

Delivering
Quality Water
and Quality of Life
for a Sustainable Future



Annual Report
2019



WATER



Our business operations are **water management** under high quality international standard; **cleanliness, sufficiency and continuity;** and waste water treatment.

ENERGY

We are aware of alternative environmental friendly technology; **be solar energy,** wind energy and biomass energy, as sustainably **renewable energy** and environmental conservation.



ENVIRONMENT

Our business operation is **environmental friendly,** being fully aware of **environmental problems** with effective planning and control of the use of **natural resources.**

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Message from the Chairman of the Board of Directors



In the year 2019, TTW made a strong entrance into its 16th year, even in the midst of volatile economic conditions both nationally and on the world stage. The economic direction of the world today is determined by the two poles of world economic power in a trade war that has been ongoing and prolonged for many years. This has inevitably created a ripple effect across the economy of the world and of Thailand, resulting in Thailand's GDP falling to its lowest in 5 years. Even the Bank of Thailand had to adjust its interest rate policies to the lowest in 10 years in order to support the economic system of today and to survive. With the stable structure and business model of TTW, however, the Company has not been directly affected by the aforementioned factors, as can be seen in the steady growth and performance of the company, even in such unsettled times.

As for our operations, we intend to focus on and pay attention to every part of our process, continually developing and improving each aspect, as well as managing the organization with good corporate governance policies of transparency and fairness, and acting responsibly toward society, our communities, and the environment, in accordance with our Sustainable Development Policy. As the country's largest private tap water supplier, TTW places great importance on conducting business in a manner that does not adversely impact the environment. For example, sludge created in the tap water production process is researched by experts in order to create added value and promote career development in communities. Additionally, the treated water acquired from the sludge dewatering process is recycled into the tap water production process (Zero Discharge) to ensure no water is being wasted. Presently, some of the electricity used in the water production process is also being generated by solar energy so as to help reduce emissions. All of these initiatives show our concern and commitment to society, the community, and the environment and, combined with an efficient work process, lead to sustainable growth and create worthwhile, stable, consistent returns for our shareholders over the long-term.

Thanks to our determination and resolve in all aspects, TTW received a number of excellent ratings and evaluations by regulatory agencies and well-recognized institutions, including having received a good corporate governance recognition level of "Excellent" from the Thai Institute of Directors Association National Committee in the assessment

of Thai listed companies, as well as being ranked by the ThaiPat Institute as 1 out of 100 listed companies for outstanding Environmental, Social and Governance (ESG100) for the 4th consecutive year. Additionally, the Company was selected by the Stock Exchange of Thailand to be part of the "Sustainability Investment" listing and part of the list of securities used in the calculation of the SET100, SETHD, and SETTHSI indices. With regard to its financial reliability, the Company has continuously been assigned a credit and bond rating of "AA-" (Double A minus) and a "Stable" outlook rating by TRIS Rating Co., Ltd. each year, reflecting a strong business status and ability to generate good cash flow from operations consistently. Last year, was also the first time the Company was granted the honorary HRH Princess Maha Chakri Sirindhorn's Trophy in the "Thailand Corporate Excellence Awards 2019" for the category of Corporate Management Excellence, organized by the Thailand Management Association (TMA) in collaboration with the Sasin Graduate Institute of Business Administration of Chulalongkorn University.

In this new year of 2020, we look ahead to another challenging year for TTW due to the many fluctuating economic, political and social factors all around us. However, with the amazing potentiality, determination, and dedication of our company in the production of international quality tap water delivered to all consumers in every sector sufficiently and continuously, we are confident that 2020 will be yet another year of steady forward progress.

On behalf the TTW Public Company (Limited) Board of Directors, management and employees, I would like to thank our shareholders, business partners, affiliates, communities, and supporters in all sectors for their trust and support of the company's operations at all times. I can assure you that we will continue to conduct our business upon a strong foundation of good corporate governance, with a strong sense of responsibility to all our stakeholders in every sector, allowing TTW to grow steadily and surely while also caring for every aspect of our society, community and the environment, and creating sustainable returns for our shareholders.



Dr. Thanong Bidaya
Chairman of the Board of Directors



Vision

To be Thailand's leading company in Water, Energy and Eco-Friendly Businesses.



Mission

To grow on a firm, continuous and sustainable basis in order to accomplish our vision through the balance of interests among customers, employees, business partners, shareholders, communities and environments.



Corporate Values

Running business to fulfill our vision and mission on the basis of sharing highest satisfaction and benefits among stakeholders by means of:

