April 2023
1st Regular Meeting of the 14th Taipei City Council

Administrative Report of the Taipei Water Department

Presenter: Huan-ying Fan, Commissioner

Table of Contents

Speaker, Deputy Speaker and esteemed members of the City Council:

It is a great honor to have the opportunity to report to you on the execution of the Taipei Water Department's state of operations at the 14th Annual General Meeting of the Taipei City Council.

I. Preface

In response to the increasing severity of climate change and the severe droughts and floods that have brought major challenges to the water supply, the Taipei Water Department (TWD) continues to promote the improvement of the water supply network and is committed to enhancing the capacity of water intake, water purification, and water supply backup and reserve, as well as building a disaster emergency water supply system to improve the resilience and response capabilities in Greater Taipei so as to stabilize the water supply. To ensure water quality, we actively promote the Feitsui Raw Water Supply Tunnel Tunnel Project through source management to improve the access and extraction of high turbidity raw water and adopt a multi-barrier strategy for water

purification to strengthen water quality safety control, with the aim of making water supply more secure in the Greater Taipei area. In addition, we have built a smart customer service system and we are promoting convenient online service applications and various online payment measures to address the problems and needs of the public and build a service-oriented government.

For the presentation today, I would like to report on key implementation matters of the TWD, innovative initiatives and recognition, as well as future policy priorities. We would appreciate your advice and support in various efforts and programs.

II. Business Overview

The TWD’s water supply area is 434 square kilometers, covering all of Taipei City, four districts of Sanchong, Zhonghe, Yonghe and Xindian in New Taipei City and seven boroughs of the Xizhi District. Our pipelines are also connected to the Taiwan Water Corporation's pipelines to support the water supply of areas outside the TWD’s jurisdiction in Sanchong, Zhonghe, Banqiao, Luzhou, Tamsui, Guandu, and

Xizhi districts of New Taipei City. In 2022, the TWD supported areas outside its jurisdiction with 650,000 metric tons of water supplied each day.

By the end of 2022, there were 3.689 million water users within TWD's jurisdiction (2.476 million in Taipei City and 1.213 million in New Taipei City), 1.61 million user accounts, and the water supply penetration rate was 99.69%.

In 2022, the total water sales amounted to 700.055834 million m^3, with total revenues of NT$7.23344 billion and total expenses of NT$5.9756 billion, resulting in an earned surplus of NT$1.25784 billion.

III. State of Implementation

1. Rigorous end-to-end water purification process control, high quality water in Taipei

(1) Water purification management and control.

1. We have implemented a comprehensive performance assessment of the water purification plant and adopted a "multiple barrier" strategy with reference to the practices of advanced countries, setting more stringent

internal control standards than the national drinking water quality standards through the use of continuous detection equipment to monitor the water quality of the water purification plant around the clock so that the water discharged from the plant at all times meets the drinking water quality standards. From January to December 2022, the average turbidity of water discharged from each water purification site was 0.02 NTU, which was much better than the regulatory limit of 2 NTU.

2. In order to improve the efficiency of water purification, the following measures were taken in 2022 in response to high turbidity caused by typhoons or heavy rainfall:

   (1) The tender for the "Water purification plant sludge treatment equipment improvement project" was completed in November 2022. After completion, the project will enhance water purification and sludge treatment capacity and equipment operating efficiency and increase the capability of response to

high water turbidity caused by typhoons.

(2) The construction of the "Changxing Site Flocculation and Auxiliary Equipment Improvement Project" commenced in May 2022 and was completed in December of the same year, which improved the water treatment capacity.

(3) Construction of the "Water Treatment Plant E&M Equipment Integration Improvement Project" commenced in July 2022 and is scheduled to be completed in December 2023. As of the end of December 2022, the construction progress was 58%, which is in line with the expected target. The completion of the project will improve the stability of the water intake of Changxing Water Treatment Plant and the stability of water treatment of the Zhitan Water Treatment Plant.

3. In order to prevent relatively high manganese content in the effluent caused by the overturning of the Feitsui Reservoir due to low temperature, a "SOP for high manganese

content in raw water" has been developed and a continuous manganese content detector has been installed. Furthermore, sampling of raw water quality is conducted regularly and "SOPs for high raw water manganese content" were established for implementation.

