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FEATURE : Bringing Japanese Environmental Infrastructure to the World

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Bringing Japanese Environmental Infrastructure to the World

cover: "Yangon Waste to Energy Plant" in Myanmar





GLOBAL ENVIRONMENT

Bringing Japanese Environmental Infrastructure to the World



Strategy for Promotion of Environmental Infrastructure

In July 2017, the Ministry of the Environment, Japan (MOEJ) formulated the Strategy for Promotion of Environmental Infrastructure to provide developing countries with Japan's quality environmental technology, knowledge and institutions in order to help them improve their environments.

In recent years, developing countries have experienced explosive population growth and rapid expansion of their economies. This has exacerbated problems related to the management of waste and sewage, as well as the pollution they cause. Another issue is that these countries are producing ever more CO₂ emissions due to the large-scale consumption of fossil fuels. This, too, requires an urgent response.

Mr. Ryuzo Sugimoto, who leads

the International Cooperation Office at the Ministry, talked about the significance of Japan's international contribution to the environment.

"Japan suffered the painful experience of taking a long time to address the pollution during our rapid economic growth and incurring incredibly high costs when dealing with that pollution later on. However, this bitter experience has created quality technology, knowledge and institutions in Japan. I hope that the developing countries that are now facing various problems will learn from Japan's lessons, and introduce and expand excellent environmental infrastructure in the near future. Doing so will lower the future costs arising from pollution and measures to address pollution, which will in turn enable them to take a leap forward in development. In addition, introducing quality environmental

infrastructure will create a foundation for future investment for them."

A distinguishing feature of Japan's Strategy for Promotion of Environmental Infrastructure is that support for developing and implementing individual projects are provided together as a package. This package includes financial assistance, support for designing relevant institutions and training for personnel development.

"Even if a country wants to make use of external funds such as from international financial institutions, they still need knowhow to actually obtain the funds. Japan is happy to provide meticulous assistance, including capacity building for that knowhow, so that each country can have quality environmental infrastructure that matches its own specific needs."

This strategy includes promotion by senior officials during bilateral dialogues and in regional fora. MOEJ is also developing public-private implementation frameworks with the private-sector, local and national governments, and aid organizations in Japan and abroad.

The strategy focuses on six priority areas for its implementation and actions, including mitigation, adaptation, waste management and recycling, Johkasou, water conservation and environmental impact assessment. It also provides guiding principles that fit the current situation and distinctive traits of each region: East Asia, Southeast Asia, South Asia, island nations in Oceania, the Middle East, and Africa.

These initiatives will propel the promotion of quality environmental infrastructure in a concrete and comprehensive manner, thus improving the environments of developing countries.

15th ASEAN+3 Environment Ministers Meeting

The 15th ASEAN+3 Environment Ministers Meeting was held in September 2017 in Bandar Seri Begawan, Brunei. The three non-ASEAN participants were Japan, China and the Republic of Korea.

Japanese State Minister of the Environment, Mr. Tadahiko Ito proposed a Japan-ASEAN Environmental Cooperation Initiative. He explained that under the initiative, Japan would promote cooperation for building a circular economy in ASEAN through the Japan-ASEAN Integration Fund (JAIF) and collaboration with the Economic Research Institute for ASEAN and East Asia (ERIA). The ASEAN member states supported for the proposal.

State Minister Ito also suggested that Japan would promote bilateral cooperation with ASEAN states, in line with the Strategy for Promotion of Environmental Infrastructure.



Six priority areas:

- Mitigation
- Adaptation
- Waste management and recycling
- Johkasou
- Water conservation
- Environmental impact assessment



Ryuzo SUGIMOTO

Director,
International Cooperation Office,
Global Environmental Bureau,
Ministry of the Environment,
Japan

Waste Treatment Facilities: Absolutely Necessary Local Infrastructure



Waste treatment facilities are important infrastructure necessary for maintaining public sanitation. However, the total costs of construction, operation and maintenance of facilities may exceed a simple landfill. For that reason, some countries have not introduced them. There is also so-called "NIMBY" (not in my backyard) effect, whereby it is very difficult to win the acceptance of local residents for waste treatment facilities.