- Continuous Improvement
- Proactive & Initiative
- Teamwork



Significant Financial Information

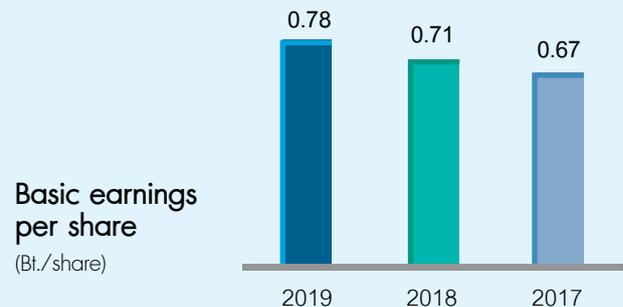
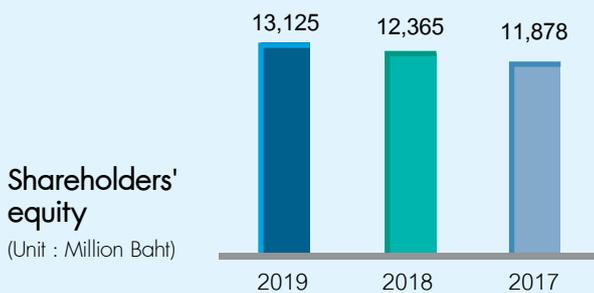
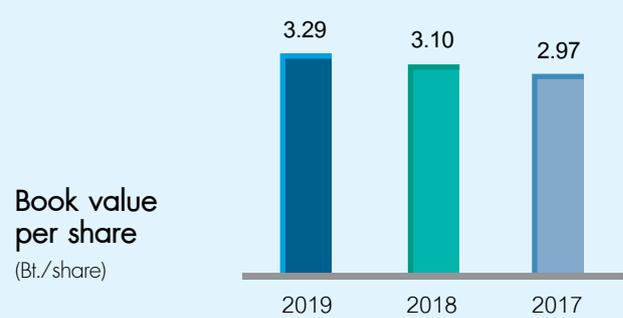
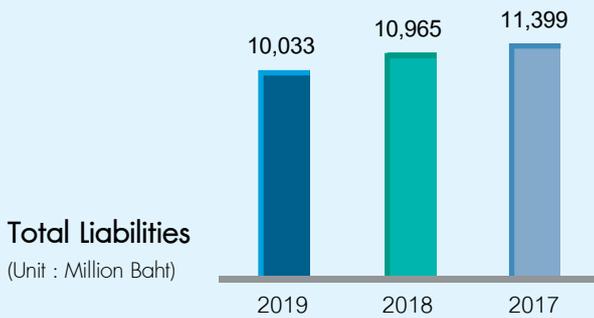
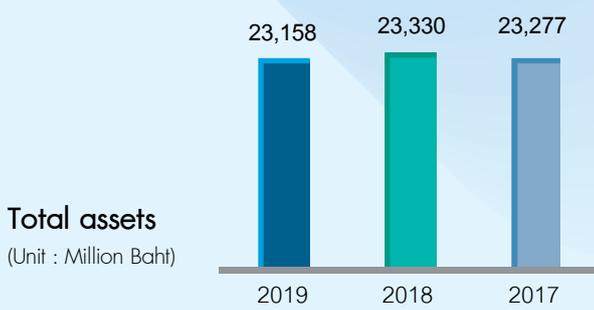
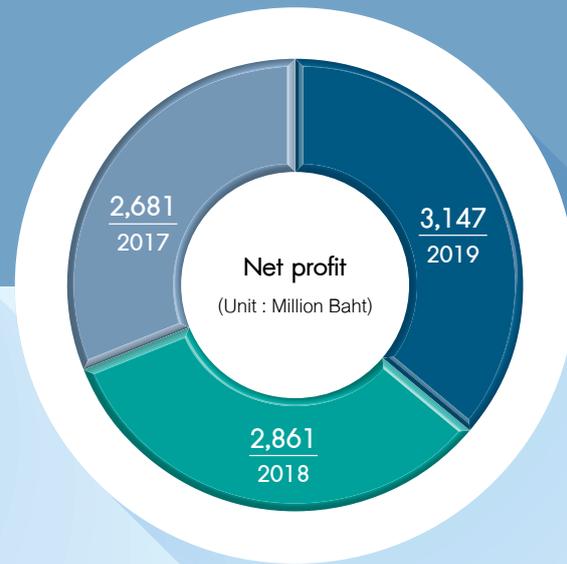
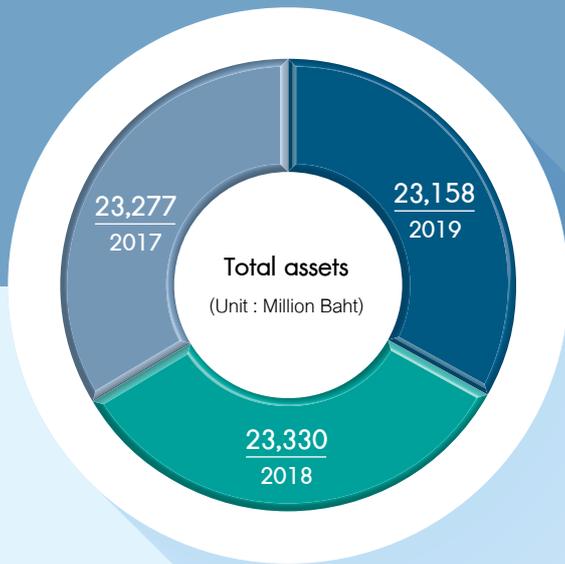
(Unit : Million Baht)

Description	Consolidated financial statements			Separate financial statements		
	For the year ended 31 December			For the year ended 31 December		
	2019	2018	2017	2019	2018	2017
Total assets	23,158	23,330	23,277	21,175	21,664	21,845
Total Liabilities	10,033	10,965	11,399	9,826	10,776	11,230
Shareholders' equity	13,125	12,365	11,878	11,349	10,888	10,615
Sales of treated water	5,993	5,807	5,474	4,096	3,975	3,772
Services income	119	118	121	44	42	43
Total revenues	6,166	5,949	5,747	5,193	5,004	4,973
Cost of sales and services	1,795	1,722	1,564	1,025	1,011	925
Administration and Management expenses	252	280	257	208	230	199
Financial costs	305	372	407	305	372	407
Income tax expenses	697	616	632	523	450	470
Gross margin	4,317	4,203	4,031	3,115	3,006	2,890
Net profit	3,147	2,861	2,681	2,855	2,667	2,700
Book value per share (Baht / share)	3.29	3.10	2.97	2.84	2.73	2.66
Basic earnings per share (Baht / share)	0.78	0.71	0.67	0.72	0.67	0.68

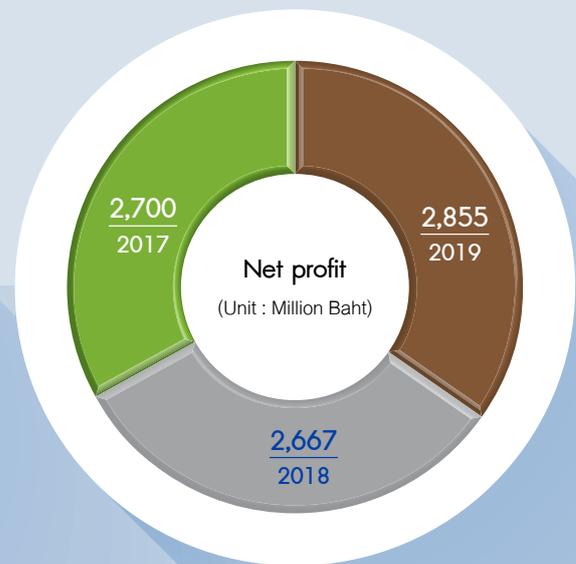
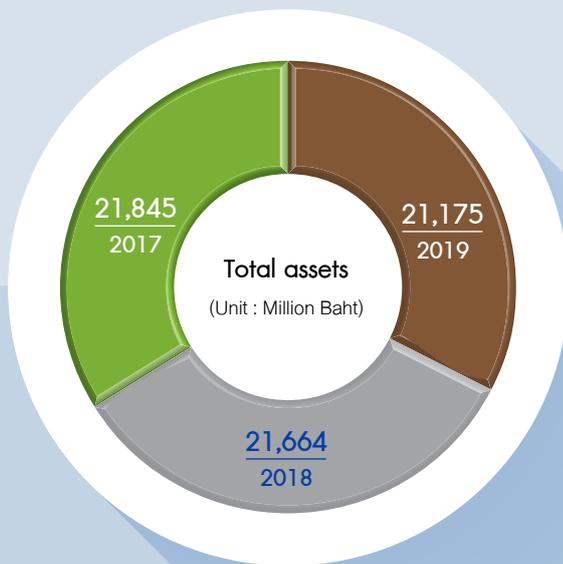
Financial Ratio