(2) Water quality monitoring

1. In addition to continuous 24-hour online water quality monitoring, stringent sampling and inspection are carried out for 141 water quality parameters. The online water quality monitoring system and the water quality testing laboratory are certified by the Environmental Analysis Laboratory, Environmental Protection Administration.
2. In order to ensure the safety and purity of water sources and water quality in the Greater Taipei Area, the Department has stepped up water quality sampling and inspection. From January to December 2022, the water quality inspection included 563 samples of raw water from water purification plants, 283 samples of clean water and

6,503 planned samples from water supply areas, with water quality conformity rate standing at 100%.

(3) Direct drinking water

Drinking fountains were installed in public places such as outdoor parks to provide friendly and convenient drinking water services. 665 drinking fountains had been installed as of the end of December 2022. To enhance the friendly drinking environment, 48 friendly drinking fountains were completed in 2022 to make it more convenient for people with limited mobility to access, to enhance the city's friendly drinking environment and to create a better barrier-free space.

2. Improving the pipeline system and water supply facilities

(1) Pipeline improvements

1. Water pipeline replacement

(1) To reduce the water leakage rate and improve the effective use of water resources, the TWD

has been promoting the 20-year "Water Supply Pipeline Network Improvement and Management Plan" since 2006, with the goal of reducing the leakage rate to 10% by the year 2025. The TWD’s water leakage management policy is based on four main axes, which are envisaged to improve the water supply network system with a multi-pronged approach, such as pipeline replacement, water pressure management, pipeline health inspection and leakage control, leak repair rate and quality. The leakage rate was reduced from 26.99% in 2005 to 11.20% in 2022.

(2) The cumulative length of pipeline replacements reached 2,398 km by the end of 2021. 100 km of pipelines were planned to be replaced in 2022, and 115.9 km of pipelines were actually replaced from January to December 2022 according to statistics, which is in line with the target.

2. District Metering Area (DMA)

Since 2002, the TWD has been promoting district metering areas (DMAs), dividing the network into many independent water supply grids according to the street outline and prioritizing the improvement of network weaknesses through metering evaluation and analysis of network weaknesses. As of the end of December 2022, areas have been consolidated and rezoned into 834 DMAs, and 399 DMAs are expected to be improved in 2022, with 432 districts actually completed as of the end of December 2022, which is in line with the target.

3. Water leakage detection and repair

To further improve the efficiency of water leakage detection, the TWD is combining water leakage detection with DMAs and focus on possible leaking DMAs to improve the overall effectiveness of water leakage improvement. It was expected that pipeline health checkups would be completed on 40 DMAs in 2022. From January to December of 2022, pipeline health checkups had been completed on 50 DMAs, with 31

leakages actually detected and fixed, which is in line with the target.

(2) Infrastructure facilities retrofitting

Due to the gradual aging of major infrastructure facilities, the performance of TWD's facilities is decreasing and the risk of water supply is increasing. In order to ensure a stable water supply and to strengthen the seismic and disaster prevention capability, the first phase of the water infrastructure retrofitting project is being carried out from 2020 to 2024. Work completed to date include:

1. Mains pipeline retrofitting: Cleaning and inspection, renewal or replacement of pipe sections in high-risk areas, with a planned completion of 15,000 meters of mains pipeline. As of the end of December 2022, 13,807 meters have been completed, including the Xinyi Branch Pipeline, the Beitou Mains Pipeline and the improvement of the seismic function of three water mains bridges, including Yuanshan and Jiantan of Keelung River and Erqing Mains

Pipeline of Xindian River, so as to gradually improve the pipeline network.

2. Site retrofitting: for aging high-risk water treatment facilities and booster stations, 50 preliminary seismic assessments, 95 performance assessments and 54 booster stations for distribution reservoirs have been completed and seismic retrofitting works have been carried out, with a capacity of 88,899 metric tons, of which one booster station and a distribution reservoir in Datong District began in December 2021 and was completed on January 19, 2023. The completion of the retrofitting project will ensure the system's operational efficiency and enhance its seismic response capability.

(3) Water supply to higher elevation areas

To serve the potable water needs for people in remote high elevation areas of the mountainous regions and to increase the penetration rate of water supply in Taipei City, the TWD completed various water supply system projects in March,

July and September of 2022 in three high elevation areas, including Jiuzhuang Street and Tea Production Demonstration Site in Nangang District, Shishoushan in Xinyi District, and Antai Street in Neihu District and a total of 133 customers have applied for tap water installation, addressing the problem of remote areas without running tap water.