How does Japan's waste infrastructure sector view this situation? What kind of assistance can Japan provide to developing countries?

"The qualities of the waste in Southeast Asian countries today closely resemble those of Japan's waste in the 1960s. That is why we want those countries to utilize Japan's experience," explained Mr. Kazuyoshi Honobe. He heads the Technical Committee at the Environmental Facilities Manufacturers Association (JEFMA),

an industry group of companies involved in the design and construction of waste treatment plants.

Japan's engineering-oriented manufacturers only really started building waste treatment facilities in the 1960s. First they introduced European incinerator technology. However, Japan's garbage was of a different quality, so the country needed to develop its own technology.

"While Europe's waste was dry and contained a lot of energy, Japan's held a lot of moisture and little energy. This made Japan's garbage difficult to combust and we had to design and develop special ways to burn it. Afterward, when Japan entered an era of fast-paced economic growth, paper and plastic came to account for a higher share of garbage. In response, we needed technology to burn high-energy waste without damaging furnaces. The garbage in Southeast Asian countries will probably undergo the same changes as Japan, and Japan has the technology for coping with that shift."

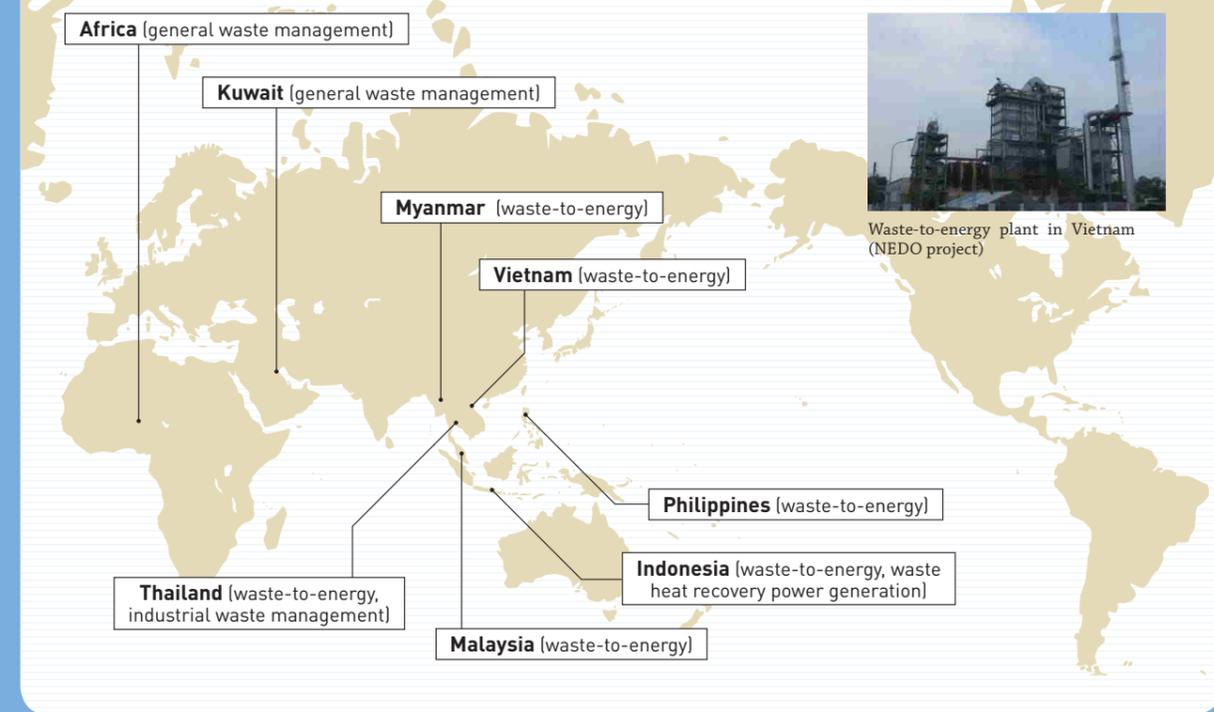
Mr. Honobe points out that in addition to this technology, Japan has

knowledge from stringent waste management rules written together by the national and local governments, private companies and other participants.