Description	Consolidated financial statements			Separate financial statements		
	For the year ended 31 December			For the year ended 31 December		
	2019	2018	2017	2019	2018	2017
Profitability ratio						
Gross profit margin (%)	70.64	70.94	72.04	75.23	74.83	75.74
Net profit margin (%)	51.05	48.09	46.64	54.98	53.29	54.28
Return on equity (%)	23.98	23.14	22.57	25.16	24.49	25.43
Efficiency ratio						
Return on assets (%)	13.59	12.26	11.52	13.48	12.31	12.36
Return on fixed assets (%)	23.40	19.86	17.40	25.79	23.24	22.60
Debt service coverage ratio						
Debt to equity (times)	0.76	0.89	0.96	0.87	0.99	1.06
Dividend Payout (%)	76.06	83.68	89.29	83.86	89.76	88.67

Consolidated financial statements



Separate financial statements



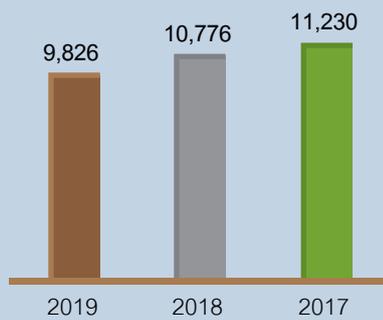
Total assets
(Unit : Million Baht)



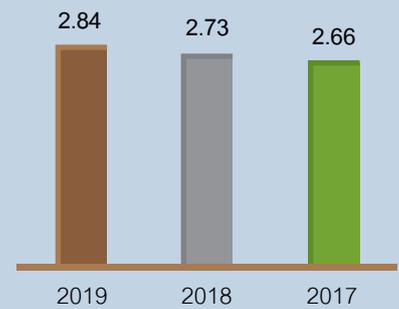
Net profit
(Unit : Million Baht)



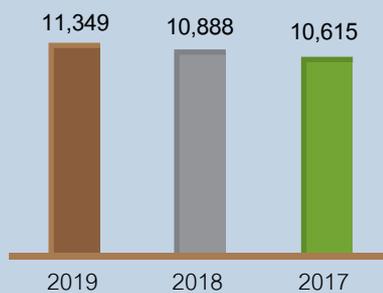
Total Liabilities
(Unit : Million Baht)



Book value per share
(Bt./share)



Shareholders' equity
(Unit : Million Baht)



Basic earnings per share
(Bt./share)





Awards



TTW received a credit rating at **“AA-”** with **“Stable”** outlook from TRIS Rating Co., Ltd. (TRIS Rating)



TTW has classified **CG Scoring into the “Excellent”** from Corporate Governance Report of Thai Listed Companies by Thai Institute of Directors Association (IOD).



TTW was selected by Thaiptat Institute as a 1 of 100 listed **company for achieving outstanding Operating performance with regards to environment, Social responsibility and governance** practices



TTW was selected by the Stock Exchange as a listed company engaging in the **Thailand Sustainability Investment 2019** or THSI of the group of listed companies on the Stock Exchange with market capitalization of 30,000 - 100,000 million for fourth consecutive year.



TTW received the **Thailand Corporate Excellence Awards 2019 for Corporate Management Excellence** from Thailand Management Association (TMA) in collaboration with Sasin Graduate Institute of Business Administration of Chulalongkorn University



TTW received the **Sustainability Disclosure Award** - the highest level of accolade granted during the Sustainability Disclosure Award 2019 organized by Thaiptat Institute



TTW received **100 score (full score)** in the assessment of the quality of the 2019 Annual General Meeting of Shareholders from the Thai Investors Association (TIA)



TTW received the **“Thailand Top Company Award 2019”** of **Fast - Growing Company Award** organized by Business+ and University of Thai Chamber of Commerce



TTW received the trophy from the Community Organizations Development Institute (CODI) at the World Habitat Day 2019, as **an organization that supports the development of the quality of life in the area** of the community organization network



TTW received the trophy and certificate in recognition of **the Quality of Life Enhancement Project for Underprivileged Children 2018** from Air Chief Marshall Dr. Prachin Chantong, Deputy Prime Minister in the press conference announcing the execution of the Quality of Life Enhancement Project for Underprivileged Children



General Information

TTW Public Company Limited

SET Symbol	TTW
Registration Number	0107549000114
Head Office Address	30/130 Moo 12, Buddha Monthon 5 Road, Rai Khing, Sampran, Nakhon Pathom 73210
Business Category	Utilities business in the production and distribution of tap water
Registered Capital	3,990,000,000 Baht
Paid-up Capital	3,990,000,000 Baht
Divided into Common Stock	3,990,000,000 Shares
Par Value	1 Baht per share
First Trading day in SET	22 May, 2008
Website	http://www.ttwplc.com
Contact	Head Office Telephone (+662) 019-9490 - 3, (+662) 019-9484 - 9 Facsimile (+662) 420-6064 Corporate Affairs Division <ul style="list-style-type: none">● Corporate Governance and Company Secretary Tel (+662) 019-9484 - 9 Ext. 1106 e-mail : cg@ttwplc.com● Investor Relations Tel (+662) 019-9484 - 9 Ext. 1108 e-mail : ir@ttwplc.com

Reference Person

Auditor	: EY Office Limited 193/136-137, Lake Rajada Office Complex, 33 th Floor Rajadapisek Road, Klongtoey, Bangkok 10110 Tel (+662) 264-0777 Fax (+662) 264-0789
Legal Advisor	: Offices of N&K Ltd. 990 Abdulrahim Place, 9 th Floor, Rama IV Road, Silom, Bangrak, Bangkok 10500 Tel (+662) 636-1111 Fax (+662) 636-0000



Nature of Business

TTW Public Company Limited (TTW)

TTW is the operator of tap water production and distribution in response to the government's policy to provide the public with adequate, continuing and good quality supply of tap water to the public that wants people to use tap water that is sufficient and continuous with the following nature of businesses.

