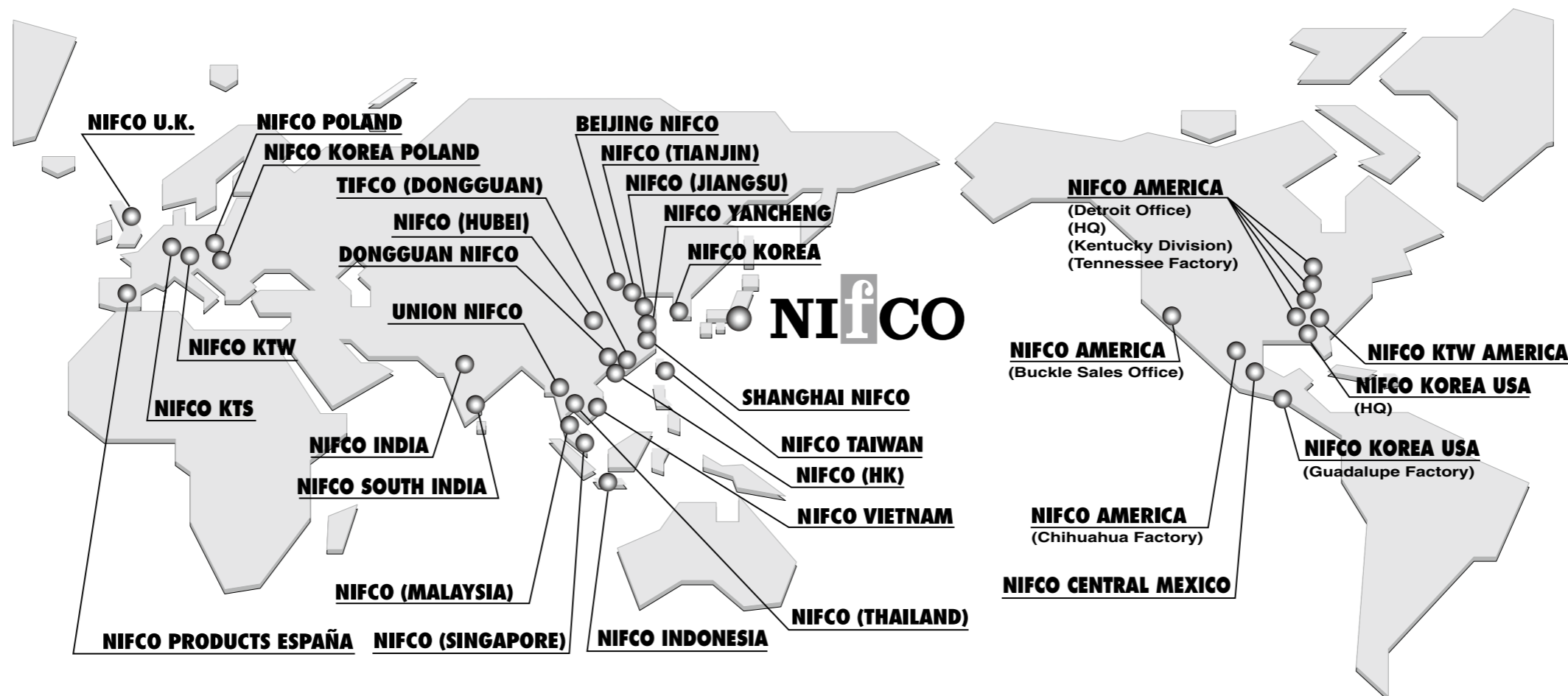


Rocket Software headquarters in Waltham, Massachusetts ROCKET SOFTWARE

wavered from that. It's the cornerstone of the company's core values: "We put you, our customers and partners, first"

Nifco's group companies span industrial and national boundaries

Using its fastening technology as a base, Nifco has successfully incorporated different fields, products and technologies into its business. Continually expanding by "connecting, bundling and joining" different technologies, Nifco has grown beyond its beginnings as a fastening company and is now a global player in many areas. Nifco's principle of "Value Fastening" focuses on combining an array of existing values to create new value. With an increasing number of international customers, Nifco continues to overcome challenges and seek out new fields of business.