"In Japan, local governments are mostly in charge of processing municipal waste generated from households. Operators of Japan's waste treatment facilities are required to periodically analyze and report on the environmental impact of their waste treatment. If they fail to do so, they may be ordered to suspend operations. That's why operators strictly comply with facility management manuals, and properly and correctly perform periodic maintenance on their facilities."

Strict operation of a waste facility provides local residents with a sense of safety. Operators have also worked hard to win acceptance from those residents. For example, they beautify the exteriors of their facilities or build adjacent facilities that give something back to the community, such as hot baths and heated swimming pools. Additionally, some facilities serve as evacuation shelters for local residents or provide power or heat in the event

Major projects currently underway



of a major disaster. In this way, waste facilities will likely become an even more indispensable part of local communities in Japan.

In the developing countries of Southeast Asia, though, waste facilities are less urgently needed than other infrastructure. Nevertheless, it is easy to imagine that when it becomes a serious public issue in the near future, Japan's experience will be very useful to learn from. According to Mr. Honobe, it is important for these countries to become more aware of the hazards so that they do not experience the same difficulties that Japan did.

"In January 2017, Prime Minister Shinzo Abe visited Indonesia for a summit meeting with President Joko Widodo. During the meeting, the

leaders touched upon the subject of Indonesia's waste management and greatly raised the priority given to such issues in Indonesia. This is an example of how developing environmental infrastructure under public-private partnerships can function effectively."

Lastly, Mr. Honobe explained what defines high-quality infrastructure.

"The most important thing for infrastructure is reliability. To use Japan's Shinkansen high-speed rail as an example, it is not only its top speed that sets the Shinkansen apart, but also its steady, continuous operation without any accidents for several decades. Many waste treatment facilities in Japan have been steadily operating for more than 30 years since their construction. This reliability is

an advantage that has been built up based on experience and as a result of continual updates to operating manuals, periodic facility maintenance and so on. I believe this sort of intangible assistance is one more thing Japan has to offer."

Kazuyoshi HONOBE
 Technical Committee,
 Japan Environmental Facilities
 Manufacturers Association

1 Monitoring results on an electronic sign board
 2 Counter for accepting evacuation shelter users



Johkasou: Producing the Same Water Quality as Sewer Treatment?



Japan has developed an advanced sewage treatment system called "Johkasou" (water-purification). In areas of Asia that are experiencing rapid economic growth, people are increasingly using Johkasou as low-cost, environmentally-friendly alternatives to sewage. However, simply installing a Johkasou system on a property does not equate to full sewage treatment. This article presents the features and challenges of Johkasou.

In postwar Japan, Johkasou technology came into wider use to treat sewage. In many cases it was used as a substitute to adding more sewers. Unlike sewers, it takes little trouble to install pipes for Johkasou systems, and they can be set up as standalone installations where needed. These traits hold down costs, leading to wider usage in places outside Japan's densely populated areas. In 2000, the Johkasou Act

was amended, allowing Johkasou manufacturers to engage in independent development of Johkasou systems. The competition resulted in products with dramatically improved performance. While Johkasou technology uses bacteria to break down dirty water, they can produce water quality on par with sewer treatment.

Johkasou systems have undergone many high-level advancements in Japan and are now quickly growing in popularity in Asia and beyond. Japan's exported Johkasou products more than quadrupled from 2014 to 2016 in terms of units shipped. Kubota has exported 4,200 of its products to 15 countries. 2,500 of them were exported in 2016, indicating the business' speedy growth.

