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Contribution by Japan

to the CSTD 2022-2023 priority theme on “Ensuring safe water and sanitation for
all: a solution by science, technology and innovation”

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[4th Asia-Pacific Water Summit] Kumamoto Initiative for Water (Outline)

- Proactive Contribution to the Development of “Quality Infrastructure” based on a “New Form of Capitalism” -

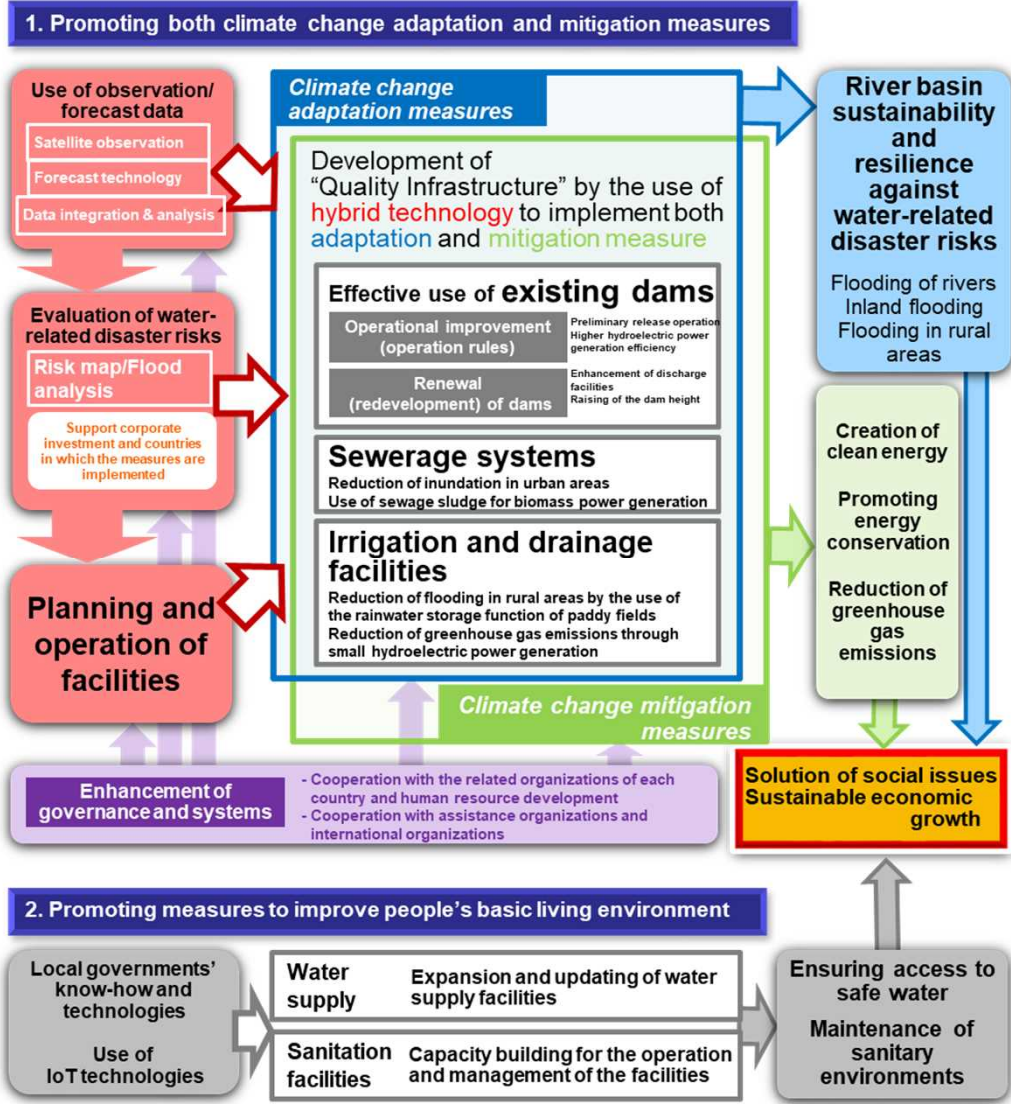
Japan will proactively contribute to the solution of water-related social issues faced by the Asia-Pacific region by developing “Quality Infrastructure” capitalizing on Japan’s advanced technologies, and based on a “New Form of Capitalism”, which means promoting public-private partnerships and fostering digitization and innovation to solve social issues as a growth engine for sustainable development and the formation of a resilient society and economy.

