

The Unseen Bond between Japan and Southeast Asia Advancing Partnerships in Sewage Projects -The Shared Future of Asia and Japan-

The “Growing Pains” of Economic Development

Southeast Asia, sometimes referred to as the open growth center of the world, continues to experience rapid economic development. However, population increases and city expansions inevitably lead to problems like “growing pains.” One such issue is that the sewage infrastructures for treating domestic wastewater and human waste cannot keep up with demand.



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Indonesia, whose economy continues to grow at an annual rate of 5%, is Southeast Asia's leading economic powerhouse, but its sewage coverage rate, even in the Special Capital Region of Jakarta, is only around 12%. Jakarta is the only major city in a member country of the Association of Southeast Asian Nations (ASEAN) where full-scale sewage development has not advanced yet.

Japan's Official Development Assistance (ODA) and private-sector technologies are helping address this issue. The two countries concluded a yen loan agreement of around 57 billion yen in 2020, and installation work for sewer lines in Jakarta began in 2023.

Takashi Kondo, a staff member of the Japan International Cooperation Agency (JICA) who was involved in launching the project, said in *JICA Magazine*, "This project feels like an adventure. We're going to be utilizing Japanese technologies to lay out a network of sewer culverts (sewer pipes and manholes) across hundreds of kilometers to enable advanced water treatment in a limited space."

This project is a joint venture between Japanese companies such as Obayashi Corp. and JFE Engineering Corp., and Indonesian companies including PT Wijaya Karya (Persero) Tbk. Due to constant traffic congestion in Jakarta, it is difficult to install pipes by digging up the road. This is where Japanese technologies come in. An excavator is deployed underground to install pipes, bypassing the need to dig up the road, using a method known as "jacking." Japan is also putting effort into human resources development by inviting Indonesian engineers to Japan for a study tour before construction begins. Japanese and Indonesian staff voiced their aspirations for the project, with one official saying: "Completing the infrastructure is not the goal, but the beginning. We want to maintain a stable operation and deliver the benefits of a sewage system to the people of Jakarta."

A Partnership That Cannot Be Seen from Aboveground

Economic growth and sewage issues are inevitably linked. After World War II, during Japan's periods of recovery and rapid economic growth, excessive amounts of domestic wastewater and human waste poured into rivers, lakes, and the sea. It was not unusual to see dirty bubbles floating on river surfaces. To address the issue, the public and private sectors have worked together over the years to develop and improve the sewage system. Today, the average person in Japan drains around 200 liters of water a day through the toilet,

kitchen sink, laundry machine, and bathtub. Japan's sewage systems and septic tanks treat the massive amounts of wastewater generated by a population of 123.8 million people, and that know-how is now being passed on to Southeast Asia. It is a partnership that cannot be seen from aboveground.

The Advent of Sewer Maintenance Robots

In Malaysia, Japan has been supporting sewage development since the 1970s, and around 70% of the population is now covered. It has the second-highest coverage rate among the ASEAN countries after Singapore. In recent years, however, the aging pipes have caused sinkholes and water leakages on roads. To address this issue, JICA began field surveys in 2019 with Hokuryo, a manufacturer of sewer maintenance and management robots based in Ishikawa Prefecture, northwest of Tokyo along the Sea of Japan. In July 2024, the company presented Malaysia's national sewage company, Indah Water Konsortium (IWK), with equipment free of charge, including the Super Mini-Mogu Plus, a robot that can remove debris from small spaces inaccessible to humans. This will not only improve Malaysia's sewage environment but also provide benefits to the Japanese company, such as continued maintenance services for the robot and expanding sales routes to neighboring countries. It is expected to result in a win-win partnership.

In the Philippines, too, Japan is aiding sewage development in Metropolitan Cebu (Metro Cebu), the country's second-largest city. Metro Cebu has expanded its economy through tourism and the IT industry, and although its population is increasing, sewer treatment has not been keeping up. This raised concerns about the deterioration of the water and living environment, and furthermore, a decrease in the city's competitiveness. In February 2023, the governments of Japan and the Philippines concluded a grant agreement for the Project for the Septage Management of Metro Cebu Water District. A facility is being constructed to treat septage gathered in septic tanks across Metro Cebu. Yokohama City, Kanagawa Prefecture, just south of Tokyo, is also taking part in this project. Yokohama has a similar history of rapid population growth driven by tourism and industrial development, and has invested heavily in its sewage system. The Yokohama Water Business Association, based in the city, is comprised of the local government and companies involved in the water business. City officials and member company representatives are conducting field surveys in Metro Cebu and exchanging opinions with local stakeholders.

Needs-focused Japanese-style Aid

In Cambodia, the first public sewage facility was completed in the capital Phnom Penh in 2023. It was a grant aid project under Japan's ODA program and built by a joint venture of two Japanese companies—Kubota Construction Co. and Metawater Co.Ltd., a comprehensive water treatment company. Phnom Penh is also seeing increased wastewater as the city's population rapidly grows. As part of this project, the facility incorporated water treatment technologies designed by Metawater for developing countries. A commemorative ceremony was held on December 27, 2023, attended by Cambodia's Prime Minister, Hun Manet, and 3,000 neighboring residents to celebrate the facility's completion.

Japan's basic approach to offering aid is not to simply impose its own technologies on other countries. Instead, it conducts field surveys and engages in dialogue to offer solutions tailored to the needs of each country, while also contributing to human resources development.

Sewage Systems Are “Future Treasure Chests”

Although sewage is often associated solely with wastewater treatment, in recent years, it is increasingly being recognized in Japan as a “treasure chest” that can produce new value. Local governments have decorated manhole covers with various popular and fictional characters. Manholes themselves serve as access points linking the surface with underground infrastructure. The aim is to spark public interest in the sewage system and foster a sense of familiarity with infrastructure that usually remains out of sight in daily life. For example, the Tokorozawa City Waterworks and Sewerage Bureau in Saitama Prefecture, just north of Tokyo, installed manhole covers featuring the popular anime *Mobile Suit Gundam: The Origin*. In Otsu City, Shiga Prefecture, east of Kyoto, there are manhole covers featuring *Pokémon* characters, which are famous worldwide, also helping to promote local information.

Wastewater treatment plants in Japan utilize the methane gas produced during the treatment of septage to generate power. Furthermore, new businesses are producing hydrogen from methane gas to supply fuel cell vehicles and are using treated wastewater to grow agricultural products. Curbing global warming and using recycled resources are

initiatives directly linked to the global Sustainable Development Goals (SDGs).

If sewage networks continue to grow in Southeast Asia, Japan will be able to introduce a broad range of projects to various countries. Water-driven partnerships between Japan and Southeast Asia will continue to flourish in the future.

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(1)

Otsu City, Shiga Prefecture, installed two manhole covers featuring the Pokémon character Gyarados in Otsu Lakeside Nagisa Park along Lake Biwa.

Photographed: September 2020. (c) Jiji Press.



(2)

The Tokorozawa City Waterworks and Sewerage Bureau, Saitama Prefecture, created and installed manhole covers featuring characters from Mobile Suit Gundam: The Origin to commemorate the 70th anniversary of the city's incorporation.

Photographed: November 2020. (c) Jiji Press.



(3)

This photo shows building and property developments in Cambodia's capital city of Phnom Penh.

Photographed: March 5, 2019. (c) AFP=時事



(4)

Cambodia's Prime Minister Hun Manet.

Photographed: November 25, 2024. (c) AFP=時事