Water Purchase and Sale Agreement with the Provincial Waterworks Authority (PWA)

On 21 September 2000, TTW and PWA signed a contract in which PWA agreed to purchase tap water, produced by TTW in order to resell the water to consumers in Sam Phran, Nakhon Chaisri and Buddha Monthon Districts of Nakhon Pathom Province, as well as Krathumbaen and Muang Districts of Samut Sakhon Province for a period of 30 years, starting from the date that TTW sold water to PWA according to the contract, i.e., 21 July 2004. The contract which will last until 20 July 2034 is called the Build-Own-Operate (BOO) under which TTW is the builder of water production and distribution facilities and the owner of such production and distribution facilities without having to transfer the facilities to the PWA. According to the contract, TTW must arrange to ensure the production capacity of 320,000 cubic meters per day and the Minimum Order Quantity (MOQ) that the PWA must purchase from TTW throughout the contract period is as follows.

Starting Date	Ending Date	MOQ (Cubic Meter / Day)
21 July 2004	20 July 2006	200,000
21 July 2006	20 July 2008	250,000
21 July 2008	20 July 2034	300,000

Apart from the MOQ amount of tap water that the PWA is required to purchase from TTW as detailed above, the tap water supply contract also requires TTW to maintain and ensure that TTW tap water production capability must be adequate to supply minimum amount of tap water required to purchase at the time plus the 7% minimum amount of tap water that is required to be purchased at that time or plus 20,000 cubic meter/day of tap water, whichever amount is lower.

An Amendment to the Water Purchase and Sales Agreement with PWA.

TTW signed an amendment to the Water Purchase and Sales Agreement with PWA on 29 December 2008 in which the MOQ amount has been increased from 300,000 cubic meters per day to 354,000 cubic meters per day. (increased 9,000 cubic meters per year). In 2019 from 1 January to 31 December, the rate for 1-300,000 cubic meters shall be 29.025699 Baht per cubic meter, and the exceeding 300,001 cubic meter shall be 12.32 Baht per cubic meter.

Tap Water Business Concession

TTW was granted a concession to engage in tap water production business from the Ministry of Natural Resources and Environment for 25 years, starting from 11 March 2005 to 10 March 2020. Under the concession, TTW shall produce and distribute tap water for the areas in 5 districts of 2 provinces as shown in the following table.

Province	District
Nakhon Pathom	Sam Phran, Nakhon Chaisri, and Buddha Monthon
Samut Sakhon	Krathumbaen and Muang Samut Sakhon

According to the provision in TTW Concession, TTW can produce and distribute tap water to anyone in the areas without limitation, e.g., PWA, Industrial Estate Authority and municipalities, etc., and TTW shall charge the tap water users at the rate, specified in the contract between TTW and PWA.

TTW Production System

TTW produces tap water by pumping raw water from the middle course of the Tha Chin River into tap water production process at TTW water treatment plant on the east side of the river at Bang Rakam Sub-District, Banglen District, Nakhon Pathom Province. The plant has installed and maximum production capacity of 320,000 cubic meters per day, as of 31 December 2009 and since August 2010, the production capacity has been increased to 440,000 cubic meter/day. The company built the 2nd water treatment plant at Krathumbaen, located on Settakit Road 1, Khlong Maduea Sub-District, Krathumbaen District, Samut Sakhon Province which was intended to be used as a secondary plant with a production capacity of 100,000 cubic meter/day. The two plants have a combined production capacity of 540,000 cubic meters per day.

The production process at the water treatment plants, the distribution of tap water to both water treatment plants and the tap water distribution process to the PWA is controlled by the Supervisory Control and Data Acquisition (SCADA) System which is able to control water production and distribution to distribution stations efficiently. Such system is installed in a control building which is located separately from the tap water production plant.

The quality of tap water, produced and distributed by TTW meets standard criteria, prescribed in the Water Purchase and Sales Agreement with PWA and the Thai Industrial Standard of the Thai Industrial Standard Institute, the Ministry of Industry. To ensure that the quality of the tap water meets these standards, TTW conducts the test on water quality at all steps of production, starting from the adding of chemical solvent until the sludge dewatering and the distribution of tap water from the water production plant. With efficient and skillful production, tap water, produced by TTW always meets the standard, prescribed by the PWA ever since the starting of operation on 5 January 2004 until present and in pursuance to the Thai Industrial Standard 257, Vol. 1-2521.

The Distribution of Tap Water to Distribution Stations

Tap water, produced by TTW will be distributed to the following 2 distribution stations

(1) **Buddha Monthon Distribution Station** is located on Buddha Monthon 5 Road, Rai Khing Sub-district, Sam Phran District, Nakhon Pathom Province. It has 2 storage tanks with the capacity of 50,000 cubic meters to pump water to the Samphran & Omnoi Distribution station, Krathumbaen Booster Station and Mahachai Distribution Station.

(2) **Mahachai Distribution Station** is located at Mueang Samut Sakhon District of Samut Sakhon Province and has 2 storage tanks with the capacity of 30,000 cubic meter to distribute tap water to Samut Sakhon Water Distribution station.

Both distribution stations has the water distribution control plant that pumps water through a series of water gauge to record the quantity of water, distributed to PWA. The two stations also have pressure control tank to prevent the occurrence of vacuum in water distribution pipe and deformity caused by resonance frequency.

Raw Water & Tap Water Distribution System

(1) **Bulk Trunk Main (BTM)** is the pipeline system from the water treatment plant to the 2 distribution stations of TTW, for a total distance of approximately 51 kilometers consisting of:

- Tap water distribution system from tap water treatment plant to Khlong Yong booster station.
- Tap water distribution system at Khlong Yong booster station to Buddha Monthon Distribution Station
- Tap water distribution system from Buddha Monthon Distribution station to Krathumbaen Booster Station
- Tap water distribution system at Krathum Baen booster station to Mahachai Distribution Station

(2) **Local Distribution Network (LDN)** is a tap water distribution piping network from both of TTW water distribution stations to PWA and the water users. The total length of the network is 113 kilometers. Each point of LDN is linked by the valve pond that consists pressure control equipment that links the LDN and PWA's service piping network. All of the valve ponds and pressure control equipment in 43 points are TTW's assets.