1. Promoting both climate change adaptation and mitigation measures

- (1) **Promoting the development of “Quality Infrastructure”**
 - Develop and provide **hybrid technology** to develop **dams, sewerage systems and agricultural facilities** to reduce the damage caused by flooding for river basin sustainability and resilience against water-related disaster risks for climate change adaptation and also to reduce greenhouse gas emissions for climate change mitigation (Improve and renew existing dams to bring about the effects more speedily)
 - Propose the introduction of “Quality Infrastructure” through public-private partnership
- (2) **Contribution to fill gaps of observation data**
 - Provide **satellite data** obtained from the meteorological satellite “Himawari” and Advanced Land Observing Satellite-2 (ALOS-2) “Daichi-2” as well as from the core satellite of the Global Precipitation Measurement (GPM) mission
- (3) **Contribution to governance (systems, human resources and capacity)**
 - Sophisticate the **evaluation of water-related disaster risks** by the use of **AI/IoT-based forecast and analysis technologies**
 - Support **human resource development** through the Asia-Pacific Climate Change Adaptation Information Platform (AP-PLAT) and the Data Integration and Analysis System (DIAS)
- (4) **Utilization and expansion of the Joint Crediting Mechanism (JCM)**

2. Promoting measures to improve people’s basic living environment

- (1) **Promoting the development of “Quality Water Supply Systems”**
 - Introduce **advanced technologies, including IoT technologies** for the development of water supply facilities
- (2) **Promoting the development of “Quality Sanitation Facilities”**
 - Develop sewerage systems and on-site treatment facilities and **enhance abilities to operate comprehensive treatment facilities**



Providing financial assistance worth approximately 500 billion yen over the next five years

4th Asia-Pacific Water Summit Kumamoto Initiative for Water

Japan will address water-related social issues faced by the Asia-Pacific region based on a “New Form of Capitalism”, specifically by fostering public-private partnerships and promoting digitization and innovation, regarding the solution of social issues as a growth driver for sustainable development and the formation of a resilient society and economy. For example, we will work for the development of “Quality Infrastructure” by making effective use of Japan’s advanced technologies to contribute to the rebuilding of the international economic order and the co-creation of value for the future of the Earth.

Based on this basic policy, Japan will press forward with both climate change adaptation and mitigation measures as well as measures to improve people’s basic living environment, thereby proactively making contributions to the solution of social issues regarding water and to the sustainable economic growth of the Asia-Pacific region and the entire world.

1. Promoting both climate change adaptation and mitigation measures

In the Asia-Pacific region, which accounts for half of the world’s population and more than one-third of the world’s GDP, the impact of climate change has already become apparent, with the number of flood events impacting a population of 1,000 or more having nearly tripled over the past 30 years, along with an increase in the magnitude of the damage.¹

In response to the issue of climate change, Japan will make use of its advanced technologies to develop “Quality Infrastructure,” including dams, sewerage systems and agricultural facilities, for river basin sustainability and resilience against water-related disaster risks² to reduce flood damage for climate change adaptation, while also reducing the emissions of greenhouse gases for climate change mitigation.

To this end, Japan will foster the effective use of its hybrid technology to implement both climate change adaptation and mitigation measures for dams, sewerage systems, agricultural and rural development, specifically to enable the advanced operation of the facilities as “Quality Infrastructure” and the formulation of plans to develop such infrastructure.

¹ Source: EM-DAT: The OFDA/CRED International Disaster Database

² Refer to the measures to reduce damage caused by flooding across a basin area based on cooperation between all related parties (national and local governments, companies, local citizens and others)

While promoting the development of “Quality Infrastructure” in the Asia-Pacific region, Japan will conduct feasibility studies to propose the introduction of such infrastructure through public-private partnerships, thereby contributing to the solution of local social issues and the sustainable development of the region.

(1) Promoting the development of “Quality Infrastructure”

(Development of “Quality Dams”)

Japan will develop and provide the hybrid technology that will enable the implementation of both climate change adaptation and mitigation measures for dams. Specifically, for climate change adaptation, precipitation observation and forecast technology will make it possible for water to be released from a dam to urgently lower its water level before it rains again during the flood season to mitigate the risk of flood damage. Also, based on the use of this same technology, the water level will be kept high during the non-flood period to improve the agricultural water supply function of the dam. Moreover, keeping the water level of the dam high after flooding and during the non-flood period will help enhance the hydroelectric power generation function of the dam for climate change mitigation.

Also, by using Japan’s technology to raise the height of a dam or enhance the water drainage facilities of a dam while it is in use, countries will contribute to fostering the variability of the water level of dams to transform them into “Quality Dams.”