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Savoring Kyoto's culture

Throughout its 1,000-year history as the former capital of Japan, Kyoto has nurtured a rich array of culture. Today the city is like a theme park of Japanese culture and history complete with temples, shrines, UNESCO World Heritage sites, traditional Japanese buildings and modern Western architecture.

There are many interesting things to see on the grounds of the many temples: Buddhist statues, soaring pagodas, ornate halls and more. Among them is the Japanese-style garden, which symbolizes the philosophy of Japanese culture and recreates seasonal beauty or religious beliefs in a limited space. Visitors can enjoy walking in some of the gardens and while looking at teahouses, but many other gardens are only to be appreciated visually.

Among the myriad temples and shrines in Kyoto, the following are some of the most popular destinations.

Kinkakuji Temple (Golden Pavilion) is a Zen temple covered in gold leaf. The image of the temple richly adorned in gold leaf reflects beautifully in the water of the adjoining Kyokochi (mirror pond). It is perhaps the most widely recognized image of Kyoto and a truly breathtaking



Strolling along the narrow streets in Gion will lead tourists to discover the world of geisha is still alive. KYOTO MEDIA SUPPORT CENTER

sight. The is surrounded by a beautiful garden that houses a graceful teahouse.

Ryoanji Temple is the site of Japan's most famous mysterious rock gardens. The garden attracts hundreds of visitors every day and shows the stunning simplicity and harmony of the principles of Zen meditation. Enclosed by an earthen wall, fifteen carefully placed rocks seem to drift in a sea of raked white gravel. After sitting and pondering the garden's "sermon in stone," visitors can stretch

their legs by touring the extensive grounds of Ryoanji Temple, which includes larger gardens with moss-covered trees and the Kyoyo-chi pond, which is particularly striking in autumn. After a stroll, guests can return to the rock garden for another moment of contemplation.

Kiyomizu-dera Temple is perhaps the most popular of the temples in Kyoto and a fixture in the minds of the Japanese people. Built on the side of a mountain, the temple's balcony is supported by 13-meter wooden columns. The main hall with its distinctive hip-shaped roof of cypress bark sits to the rear of the balcony and houses a priceless statue of Kannon Bodhisattva, the goddess of mercy. From the west-facing balcony, visitors can appreciate panoramic views over the city. The balcony is a popular place to watch sunsets, something that may contribute to the romance associated with the temple.

Shrines have distinct architectural styles and one representative structure is the torii shrine gate. A torii symbolically marks the transition from the everyday world of people to the sacred realm of deities.

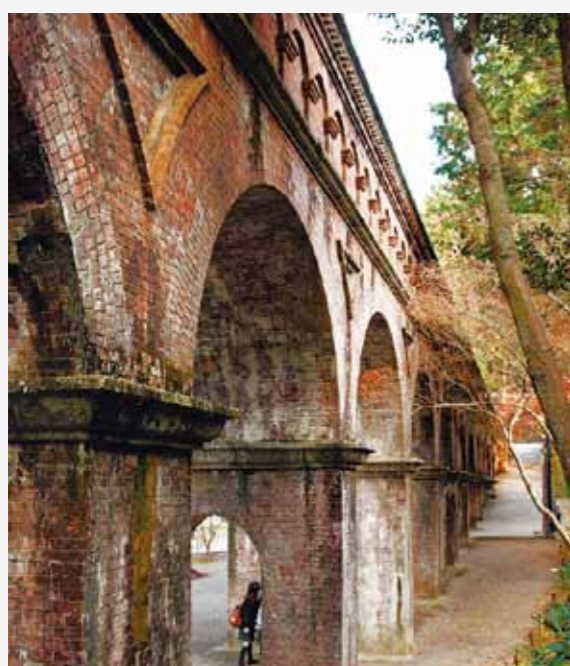


Tofukuji Temple is a popular destination for viewing autumn foliage. TOFUJUKUJI

The magical, seemingly unending trail of over 5,000 vibrant orange torii gates that wind through the hills behind **Fushimi Inari Taisha Shrine** make it one of the most popular shrines in Japan. The walk around the upper precincts is a pleasant hike during the day.