Mr. Shinichi Fukuhara, who heads Kubota's Johkasou business unit, said, "Japanese Johkasou systems only started circulating in the market after undergoing and passing stringent government inspections. In addition, our efforts to develop

environmentally-friendly Johkasou systems that are more compact and energy-efficient have yielded unique products that are the world's smallest and some of the most energy-efficient. In many rapidly-growing Asian countries, people are looking to Johkasou technology as a low-cost, environmentally-friendly alternative to building sewers."

The size of a Johkasou system determines how much water it can treat. Furthermore, its type, installation method, and balance between centralized and individual treatment, can provide a comprehensive water treatment solution.

Mr. Fukuhara said, "We started seriously expanding our overseas business in 2007, and now we have exported products to 15 countries. They include places in Asia such as China, Vietnam and Myanmar, as well as America and other developed countries. The turning point came in 2008, in Vietnam, where we suddenly began installing more

Johkasou systems, mostly at hospitals that needed to manage sanitation."

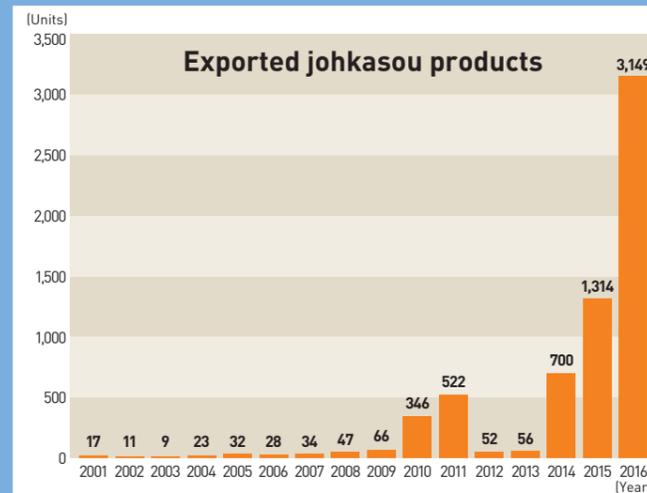
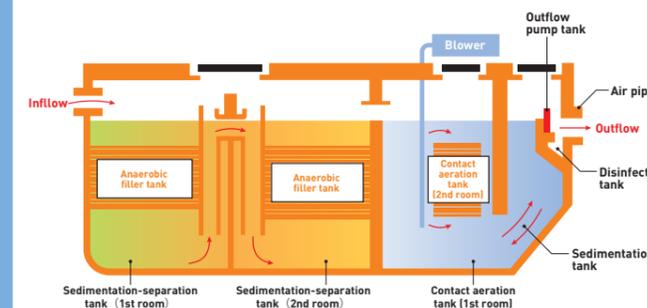
China is currently the biggest destination for exported Johkasou products. According to Mr. Wataru Yokoyama, who heads the company's overseas sales department, "Right now, improving living standards for farming villages is a part of China's Five-Year Plan, so the country is engaged in much top-down construction all over, not just in isolated locations. China is actively installing Johkasou systems in farming villages around the cities and there is clearly strong demand."

However, many Asian countries have not created standards or certification systems for water treatment. Mr. Yokoyama explained, "We occasionally see cases where people install cheap, locally-made treatment tanks that have not undergone national testing and certification like in Japan. Even if some places install Japanese Johkasou that does not necessarily mean they are helping to improve the water for the entire surrounding area."

Mr. Fukuhara pointed out, "There is more work to be done than simply installing the Johkasou system. If you do not maintain it periodically, it will not perform at its best. However, there are many cases in countries without relevant standards or laws where proper maintenance is not carried out. We do not just sell products - we also provide maintenance and training, because we feel that it is important to export a total system."

To improve water in other countries using Johkasou systems, Japan will probably need public-private partnerships for creating guidelines on product-certification and maintenance systems. The Ministry of the Environment has begun working on a framework for locally-tailored product specifications and fair performance assessments, with the aim of establishing standardized Johkasou systems suited to the ASEAN region. It is hoped that the Ministry's Strategy for Promotion of Environmental Infrastructure will help move this project forward.