Japan will share information about these measures through international cooperation frameworks, such as the International Flood Initiative³ and the Typhoon Committee,⁴ in which Japan is proactively participating.

(Development of “Quality Sewerage Systems”)

To reduce the risk of inundation for climate adaptation, Japan will also develop and provide hybrid technology to install sewerage pipes without the need for road excavation, thus avoiding causing traffic congestion in urban areas. It will also develop and provide hybrid technology to make effective use of sewage sludge for biomass power generation to produce more renewable energy for climate change mitigation.

Japan will increase the number of member countries of the Asia Wastewater Management Partnership (AWaP)⁵ from the present six to share know-how, experience

³ Framework through which UNESCO, the World Meteorological Organization, the United Nations University, the UN International Strategy for Disaster Reduction and other international organizations cooperate to foster flood management across the world

⁴ In order to reduce the damage caused by typhoons in the Asia-Pacific region, the Economic and Social Commission for Asia and the Far East (ESCAP) and the World Meteorological Organization (WMO) established this intergovernmental organization in 1968, in which a total of 14 countries and regions participate

⁵ Framework for six countries (Indonesia, Cambodia, the Philippines, Vietnam, Myanmar and Japan) to discuss measures to accelerate the development of sewage treatment facilities, which was established at the initiative of

and solutions to meet challenges, including the aforementioned measures, across Southeast Asia.

(Promoting “Quality Agricultural Infrastructure Improvement and Rural Development”)

Furthermore, Japan will develop and provide hybrid technology to construct/rehabilitate irrigation and drainage facilities and make effective use of the rainfall storage function provided by paddy fields to reduce flooding damage in rural areas as climate change adaptation, while fostering small hydroelectric power generation installed to irrigation and drainage facilities and introducing agricultural water management systems with ICT technology to realize climate change mitigation.

Japan will share knowledge and experience about these measures through the International Network for Water and Ecosystem in Paddy Fields (INWEPF)⁶ .

(2) Contribution to fill gaps of observation data

Japan will provide the data collected by the country’s meteorological satellite “Himawari” and Advanced Land Observing Satellite-2 (ALOS-2) “Daichi-2” as well as by the core satellite of the Japan-US Global Precipitation Measurement (GPM) mission to fill gaps of ground observation data, which are not available in many areas in the Asia-Pacific region, so that sufficient precipitation observation and forecast data are available in such areas for the advanced operation of “Quality Infrastructure” and the formulation of plans to develop such infrastructure.

Japan will implement these measures leveraging international frameworks, e.g. Group on Earth Observations (GEO) for the continual enhancement of the earth observation network in the Asia-Pacific region. The GEO is a multilateral cooperation framework developed at the initiative of Japan in which 113 countries participate, including 22 in the Asia-Pacific region.

(3) Contribution to the enhancement of governance (systems, human resources and capacity)

By making use of AI/IoT, Japan will develop the precipitation forecast and flood analysis technologies that are necessary for the advanced operation of “Quality Infrastructure” and for the formulation of plans to develop such infrastructure. Japan will then support the enhancement of the operational capabilities of the meteorological and hydrological bureaus of each country so that each country can visualize changes

Japan at the 3rd Asia-Pacific Water Summit held in 2017

⁶ International network for paddy farming and water environment founded under the leadership of Japan following the ministerial meeting on water, food and agriculture held as a part of the 3rd World Water Forum (Kyoto, 2003), in which 17 countries (mainly in Asia) and related international organizations, such as the FAO, participated

in local water-related disaster risks by utilizing the technologies developed by Japan and can make decisions on the appropriateness of the investments to be made for the implementation of the related measures. Also, through international cooperation frameworks, Japan will contribute to the selection of appropriate sites for community building while encouraging companies to make ESG investments and conduct activities in line with their BCPs.

In addition, in order to promote science-based climate change adaptation measures including the development of “Quality Infrastructure” in consideration of climate change risks, Japan will make use of the Asia-Pacific Climate Change Adaptation Information Platform (AP-PLAT)⁷ for the enhancement of the latest scientific knowledge and information, support tools and related capabilities.

Moreover, Japan will implement training programs for countermeasures against water-related disasters by using the earth observation data and climate change forecast data provided by the Data Integration and Analysis System (DIAS)⁸ and will conduct joint research for climate change forecasting in cooperation with universities and research institutes in each country, thereby contributing to human resource development and the establishment of related systems.