3. Constructing backup sources to ensure water supply in disasters

(1) Feitsui Raw Water Supply Tunnel

In order to ensure the stability and safety of water supply in the Greater Taipei area, the TWD has set up an additional water intake on Beishi River downstream of the Feitsui Reservoir and set up a raw water pipeline to divert water through Zhitanshan, connecting with the Zhitan Second Raw Water Transmission Waterway of the Chukengtou Waterway to deliver raw water to the Zhitan Water Treatment Plant. The total length of the raw water tunnel is about 2.8 km and the project cost is NT$2 billion. After deducting the

self-funded amount, the central government subsidized NT$800 million. Due to the tunnel geology and rising costs and other factors, the total project cost is adjusted to NT$2.499 billion. The project kicked off in July 2019 and 2,553.7 meters of tunnel length had been completed in 2022. A tunnel lining length of 984 meters was completed, and the completion rate of the project was 80.72%.

(2) Water Purification Reserve

The Department has water purification plants such as Zhitan, Changxing, Gongguan, Yangming and Shuangxi, with a daily water purification capacity of 4.54 million metric tons. The average daily water output for 2022 was 2.41 million metric tons, achieving the desired backup performance.

(3) Water purification backup

1. To strengthen the regional backup capacity, a new Sanchong No. 2 distribution reservoir and booster station will be built within the rezoning area of Sanchong Erchong Floodways and a construction permit was obtained on March 30,

2022. The project was awarded on July 18 of the same year and construction began on October 17 and is expected to be completed in 2027.

2. In order to ensure the water supply in Taipei City and to improve the stability of water supply to Banqiao, Xinzhuang and other areas serviced by the Taiwan Water Corporation, we are promoting the backup mains pipeline project of Yiqing Trunk Pipeline (Zhonghe, Yonghe and Chenggong Road PCCP), which commenced on December 22, 2020 and is expected to be completed in 2025. As of the end of December 2022, the tunnelling shield has been pushed to a length of approximately 2,210 meters, which is in line with the target.

(4) Emergency water supply during disasters

1. Emergency life-support water supply station

There are 46 emergency life-support water supply stations in the jurisdictions of the Department (including 12 disaster prevention parks), including water distribution reservoirs,

water distribution pipelines and life-support water storage tanks, which can provide 344,000 metric tons of drinking water for a daily supply of 3 liters of water per person for 28 weeks to meet the need for temporary disaster shelters to allow time for emergency repairs.

2. School water supply stations

In 2022, 124 public schools in Taipei City were designated as water supply stations to facilitate access to water during natural disasters.

3. Disaster prevention groundwater wells

73 disaster prevention groundwater wells were set up in Taipei City's disaster prevention parks, disaster prevention schools or nearby neighborhood parks to provide 110L of water for daily use to 109,000 citizens for environmental cleaning and toilet sanitation during disaster periods. In order to maintain the normal supply of water from the groundwater wells, the wells are regularly maintained and managed every month.

4. Diversified smart and convenient functions for high performance services

(1) 24/7, year-round Customer Service Center

In order to provide quality services, The TWD integrates the Citizen's Hotline 1999 system to provide customers with a full range of personalized consultation and dispatch services by telephone for water bill inquiries, water leakage reports for repair, water outage and complaints, etc. From January to December 2022, a total of 313,480 calls were made and 15,982 cases were dispatched.

(2) Customer water outage and dispatch services

If customers find they have no water supply at home, they can call the TWD’s customer service hotline at 87335678. Upon confirmation, specialists at the TWD will check water outage information and provide advice to customers on checking household water equipment. If a technician dispatch is deemed necessary, the TWD will dispatch contractors to serve the customer within one hour. A total of 4,963 water

outage reports were dealt with from January to December 2022.

(3) "Smart customer service" interactive service

In order to provide diversified smart customer services, the TWD has developed and launched a smart customer service system. Through a PC or mobile phone connected to the Internet, customers can get instant answers to their questions on all matters related to water supply and receive 24-hour consultation without waiting. The system also provides five E-service applications, including "self-reported meter information," "water bill settlement," "account transfer," "reissue of water bill" and "water consumption abnormality detection," to greatly enhance the convenience of customers. From January to December 2022, the number of users was 20,579 and the number of queries was 57,696, with a system response rate of 98.94%.