TTW has paid for the lease of land where the bulk transmission main (BTM) and local distribution network (LDN) are laid to the Department of Highways every year according to the lease agreement. The lease fee is subject to an increase of 15% in every 5 years according to the condition, prescribed by the Department of Highways. In 2019, the total lease fee that TTW had to pay was 34.48 million Baht of which 27.88 million Baht was for the lease of water treatment plant in Banglen and 6.60 million Baht for the second water treatment plant in Krathumbaen.

(3) **Raw Water Distribution System** is a raw water distribution system that flows from the Tha Chin distributary to the Rai Khing Raw Water Pumping Station, located at Rai Khing Subdistrict, Sam Phran District, Nakhon Pathom Province. The distribution system delivers raw water via a 1,500-millimeter water pipe with a total distance of 16 kilometers to the Krathum Baen water supply plant to bring raw water into the tap water production process.

Quality of Tap Water

The quality of tap water, produced and distributed by TTW meets standard criteria, prescribed in the Water Purchase and Sales Agreement with PWA and the Thai Industrial Standard of the Thai Industrial Standard Institute, the Ministry of Industry.

To ensure that the quality of the tap water meets these standards, TTW conducts the test on water quality at all steps of production, starting from the adding of chemical solvent until the sludge dewatering and the distribution of tap water from the water production plant. Moreover, samples of water were also sent to be examined by the Health Department of the Ministry of Public Health at least once a month from the start of operation on 5 January 2004 until present.

Pathum Thani Water Company Limited (PTW)

PTW is a manufacturer and distributor of tap water for the Provincial Waterworks Authority, and is the first private investment project to produce tap water for the replacement of groundwater use per government policy. PTW has the following key business characteristics:

A Contract to Produce and Supply Tap Water to the Provincial Waterworks Authority (PWA)

PTW has signed the Build-Own-Operate-Transfer (BOOT) contract with the Provincial Waterworks Authority (PWA) on 31 August 1995 in which PWA granted PTW the right to produce and distribute tap water in Pathum Thani-Rangsit areas of Pathum Thani Province for a period of 25 years, starting from the operation date, i.e., 15 October 1998 to 14 October 2023. Under this contract, PTW shall build tap water production and distribution system and shall transfer the ownership of distribution system to the PWA on the date that the operation started. And the ownership of tap water production system shall be transferred to PWA at 24.00 hr. of 14 October 2023 which is the end of the 25 year contractual period. However, PTW may request to lease the tap water production system from PWA in order to produce and distribute the tap water after the 25 years contract is ended by notifying the intent to PWA within the 24th year after the operation has started or at least 6 months before the transfer of tap water production system or between 15 October 2022 to 14 April 2023. PTW is entitled to lease the tap water production system from PWA 2 times at 10 year period.

Under this contract, PTW was granted the right to distribute tap water supply at the amount of not more than 288,000 cubic meter/day and PWA will stop supply from other tap water sources to the consumers in Pathum Thani and Rangsit areas after the start of operation, i.e., 15 October 1998, except at a time when PWA projects that the demand for tap water in Pathum Thani and Rangsit areas would exceed 288,000 cubic meter/day. In such case, the PWA would be entitled to commence a project to supply that exceeding amount of tap water, either by itself or by other third party private supplier

even though this contract has not yet terminated. However, the PWA shall be able to buy tap water from other sources or distribute tap water to the consumers at the exceeding amount only when the MOQ has reached 288,000 cubic meter/day. Therefore, at 15 days before the end of each year, PWA must set and notify the amount of MOQ that must not be lower than the MOQ of the previous year. In 2009, 2010, and 2016, the MOQ was 320,000 cubic meter/day, 330,000 cubic meter/day and 358,000 cubic meter/day, respectively (The total MOQ meets the requirement of the contract).

PTW pumps raw water from the Chao Phraya River to be used for the production of tap water in its production facility in Sam Khok District. The tap water supply would then be sent through the Bulk Transmission Main (BTM) to the 4 distribution stations, i. e., Rangsit Station, Thammasat Station, Pathum Thani Station and Muang Ake Village Station (Distribution officially started on 7 September 2015). Then, tap water from Rangsit Station, Thammasat Station and Muang Ake Village Station would be distributed to PWA's Rangsit Office and Klong Luang Office. The water from Pathum Thani Station would be distributed to PWA's Pathum Thani Office through the LDN main that belongs to PWA. The amount of water to be purchased in each month shall be measured by meter at the 4 distribution stations and the water charge rate is adjusted on 1 January of every year.

Contract to Buy Additional of Tap Water

On 15 September 2006, PWA and PTW signed a contract that increased the purchase additional amount of tap water supply by 70,000 cubic meter/day to be distributed to areas under the operation of PWA's Rangsit Office, using some assets from the Production and Distribution of Tap Water Contract. The expansion project was in response to an increasing daily demand for tap water. PTW invested in improving the raw water system, construction of tap water production system, booster pump station, improving distribution system and stations in order to increase production capacity by 100,000 cubic meter/day. On 1 August 2008, PTW started the production and distribution of tap water to PWA and this contract will end on 14 October 2023, the same time as that of the Production and Distribution of Tap Water Contract. The nature of the contract was the Build-Own-Operate-Transfer (BOOT).

Tap Water Business Concession

PTW was granted a concession to operate tap water business by the Ministry of Interior (Currently, under the supervision of the Department of Natural Resources and Environment) for a period of 25 years, starting from 13 January 2000 to 12 January 2025. Under this concession, PTW was granted the right to produce and distribute tap water in the service area of Pathum Thani-Rangsit, Pathum Thani Province. The PTW shall charge the the PWA at the rate, specified in the Tap Water Production and Distribution Contract.

PTW Production System

PTW water treatment plant is located in an area of 46 Rai at Ban Pathum Sub-District, Sam Khok District, Pathum Thani Province. Initially, the plant had the installed production capacity of the plant was 288,000 cubic meter/day. PTW increased the production capacity for the first time to 100,000 cubic meter/day in 2008 and in 2015, the initial production capacity has been increased to 57,000 cubic meter/day and the maximum production capacity to 100,000 cubic meter/day. As a result, the current production capacity is 488,000 cubic meter/day.

Tap Water Transmission System to Water Distribution Stations

The tap water is pumped and transmitted to 4 following water distribution stations.

(1) **Thammasat Water Distribution Station**, distribute tap water to PWA Khlong Luang Distribution System and some areas under PWA's Ayutthaya Office from where the tap water is further distributed to the users in the areas of Khlong Luang District and some areas in Ayutthaya province.