It also makes for a wonderfully eerie stroll in the late afternoon and early evening, when the various graveyards and miniature shrines along the path take on a mysterious air. This shrine, dedicated to the god of rice and sake in the eighth century, also features dozens

fox statues. The animal is seen as the messenger of the god of grains, Inari, and the stone foxes are often known by the same name. The keys often depicted in the fox mouths represent keys to granaries. This shrine is the central location for some 40,000 Inari shrines across Japan.



Suioakaku (Elevated Aqueduct) in the precincts of Nanzenji Temple RAKUCHU PHOTOGRAPHERS SOCIETY

Lake Biwa Canal: A home-grown marvel of engineering

Biwako Sosui (Lake Biwa Canal) is a waterway constructed in the Meiji Era to draw water from Lake Biwa in Shiga Prefecture to Kyoto.

Following the Meiji Restoration and the subsequent transfer of the capital to Tokyo, Kyoto suffered a decrease in population and industrial activity. As a solution to this problem, Kunimichi Kitagaki, the third governor of Kyoto, took the initiative to construct the Lake Biwa Canal, which was devised to facilitate water and passenger transportation and be used in industry and electricity generation. It was unprecedented in scale to build a canal connecting Kyoto with Lake Biwa. At first, in view of the then technological level of Japan, many people



Lake Biwa Canal in autumn RAKUCHU PHOTOGRAPHERS SOCIETY

considered it an ill-advised plan. The project was designed and supervised by young engineer Sakuro Tanabe.

The canal has two routes: the 19,968-meter canal No. 1, which is mainly used for hydroelectric power generation and the 7,423-meter Canal No. 2, which is used for drinking water.

In 1891, the newly completed Keage Power Station started to transmit electricity. This was the first hydroelectric power generation project in Japan and from 1895 it provided electricity for Kyoto's trams.

The Keage Purification Plant was completed in 1912 and began supplying water the following year, as the first plant in Japan to use the rapid sand filtration method.

Due to the 36-meter difference in elevation between the upstream dam and its terminus, an inclined plane was built, which allowed boats to travel on land via the use of a flat car.

Traveling along the canal from the Keage Boat Dock, eventually leads to the Suioakaku Aqueduct in the precincts of Nanzenji Temple. Although this brick structure is said to have been built so as not to impinge on the historic scenery of Nanzenji Temple, it is a completely foreign style of architecture, so



The Lake Biwa Canal Museum of Kyoto shows how the canal played a role in Kyoto's modernization.

one can imagine how amazed people must have been looking up at it in the early days. However, today, partly covered by moss, it presents a very dignified face.

In an age when many of Japan's important construction projects relied on foreign engineers, the Lake Biwa Canal was the first large-scale project undertaken by Japanese only. Despite historical transitions, the canal is still used for many purposes, including as a water supply for 1.47 million residents and hydroelectric power generation.

In 1996 the canal was designated a Historic Site.

For more information, visit the website of Kyoto Okazaki Concierge at www.kyoto-okazaki.jp/en/

Fall foliage

Kyoto is located in a valley surrounded on three sides — north, east and west — by mountains. Due to this geographic feature, the city experiences extremely hot, humid summers and harsh, severe winters. Of the four seasons, autumn is one of the best, along with spring, to visit the city.

People from all over Japan and the world are mesmerized by the changing colors of autumn leaves. The best time to view the fall foliage is from the middle to the end of November, but some spots, including **Tofukuji Temple**, still boast brightly colored leaves through early December. Many temples are open in the evenings during the autumn and many illuminate the leaves during the season.

Information derived from the official website of Kyoto City Tourism Association and Kyoto City Official Travel Guide. For more information, see www.kyokanko.or.jp or <http://kanko.city.kyoto.lg.jp>.

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