(4) Paperless counters with optimized services

To enhance service efficiency, the "Convenient and Paperless Counter Application

System" was launched. When users apply for various services such as account transfer and suspension of water use at the counter, they can sign the applications on the electronic signature panel and scan ID documents for related services. The data is archived directly after the case is closed, and the entire process is paperless. From January to December 2022, 33,793 cases were processed, reducing 155,682 form printouts and effectively reducing paper consumption and processing time at the counter.

(5) Diversified payment channels

TWD launched a mobile payment service for the payment of water bills, and is currently partnering with 20 payment platforms. Users can also pay bills online by credit card. Users can scan the QR codes to check, pay and settle their bills instantly and at the same time, a special discount of NT$10 off the next water bill is offered when paying e-bills online, which was well received by customers. This has resulted in a growing adoption rate. From January to

December of 2022, the usage rate of mobile payments has grown to 11.05%, with an average of 87,776 payment collections per month. In addition, TWD provides multiple water bill payment channels, and the rate of payment through non-physical channels (payment at TWD locations) is as high as 97.97%.

5. Promoting water conservation, commitment to social responsibility

(1) Enhancing water conservation efficiency

1. In 2019, the Department reviewed the effectiveness of water conservation in affiliated city government agencies and schools and formulated the "2019-2022 Water Conservation Implementation Plan for Taipei City Affiliated Agencies and Schools," focusing on "strengthening water management" and "improving water utilization." At the same time, staff were dispatched to assist in the investigation of agencies and schools where the reasons of abnormal water use could not be determined. Statistics on water consumption in

Taipei City affiliated agencies and schools from January to December 2022 compared to the same period in 2018 showed a decrease of more than 10%, achieving the annual target goal.

2. To promote water conservation services for households, the TWD provides services such as house calls for toilet leakage detection, water-saving faucet installation and water quality testing to households with high water consumption. From January to December of 2022, 5,442 household water conservation projects were implemented. In addition, from March 22nd to November 30th, 2022, the Water Conservation Incentive for Toilet Leak Repair was offered to those who had their toilets leaked and repaired by the Water Conservation House Call Service, with a maximum incentive of NT$500 off the next water bill. A total of 742 applicants qualified and benefited from this discount.
3. For large water uses, social housing, and new

buildings, the TWD has set up an automatic meter reading management system and provided counseling on the use of the "Smart Water Manager" system, which allows customers to view water quality and water consumption at any time through TWD’s smart water network, as well as set up an alert service for abnormal water consumption, so as to detect abnormal water consumption or discover water leakages early to facilitate prompt improvement of water leakages and reduce unnecessary water bill expenditures and waste of water resources. By the end of 2022, 50,158 smart water meters (including 15,495 for operational testing) had been installed in new social housing, large water users with an average monthly consumption of 1,000m^3, government affiliated agencies and schools with an average monthly consumption of over 100m^3. We have improved 4,823 cases and prevented about 9.3 million metric tons of water leakage.

(2) Creating a water-friendly environment at Gongguan waterfronts

The Taipei Water Park is located in the hub of the Gongguan area and is a part of the city government's efforts to promote the "Southern Taipei NTU. Ecomuseum.” In recent years, the Park has been actively promoting the revitalization of historical sites. In addition to quality tour content and enhanced recreational facilities, the Park has also actively collaborated with private enterprises and public and private organizations to organize or sponsor campaigns to market the City’s administration, thus attracting visitors and foot traffic. At the same time, it links the surrounding attractions and business districts to revitalize local tourism and attract visitors to the Gongguan business district. Due to the sharp increase of confirmed COVID-19 cases in the first half of 2022, large-scale events such as the Taipei Water Festival was cancelled, and the Water Country Park was reopened in July 2022. In December, the Christmas season was

successfully held. 320,864 visitors visited the water park from January to December 2022, and the main activities and achievements during the season were as follows:

1. The Taipei Water Park is a designated historical site of "Taipei Waterway Water Source". Regular or reserved tours of the Museum of Drinking Water and Guanyin Mountain Reservoir were held to help visitors learn about the history and stories of the Museum. 130 regular tours of the Reservoir were held from January to December 2022, with 3,155 visitors; 74 group tours of the "Taipei Waterway Water Source" were held, with 1,801 visitors.
2. In order to improve the public's understanding of the historical site of Caoshan Waterway "Yangming Artesian Spring" and plan "good water exploration trip" under the premise of both historical site maintenance and environmental management, 288 individual free tours and travel agency group tours were held from January to December of 2022, attracting

8,297 visitors.