(2) **Rangsit Water Distribution Station**, distribute tap water to PWA Rangsit Distribution Station from where the tap water is further distributed to the users in the areas of Thanyaburi District and Lam Luk Ka District.

(3) **Pathum Thani Water Distribution station**, distribute tap water to PWA Pathum Thani Distribution System from where the tap water is further distributed to the users in the areas of Mueang District, Sam Khok District and Lard Lum Kaew District.

(4) **Muang Ake Water Distribution Station**, distribute tap water to some areas under PWA Rangsit Distribution System so that it could transmit more water to the areas of Khlong 4-5 of Khlong Luang area. Muang Ake Water Distribution Station distributes tap water to users in Lak Hok Sub-District, Ban Mai Sub-District, Bang Phoon Sub-District, Mueang District, Pathum Thani province.

All four of PWA's water distribution stations have installed a set of equipment to control the level of distribution pressure to be in proper balance with water quantity, required in the distribution areas. The water is distributed through a series of water gauge that record the amount of water, distributed to PWA, the same way it does to TTW. However, the areas under the responsibility of PTW covers the water gauge installed in the water distribution only.

Tap Water Transmission System

1) **Bulk Transmission Main (BTM)** This 33.78 Kilometer-long water transmission system distribute tap water from water treatment plant to the company's following

- Water Transmission system from PTW Water Treatment plant to Rangsit Distribution Station.
- Water Transmission system from PTW Water Treatment plant to Thammasat Distribution Station.
- Water Transmission system from PTW Water Treatment plant to Pathum Thani Distribution Station.
- Water Transmission system from PTW Water Treatment plant to Muang Eak Distribution Station which is located in Water Treatment Plant, distribute to Muang Eak.

2) **Local Distribution Network (LDN)** This is a tap water distribution system that transmits water to 4 of PWA's water distribution stations according to the Water Production and Distribution Contract between PTW and PWA. All of distribution systems built by PTW would be transferred under the ownership of PWA on the start of operation or on 15 October 1998. Therefore, the PTW water distribution systems that comprise some of the water distribution mains, including the valve pond are transferred to be the assets of PWA.

Quality of Tap Water

The tap water produced and distributed by PTW is in accordance with the standards stipulated in the Contract to Produce and Supply Tap Water and the Additional Tap Water Purchase and Sales Agreement, both of which are according to the Industrial Product Standards of the Thai Industrial Standard Institute (TISI), Ministry of Industry. Tap water produced by PTW has, throughout the past, always met said production and quality standards.

Bangpa-in Industrial Estate (BIE)

TTW has acquired the rights from the Bangpa-in Land Development Company Limited to produce tap water and treat waste water in the Bangpa-in Industrial Estate (BIE) for a period of 30 years, starting in August, 2009, with a production capacity of 48,000 cubic meters per day and a treatment capacity of 18,000 cubic meters of wastewater per day. The Company entered into a system maintenance management agreement with Thai Water Operations Company Limited (TWO) on August 7, 2009, to manage the water supply and distribution system and the waste water collection and treatment system in Bang Pa-in Industrial Estate.

BIE Production System

Tap water production is carried out by pumping raw water from the Chao Phraya River into the production and water distribution process of various factories in the Bangpa-in Industrial Estate. The entire process is fully automated using the SCADA (Supervisory Control and Data Acquisition) system in order to control water supply and distribution efficiently. The system is located in a control building in a water treatment plant consisting of a 7,000 cubic meter water storage tank. A chemical storage building has been built separate from the water supply plant in which chemicals are stored before being added automatically to the water production system.

The quality of the tap water produced and distributed meets the standards set forth in the contract, which is in accordance with the water quality standard criteria of the Provincial Waterworks Authority as recommended by the World Health Organization (WHO) in 2011. To guarantee that the tap water meets the said criteria, the water quality is tested at every step of the production process, from the adding of chemical solvents to the distribution of tap water from the water production plant, thus ensuring that the production process is efficient and that all water meets the standard criteria.

Wastewater Treatment System

The central wastewater treatment system of Bangpa-in Industrial Estate, which is an activated sludge treatment system, has a maximum wastewater treatment capacity of 18,000 cubic meters per day, with current levels of wastewater totaling about 14,000 cubic meters per day. The treated wastewater is stored in an 18,000 cubic meter wastewater tank (1 day retention period) before being discharged into the Bangpa-in Industrial Estate drainage system for reuse and recycling before the remaining water is drained into nearby water sources.

Treated Water Quality (Effluent)

Management of the central wastewater treatment system of Bangpa-in Industrial Estate controls the quality of the treated water (effluent) to ensure it is in accordance with the Ministry of Natural Resources and Environment's Notification regarding Industrial Effluent Standards for Industrial Factories, Industrial Estates, and Industrial Zones, 2016.

Thai Water Operations Company Limited (TWO)

TWO has been contracted by TTW and PTW to provide management and maintenance of the water production and wastewater treatment systems for TTW within the Bangpa-in Industrial Estate and Amata Water Company Limited within the Amata City Industrial Estates of Chonburi and Rayong. Significant operating agreements are as follows:

1. Maintenance management and water production and wastewater treatment systems management agreement with TTW

TWO entered into a system maintenance management agreement with TTW on June 12, 2001. The 30-year contract period is equal to that of the tap water purchase agreement, starting from the date of commencement of business on July 21, 2004, until the expiration of the agreement, which shall be on July 20, 2034, in order to carry out management and maintenance of all operations. On August 7, 2009, TWO was also hired by TTW to manage the water production and distribution system and the wastewater collection and treatment system in Bangpa-in Industrial Estate, Phra Nakhon Sri Ayutthaya Province.

2. Maintenance management agreement with PTW

TWO entered into a maintenance management agreement with Pathum Thani Water Company Limited, located at 43 Moo 3, Chiang Rak Noi - Bang Sai Road, Ban Pathum Subdistrict, Sam Khok District, Pathumthani Province, to be responsible for the maintenance of the water production system. The contract expires on October 14, 2023.

3. Management and maintenance of water production and wastewater treatment systems agreement with Amata Water Company Limited

TWO entered into a management and maintenance of water production and wastewater treatment systems agreement with Amata Water Company Limited within the Amata City Industrial Estate, Chonburi, and Amata City Industrial Estate, for a total of 6 contracts.