Diagram of the Configuration



Exports more than quadrupled from 2014 to 2016



A manufacturer's engineers explain maintenance methods to local officials.

Shinichi FUKUHARA
General Manager,
Johkasou Business Unit,
KUBOTA Corporation

Wataru YOKOYAMA
General Manager,
Overseas Sales Department,
KUBOTA JOHKASOU SYSTEM
CO LTD



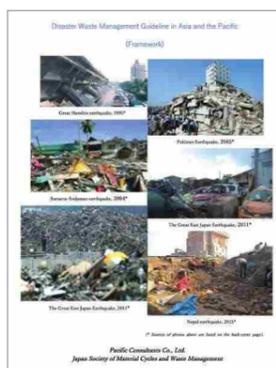
International Assistance Utilizing Japan's Experience in Disaster Waste Management

1. Formulation of Disaster Waste Management Guideline

Urbanization is rapidly progressing in the countries and regions of the Asia-Pacific. At the same time, however, regions of the world are beset by frequent earthquakes and the overwhelming power of natural disasters. The disposal of homes and buildings that have collapsed or been washed away in such disasters poses a major challenge for reconstruction initiatives.

In response to this situation, the Toyama Framework on Material Cycles was compiled as an annex to the Communiqué of the G7 Toyama Environment Ministers' Meeting, held on May 15 and 16, 2016. In the Toyama Framework, the G7 countries agreed to provide assistance in the area of disaster waste management to countries or regions that experience significant natural disasters, such as in Asia and the Pacific. Furthermore, at the 18th Tripartite Environment Ministers Meeting Among Japan, Korea and China (TEMM18), it was agreed to share experience and know-how on disaster waste management measures.

As a country that has advanced structures for responding to disasters, Japan has sought to take the lead in enhancing disaster response measures in Asia and the Pacific. For this purpose, Japan has compiled a Disaster Waste Management Guideline that serves to share Japan's knowledge about inland urban-centered earthquakes, large-scale tsunami damage and flood-related damage. The Guideline also provides information about the technologies and know-how that Japan has accumulated in the process of dealing with waste arising from such disasters.



In 2016

- Review Guideline & plans
- Draft Outline of Guideline

In 2017

- Develop Full version of the Guideline
- Information Hub (website)

In 2018

- Workshop & Training
- Pilot Project



Promote the **development of DWM plans** in national and local governments in Asia and the Pacific, including contribution to the SPREP/JICA's regional DWM guidelines or manual



Develop resilience through **promoting training and workshops**, as well as developing IEC materials on Capacity Development (CD) for local experts, women and youth groups and communities in the region



Strengthen collaboration with international organizations such as **MSB, UN Env., SPREP, JICA, and UNDP** (Consider the roster for DWM experts in collaboration with JDR, MSB and UNDP)



Establish **one-stop information-hub on DWM** (website) in collaboration with Ministry of the Environment, the Government of Japan (MOEJ)



Strengthen collaboration among **stakeholders from Climate Change and Disaster Risk Management** in the context of the SDGs, Sendai Framework, Paris Agreement and S.A.M.O.A. pathway

2. Assistance for Disaster Waste Management Measures in Nepal

Large-scale earthquakes with a magnitude above 7.0 occurred in Nepal in April and May 2015, creating approximately 10 million tons of disaster waste.

Nepal requested technical assistance from Japan to dispose of this waste. In response, Japan assisted Nepal in the removal and disposal of homes, schools and hospitals, etc., that were destroyed in the earthquakes, and also in implementing initial post-disaster public health measures. With a view to completing disaster waste disposal during 2016, a discussion forum was held among all stakeholders, regarding the processes from disaster to reconstruction, and future policies to build disaster-resilient waste disposal structures.

Currently, in response to flooding that occurred in 2017 in Nepal, Japan is providing assistance to help Nepal coalesce experience and know-how that it has gained from disaster waste disposal efforts following the earthquakes of 2015, and apply these to waste disposal efforts following the recent floods.