(3) Promoting environmental education on tap water

The Taipei Water Park is an "environmental education facility" and has planned a variety of environmental education programs for all ages. Through various educational teaching methods such as guided tours, dramas and experiential activities, different participants can learn about the history of Taipei's water supply, the water purification process, and appreciate the preciousness of water to give full play to the environmental education function of the Taipei Water Park. From January to December 2022, the Taipei Water Park held 56 environmental education events, attracting 2,931 participants.

IV. Innovative initiatives and recognition

1. Development of a new type of check valve

For customers with abnormal water supply that need to install check valves, the current commercially available check valves are "pipe-type" and must be installed only after cutting the pipeline. Due to the destructive method required,

resulting in low acceptance by customers, we developed and designed a new type of insert check valve, which does not require the cutting of pipes, overcoming the problem of insufficient space on site and benefits from short downtime for installation and low associated costs. This satisfies customers' needs, addresses the problem of water meter check valve installation and can be applied to enhance water quality safety at construction sites. The product has obtained the first patent in the country. The benefits of the product, such as easy installation and convenience offers high potential market opportunities in the industry in the future.

2. Development of sensors to assist in leak detection

Government institutions, agencies and schools are hotspots of intensive water use. Due to the large spaces, long internal pipelines and many water-using facilities, it will take a lot of time to inspect and repair once water leakage and other abnormalities occur. The TWD has developed its

own water level meter using IoT sensors, combined with humidity and vibration sensors, to help users further understand their water system when the smart water meter shows abnormal water use, and analyze water level changes in pools and water towers and motor vibration data through the water level meter. By comparing the timing of water intake on smart water meters, we can determine the possible abnormal areas of water use in institutions and schools, effectively discover the location of water leaks, shorten the number of days of water leaks and reduce the burden of manpower resources for leak detection to achieve the maximum benefit of improvement of resource utilization for internal channels. In 2022, 33 cases of counseling and improvement programs were completed in government institutions, agencies and schools in leak detection and 18 cases have been improved, saving 25,000 metric tons of water per month.

3. Improving the seismic capacity of the water

pipeline bridge system

To ensure the security of major water mains crossing rivers, the TWD carried out systematic seismic assessment and reinforcement works for four important water mains bridges by adding seismic blocks and bridge fall prevention devices to the lower foundational structure and installing telescopic anti-detachment ties and reinforcing jackets to improve the function of the upper pipe body. As of 2022, three water mains bridges have been completed across the Keelung River, including the Yuanshan Water Mains Bridge, the Jiantan Water Mains Bridge, and the Erqing Mains Pipeline in the Xindian River. The completion of these bridges will not only prevent water leakage due to joint disconnection caused by strong seismic activity, but also shorten the repair time for disaster damage and reduce the risks to water supply.

4. Introduction of large diameter uninterrupted water supply engineering technology

The demand for water for domestic and industrial activities in the Greater Taipei

Metropolitan Area cannot be disrupted for long. The TWD will create a market demand environment for water mains projects that seriously compromise the water supply service and introduce the technology of large diameter uninterrupted water supply method to reduce construction projects in the area that may result in substantial water suspension incidents. The TWD has also attracted Japanese companies to invest in related projects and fostered domestic technology development. The project has been completed with 20 branch continuous pipes and butterfly valves, which was recognized with the 2022 Public Works Excellence Award of the Taipei City Government. On the other hand, the TWD has dispatched its staff to study abroad to learn advanced technologies from around the world to cultivate our own domestic design and manufacturing capabilities and to conduct study and training programs with industry peers (Taiwan Water Corporation) to effectively improve the domestic water supply engineering technology.

5. Innovative work methodologies to overcome mains pipe deformations through seismic fault and geological variations

The 2.2-km-long ϕ1200mm water transmission pipeline of the Dadu Danhai Line overseen by the TWD passes through the Beitou Sanjiao Fault by adopting the shielding construction method and passes through clay layer and tuff breccia geological zone with extreme geological variations. Multiple obstacles in the ground are overcome by using special flexible seismic facilities, which serves to protect the mains pipeline. In October 2022, the project team was awarded the "2022 NO-DIG AWARD" in the new construction category by the International Society for Trenchless Technology for its excellent design and completion of challenging construction projects, allowing Taiwan's trenchless water supply project technology to enter the international arena for the first time and shine a spotlight on Taipei's urban construction.