Marketing and Competition

Nature of Customers and Channel of Distribution

TTW has only one customer, PWA who purchase tap water from both of TTW's water distribution at Buddha Monthon and Mahachai. PWA distribute the water to users through distribution and service mains. The quantity of water that TTW sells to PWA is measured at the main gauge at the distribution points, located at both distribution stations.

PTW produces and distributes tap water for PWA who purchases tap water from all of PTW's 4 water distribution stations, i.e., Pathum Thani, Rangsit, Thammasat and Muang Ake Stations to sell the tap water to users in the service areas of Pathum Thani-Rangsit.

Demand for Tap Water in the Areas

Tap Water Demand in Nakhon Pathom and Samut Sakhon Provinces

As these are expanding areas on the outskirts of Bangkok with rapid growth in both population and residential areas, and as they are densely populated industrial areas with tens thousands of industrial factories, the Department of Water Resources has placed particular importance on the supply of adequate water to meet the continuously increasing water demand in these areas. A survey and study in the service area by Team Consulting Co., Ltd. in May of 2017 projected that water consumption by users in these service areas until 2034 will be about 800,000 cubic meters per day.

Industrial water users are the main water users in the TTW service area. According to 2019 data, industrial water users account for 42% of the total water supply distributed by PWA, followed by commercial and household water users, which accounted for 16% and 42% respectively.

Tap Water Demand in Pathum Thani – Rangsit Areas

The results of a study on tap water demand in this area, conducted by Team Consulting Co., Ltd., indicated that the area with the highest increase in tap water demand was the Lam Luk Ka District, as this is located in the area where Pathum Thani and Sai Mai, Bangkok, connect, and is an area predicted to experience an increase in economic prosperity. Currently there is also the Green Line electric railway construction underway in order to connect Moh Chit, Saphan Mai, Khu Khot and Lum Luk Ka Districts. This railway line is expected to be completed and open for service in 2020, resulting in the development of real estate projects around the BTS route, further increasing the likelihood of greater population growth in the Lum Luk Ka District, thus also increasing the demand for tap water in this area in the future. In addition, the completion of the Bang Sue - Rangsit Red Line electric railway in the Khlong Luang District makes this another area with a high water demand growth rate expected.

Considering the above statistics together with the data for tap water consumption in the Pathum Thani – Rangsit service area of PTW, it was found that household or residential sectors account for the highest proportion of water usage at 62%, followed by the industrial sector at 21% and the commercial sector at 17%. Residential and household users, therefore, play an important role in the business operations of PTW.

Strategies and Competition

Tap water is a basic consumer product essential for life itself. In 2019, the country's largest tap water producer, the Metropolitan Waterworks Authority (MWA), produced a total of 2,240 million cubic meters of tap water, while the Provincial Waterworks Authority (PWA) had a production volume of 1,967 million cubic meters. TTW and PTW are considered the largest private tap water production and distribution contract parties and, in 2019, the amount of tap water produced and distributed by TTW and PTW to PWA was 315 million cubic meters—16% of PWA's total production amount or 72% of the total amount of tap water produced by all private producers.

Production Strategies

TTW employs foreign-imported tap water production technology which is efficient and modern. The “Leopold” filters are installed, making the filter tank to be durable than the sand filter tanks that are generally used. This filter system also help save water, required for washing the filter tanks. The use of Leopold filter in place of gravel filter and nozzle made the distribution of water and air circulation more thoroughly while filtering from the top layer and in backwash process. Also, the use of Leopold helped gotten rid of the sand and gravel mix issue during backwash and the need to change sand and gravel layers. The use of Leopold also help save more water and air during the backwash than the use of sand and gravel filters. All of TTW's water production and distribution activities are controlled by the Supervisory Control and Data Acquisition (SCADA) System which a modern and efficient computerized management system. TTW also assigned personnel to control production activities 24 hours and built employees' dormitory inside the compound of TTW water treatment plant to ensure that the production process is operated continually and efficiently and an incident occurred, the production control staffers could promptly address the problem. With the production capacity of 440,000 cubic meter/day and the BTM main network with the span of 51 kilometers and LDN system, made of steel high density polyethylene pipes, the distribution main system can withstand very high water pressure. Moreover, all distribution points, connecting with PWA network were designed and constructed as valve ponds which enabled easy and effective inspection of leaks and maintenance works.

TTW also built the second water treatment plant at Krathumbaen District of Samut Sakhon Province. This plant has production capacity of 100,000 cubic meter/day. The TTW's total production capacity of 540,000 cubic meter/day could meet the demand of tap water users in the areas of Samut Sakhon and Nakhon Pathom provinces adequately without interruption. TTW also installed Ultra-Filtration system the Krathumbaen tap water production plant. The construction of Krathumbaen Plant was designed to prevent the risk that may occur from having only one water production plant in Banglen District. In case that Banglen plant is unable to produce the water, Krathumbaen plant could be used as the back-up plant to produce tap water for PWA.

Service Area Expansion Strategies

TTW sees good business opportunity if it builds tap water distribution main network that covers main streets in its tap water distribution areas and major communities with high demand for tap water. For example, TTW has distribution main networks that cover areas along such major roads as Petch Kasem, Buddha Monthon Sai 4, 5, 7 and Boromratchonnee in Nakhon Pathom Province and Sethakit, Rama 2 and Ekachai Roads in Samut Sakhon Province. When combining with PWA's water distribution network, TTW network covers a large economic area. Moreover, TTW also joined hands with PWA to survey many areas in order to plan for the improvement of tap water distribution efficiency in areas where tap water pressure is low and where the demand is high. In the year 2019, TTW supported PWA to laying pressure pipes to to increase water supply capability of PWA, Samut Sakhon Branch, Bang Pla Sub-district to support household and industrial water demand, and the Omnoi branch in Salaya Sub-district to support household demand. There is also a collaboration project with PWA to expand the water distribution area of PWA.

TTW plans to improve 2 additional pressure boosting stations, namely Khlong Yong booster station, and Krathumbaen booster station to be a water distribution station in the future, in order to increase the capacity to deliver - supply the water to potential service areas that have high demand.

Communication and Public Relations Strategies

TTW recognizes the importance of its business processes and contract management, as well as of good cooperation in the carrying out of a variety of activities. TTW, therefore, is currently focused on the communication of necessary information between the Company and PWA and water users, as well as the publicizing of various activities to relevant sectors, such as water users, relevant government agencies, etc.