Takuya KIRIKAWA

Office of Disaster Waste Management, Environmental Regeneration and Material Cycles Bureau, Ministry of the Environment, Japan



WASTE & RECYCLING

Waste Power Generation Study Tour Held in Japan for Indonesia and the Philippines

Indonesia and the Philippines both have painful histories when it comes to waste-related issues. The Philippines suffered the tragedy of the collapse of the Payatas Dumpsite in 2000, while Indonesia was similarly struck by the collapse of its Leuwigajah Dumpsite in 2005. Both disasters resulted in the loss of people's lives.

Given this background, and also in response to increasing volumes of waste resulting from population and economic growth, both countries are promoting waste power generation projects and waste processing measures. The Ministry of the Environment, Japan (MOEJ) is supporting both governments' waste power generation efforts in the areas of policymaking and human resource development, based on Japan's own insight and experience.

To support the development of the necessary human resources, MOEJ invited 15 individuals from the Philippines and 25 individuals from Indonesia to Japan for a study tour on waste power generation. The participants included members of both the central and local governments of the Philippines and Indonesia. It is local governments that directly face the problems of



waste management. Therefore, to solve these problems, it is extremely important for Indonesian and Philippine local officials, to learn from the insight and experience of Japanese local governments at actual waste management sites.

The study tour featured visits to such sites, including the Green Plaza Fujimi and Hadano Clean Center waste power generation facilities. With the cooperation of the toured incineration plants and the Clean Authority of Tokyo, the participants were able to attend lectures by staff involved in the construction,

operation, and maintenance of waste power generation facilities, and also engage in active exchanges of views.

MOEJ will continue to provide such support and cooperation for waste power generation projects in both countries, thereby contributing to solving their waste management problems.



Yuko YOKOTA

General Affairs Division,
Environmental Regeneration and
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NATURE & PARKS

East Asian Meeting of the Global Coral Reef Monitoring Network (GCRMN)

The International Coral Reef Initiative (ICRI) is a framework for facilitating cooperation among governments and international organizations for the preservation of coral reefs and related ecosystems around the world. When the ICRI was established in 1994, the Global Coral Reef Monitoring Network (GCRMN) was also formed. GCRMN is comprised of coral reef researchers from around the world, and its aim is to develop an understanding of the state of the world's coral reefs. This understanding serves as a basis for discussions about the policies and direction for preservation efforts.

The Ministry of the Environment, Japan (MOEJ) has been a member of the ICRI since the initiative was established. It provides monitoring information for the compilation of status reports by the GCRMN and leads monitoring activities for coral reefs in East Asia.

A specific example of the MOEJ's activities is its joint hosting of the GCRMN East Asia meetings with the National University of Singapore and other stakeholders, in order to facilitate discussions on regional analyses of monitoring data from coral reefs in East Asia. The first meeting was held in February 2017 in Singapore, while the second was held in

November 2017 in the Philippines. The meetings are attended by representatives from the Philippines, Singapore, Thailand, Vietnam, Hong Kong, Taiwan, and Japan. The participants have been compiling monitoring data from their seven countries and regions, and analyzing trends in the coral reefs. In addition, from 2018, they plan to start collecting data from other countries in East Asia, so as to conduct a comprehensive analysis of the East Asian region as a whole.