(4) Use of economic measures to promote climate change countermeasures

In order to promote the advanced operation of “Quality Infrastructure” and the formulation of plans to develop such infrastructure for the reduction of greenhouse gas emissions, Japan will expand the Joint Crediting Mechanism (JCM)⁹ from the current 17 and will lead introducing advanced decarbonizing technologies.

In addition, Japan will expand its emissions reduction project for the systematic use of technologies as well as for the packaging of multiple technologies, with a view to helping developing countries shift to a decarbonized society and develop “Quality Infrastructure.”

2. Promoting measures to improve people’s basic living environment

Water is one of the most basic and important elements for human life and is closely related to food and energy. Accordingly, Goal 6 of the SDGs addresses water issues.¹⁰

⁷ Information platform for climate change adaptation built by Japan to support decision-making in consideration of climate change risks and to foster highly effective climate change adaptation measures in the Asia-Pacific region

⁸ Platform to accumulate, comprehensively analyze and provide voluminous data in the domain of the global environment, including earth observation data and climate change forecast data

⁹ A scheme that Japan is implementing to quantitatively evaluate contributions to greenhouse gas emissions reductions and removals which are achieved through the diffusion of leading decarbonizing technologies, products, etc. and use such contributions to achieve Japan’s NDC.

¹⁰ SDG 6 states, “Ensure availability and sustainable management of water and sanitation for all,” based on the

In order to help individuals to improve their quality of life and be freed from poverty and social inequality, Japan will foster the development of infrastructure to improve water supply, sanitation, hygiene and basic living environments, thereby providing more people with access to safe water for the reduction of infant mortality and contributing to the maintenance of good hygienic environments and the improvement of the environment of public bodies.

In making these efforts, Japan will foster digitization and innovation for the operation of the infrastructure developed by each country with an eye to having water supply and sanitation facilities that are equipped with advanced technologies serve as “Quality Infrastructure” and a growth engine for the future.

Moreover, in expanding the use of “Quality Infrastructure” in the Asia-Pacific region, Japan will conduct feasibility studies to propose the introduction of such infrastructure through public-private partnerships for the solution of local social issues and sustainable economic growth.

(Promoting the development of “Quality Water Supply Facilities”)

In order to help water utilities increase their operational efficiency and enhance their management foundation to achieve growth and make management improvements, Japan will make use of the know-how developed by its own local governments to support water utilities in gaining more trust from local citizens. Japan will also provide its technologies and give financial support for the expansion and updating of the water supply facilities of these utilities.

Moreover, Japan will encourage in-field participation by companies in the private sector to help water utilities expand their revenue basis by establishing a billing and tariff collection system based on the use of IoT technologies, improve their water leakage detection capability, reduce non-revenue water to improve their profitability, and introduce advanced technologies for the desalination of seawater and recycling of used water as non-drinking water.

Also, Japan will contribute to the reduction of greenhouse gas emissions as well as stable water supply through energy saving by introduction of inverters for raw water intake pumps and the introduction of high efficiency water pumps.

(Promoting the development of “Quality Sanitation Facilities”)

For the development of healthy and sound communities and the improvement of the environment of public water bodies, Japan will build a business model for the improvement of the water environment by drawing on the expertise gained through its

recognition of the important role played by water in increasing the prosperity of more people, reducing social inequality and addressing climate change

own experience in overcoming pollution issues and utilizing its water treatment technologies under the Model Project for Improvement of Water Environment in Asia¹¹.

Also, Japan will make use of its technologies and give financial support for the development of sewerage systems and on-site treatment facilities in a localized manner in each area. It will also promote local capacity building for the formulation of wastewater management master plans and the sustainable management and maintenance of the facilities.

3. Financial contribution for the future of the Asia-Pacific region

Japan will proactively make contributions for the creation of a “Quality-oriented Society” in the water-risk-challenged Asia-Pacific region in cooperation with each country and with international organizations with regard to scientific technologies, governance such as systems, human resources and capacity, and capital. In such a society, which is sustainable and resilient against water-related risks, people can enjoy a high quality of life with no one being left behind.

As part of the measures, Japan will provide financial assistance worth approximately 500 billion yen over the next five years for the development of “Quality Infrastructure” through the use of its digital technologies and innovation, in addition to continuing its conventional effort to ensure access to safe water and sanitation for more people. Japan will thereby accelerate the water-related measures in the Asia-Pacific region and across the world toward the achievement of the SDGs by 2030 and carbon neutrality by 2050.

¹¹ Project to build a business model for the improvement of the water environment through feasibility studies and on-site demonstration tests conducted by companies and others on water treatment technologies in the Asia-Pacific region