V. Future administrative priorities

1. Creating good water environment for Taipei

(1) Refine pipeline network and optimize facility management

The TWD reviews the past network improvements and takes into account the implementation experience of advanced countries, and draw up the next "Water Supply Network Improvement and Management Strategy Plan" to improve the effectiveness of leakage control, overcome construction difficulties and other measures to conserve more water resources. Furthermore, enhancing the water management model of the water pipeline network, strengthening the application of spatial analysis and real-time computing capabilities and integrating with new-generation equipment technologies (such as smart water meters, Internet of Things, DMA meters, etc.) is envisaged to enhance system management and network information sharing.

(2) Reduce water supply risks and improve disaster preparedness

In view of the rapid increase in the rate of old and outdated water supply facilities in recent years, in order to maintain the efficiency of the facilities and increase the resilience and adaptability of water supply to climate changes, the TWD will continue to promote the second phase of water supply facility retrofitting projects to carry out improvement and backup works that can ensure stable water supply and strengthen the seismic and disaster prevention capability to the national seismic standards. This includes seismic assessment and analysis of the site facilities, review of structural integrity or reinforcement design of distribution reservoirs and increase the redundancy capacity of the distribution reservoirs to enhance the disaster response capabilities. For piping, corrugated stainless steel pipes are used for supply pipes and ductile cast iron pipes are used for distribution pipes to increase the overall vibration resistance of the pipeline network.

2. Refining quality service

(1) Optimization of direct drinking water management and services

By optimizing direct drinking water management and services, TWD facilitates the installation of mobile or fixed drinking fountains in outdoor public areas, and to promote a friendly drinking environment to meet the public's demand for drinking water in public areas, to realize energy saving and carbon reduction goals and to respond to the vision of a sustainable and friendly city.

(2) Promoting smart water meters

In addition to continuously promoting the installation of smart water meters in new buildings, the TWD shall also conduct operating tests in existing buildings and use the test results as a reference for the subsequent expansion of smart water meters through equipment calibration, data transmission and testing of results during the operating period.

(3) Expanding online services

Provide citizens with SMS bill inquiries and

online payment services. After the payment is made online, electronic invoices are sent by SMS or email, or automatically saved to user's linked invoice accounts to achieve the goal of digitizing the entire payment process. Through system optimization and integration, the new customer service system enhances customer relationship management and shortens the call time, improves the backup mechanism and supports remote services to improve system performance and make the customer service system more usable.

(4) Promoting water conservation

Continued implementation of household water conservation service measures, providing services such as toilet leak detection, installation of water-saving devices on faucets, water quality testing, etc. and promoting community water conservation promotion activities in conjunction with borough chiefs and homeowner's associations. The TWD will continue to educate schoolchildren on water conservation, raise public awareness of water conservation, and provide guidance to large water

users and agencies, institutions and schools on their own management of water use in order to expand the effectiveness of water conservation policies.

3. Promoting Sustainable Development

In 2023, the Taipei Water Department Sustainable Development Committee was established to formulate an Environmental, Social and Governance (ESG) sustainability policies, which shall align with the City's Net Zero Emissions Ordinance and set goals and corresponding action plans.

(1) Sustainable water supply

Regularly review the design and function of water facilities, and develop plans to improve disaster resilience standards and backup and recovery.

(2) Net-zero emissions

The TWD will conduct carbon inventories, reduce energy consumption and waste of all kinds, and increase adoption of green energy to effec-

tively reduce carbon emissions for sustainable development.

(3) Extension of the useful lifetime of assets

Through the facility retrofitting program, the TWD intends to enhance the resilience of the maintenance system, extend the useful lifetime of important water supply facilities, increase the life cycle, delay capital investment in replacement or reconstruction and achieve equipment system performance with the most economical resources, reduce resource consumption and improve operational performance.

VI. Conclusions

In the future, the TWD shall strive to implement the policies mentioned above, strengthen Taipei's disaster prevention capabilities and provide quality water and convenient services to the public.

We would like to express our appreciation to members of the City Council for your longstanding support. In the future, under your encouragement, continuous supervision and guidance, the TWD will lead all staff members to jointly make progress

together with society and provide the best services to the public. End of presentation.

Attachments

Image 1 TWD was awarded the 2022 Public Works Excellence Award of the Taipei City Government for the "2019 to 2022 Medium and Large Diameter Trunk Pipeline Uninterrupted Water Construction Project."

Image 2　TWD was awarded the International "2022 NO-DIG Award” by the ISTT for the "Dadu Danhi Line 1200mm Shielded Water Pipeline Project."