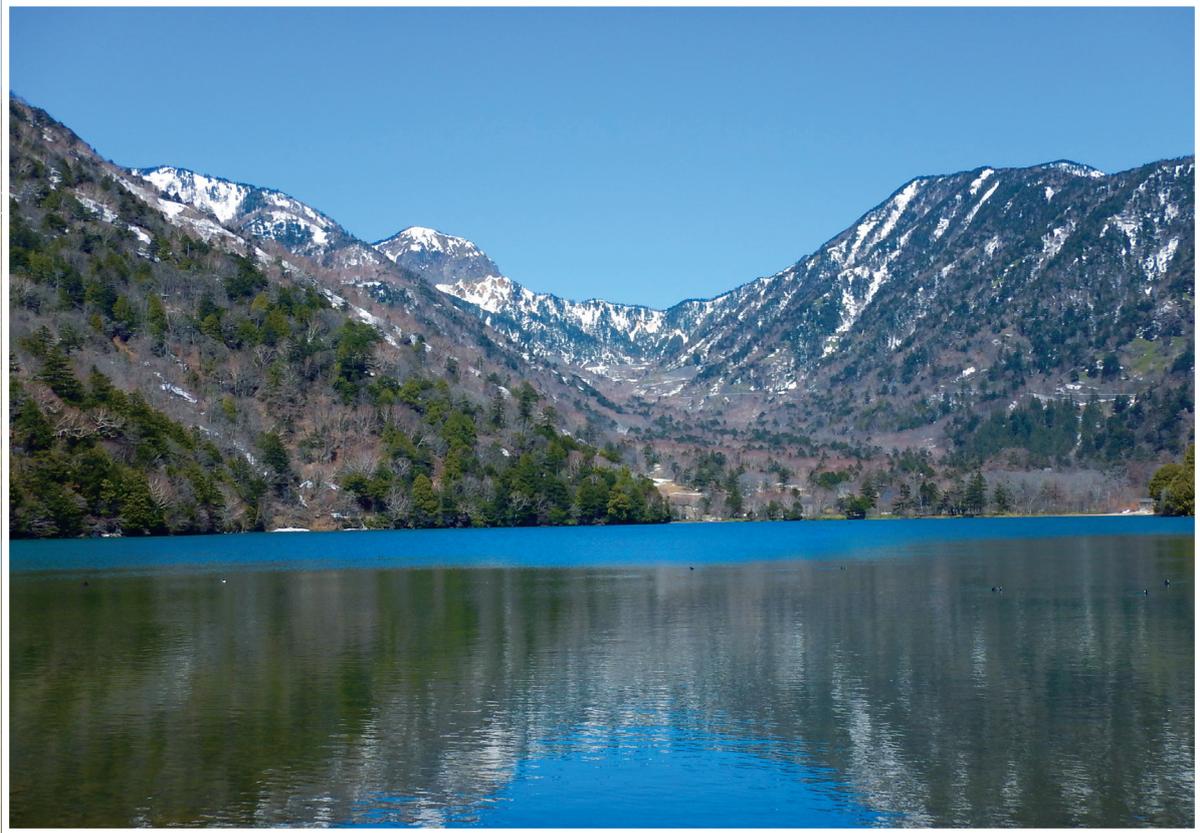


Takafumi OSAWA

Biodiversity Policy Division,
Nature Conservation Bureau,
Ministry of the Environment, Japan



Project to Fully Enjoy Nikko National Park



Nikko is overflowing with the unique appeals of Japan. Not only a rich natural environment where visitors can enjoy all four seasons, but also many places steeped in Japan's history and culture, such as the Shrines and Temples of Nikko, a UNESCO World Heritage Site, as well as hot springs. Located just two hours from Tokyo, Nikko has long been a favorite among foreigners.

Nikko National Park has initiated the "Project to Fully Enjoy Nikko National Park" to encourage tourists to fully enjoy their stays in Japan more than ever before. Actions include familiarization trips and installation of foreign language beacons to provide information along the paths.

The core concept of the project is "NIKKO is NIPPON," meaning that Nikko is a microcosm of Japan itself. We cordially invite you to come to Nikko National Park, a premium resort located in the greater Tokyo area where you can experience the beautiful nature, history, and culture of Japan all in one place.

Nikko National Park website, Ministry of the Environment
<http://www.env.go.jp/en/nature/nps/park/nikko/>



The Asian black bear can be found in Japan on Honshu and Shikoku.



The Asian fawnlily is a light purple flower that blooms in early spring.

DATA

Nikko National Park
 Designated: December 4, 1934
 Area: 114,908 ha



Nikko National Park



Kenji NAKAYAMA

Ranger,
 Nikko Nature Conservation Office,
 Kanto Regional Environment Office,
 Ministry of the Environment, Japan