Service Quality Creating Strategies

TTW strongly believes that tap water operator should not only produce good quality tap water but also provide good service which includes the distribution of tap water in adequate quantity and with proper pressure as well as continuity of services. Followings are some of the good quality services provided by TTW in 2019.

- (1) The quality and cleanliness of the tap water met the Industrial Standard 257, Part 1-2521 100%.
- (2) Sufficient water pressure at the end of tap water distribution pipes at not less than 27 meters. Water 100%
- (3) The continuous flow of tap water distribution is not less than 99.94%

TTW also cooperated with PWA to organize meetings with large industrial and commercial tap water users regularly in order to get views and recommendations to improve the quality of goods and services, to build trust, to increase total sales of tap water in service areas and to foster good relationship with tap water users. Moreover, TTW also organized other activities to express gratitude to tap water users.

Quality Control and Examination

TTW regards the importance of the good quality of tap water and services that we provide to PWA and tap water consumers. Apart from close control on the quality of water at all steps of production, TTW also provided cooperation to PWA in the examination of water samples, collected from water users in each service areas in TLAA laboratories to ensure that the quality of tap water, distributed to downstream users is consistent with that of the water produced by TTW. At the same time, TTW also provided advices to the water users who requested us to examine the quality of downstream water free of charge. This is because we believe that “Good Quality Tap Water Brings Better Quality of Life”.

Cost Management Strategy

With modern production technology installed, TTW is able to efficiently produce tap water. By using modern filtration technology and gravity to help sedimentation process without using electrical power to circulate the water, TTW has been able to effectively maintain the cost of production at manageable level. Moreover, TTW also have a subsidiary, TWO to operate as a maintenance unit of operation that enable TTW to control maintenance works without having to outsource them.

Water Demand Monitoring

In foreseeing the future business opportunity, TTW has hired the Team Consulting Engineering and Management Co., Ltd., to provide engineering consultancy and to conduct a study on future demand for tap water in TTW service areas until the year 2034. The consulting company also conducted a study on potential service areas in the future and developed a plan to improve production, distribution and transmission systems. As for the assessment of actual water distribution, TTW conducted the study to get information on actual water pressure and flow of tap water in LDN distribution system by using the Hydraulic Model. The results of the study enabled TTW to effectively plan and manage the distribution system with sufficient water pressure and flow that cover all service areas.

PTW

Production Strategy

PTW installed “SCADA System” technology to automatically control production process through telecommunications system at all of its water treatment plants and distribution stations. The SCADA System is installed in the control building. PTW also installed water quality control system in which raw water is examined by Jar Test system twice a week in order to verify the proper content of chemical substances, required for the production of tap water. For sand filtration tank, PTW installed the backwash process, using air nozzle, installed all over the cross sectional area underneath the sand filtration layer of the filter tank. The process uses air pressure to help clean up dirty residue, mixed in the sand filter layer. PTW assigns staffers to control production process 24 hours a day. The Company has also improved distribution system of the water treatment plants by using the newly built water reservoir inside the water treatment plant to distribute tap water to Pathum Thani Distribution Station in order to be able to distribute greater amount of tap water to Rangsit and Thammasat Distribution Stations.

Service Areas Strategies

PTW determined to respond to the tap water demand of users in Pathum Thani Province which has been increasing rapidly and continually. PTW also discussed with PWA regularly to the schedule in order to find ways to improve the efficiency of services.

Communication and Public Relations Strategies

PWA currently has more than 350,000 water users in the Pathum Thani Province service area, including water users in the household sector, industrial sector, and commercial sector. This means PWA sees a greater number of water users about 160,000 more people in these service areas than in the Nakhon Pathom and Samut Sakhon Province service areas of TTW, which currently accounts for around 190,000 people. The household sector accounts for more than 60% of water usage while the industrial sector accounts for around 20% of PWA’s water distribution sales. Operations covering communication and public relations for news and service information regarding tap water quality and continuity, or regarding interruption of tap water supply due to various disruptive factors, both controllable and uncontrollable, therefore, are extremely important.

PTW operates public relations through appropriate communication channels, such as electronic mail or short messages (SMS), or Line groups for PWA or tap water users in the form of organizations, in order to provide speedy access to information in the event of water pipe repairs or maintenance affecting tap water supply to water users, thus reducing impact on the production of goods or services.

In addition, PTW has also established good relations with various mass media such as journalists, etc. in order to be a media to disseminate company news to the public. Increase the scope of communication. Therefore, in presenting various information, that is correct to the people The media is therefore a tool or media that can reach people well.

Service Quality Creating Strategy and Quality Control and Examination

These strategies continue to comply with contractual agreements with the Provincial Waterworks Authority granting the right to produce and distribute tap water, both in terms of quality and cleanliness and in terms of adequacy and continuity of water supply, thanks to good goal setting and the implementation and review of said goals on an annual basis, as is the case with all the operations of TTW.

Cost Management Strategy

With modern production technology installed, PTW is able to efficiently produce tap water, by using modern filtration technology and gravity to help sedimentation process without using electrical power to circulate the water, PTW has been able to effectively maintain the cost of production at manageable level. Moreover, PTW also have a subsidiary, TWO to operate as a maintenance unit of operation that enable PTW to control maintenance works without having to outsource them.

Products and Services

TTW Production

(1) Production Technology

TTW uses water production technology from England and the Company's staffers have knowledge and expertise in tap water production process that meet international standard. The modern technology used by TTW is the Supervisory Control and Data Acquisition (SCADA) which is a computerized system, used for the automatically control of tap water production and distribution process. As a result, tap water produced by TTW always meets the TIS 257 Parts 1-2521, the standard, prescribed by the PWA.

In addition, TTW's tap water supply system has been designed for efficient production, with a view to attaining maximum saving on production costs. Said design is based on the "Gravity Flow" principle, in which raw water is pumped up to a water pumping station and then is released to flow downward by gravity through the rapid mixing tank, sedimentation, filtration and chlorine mixture processes before being sent to the water storage process and, finally, to both water distribution stations. This process allows the Company to save on electricity used in production when compared to pumping water through each of the above steps as is normally done in the tap water production process.

Average Quantity of Tap Water Produced by TTW during 2017 - 2019

Unit : Cubic meter per day

Description	2017	2018	2019
Production Capacity	440,000	540,000	540,000
Average Water Sales Volume	399,714	433,631	455,122
Utilization of Production (%)	90.8%	80.3%	84.3%

In 2019, TTW had an average tap water supply volume of 455,122 cubic meters per day, equal to 84.3% of total water production capacity at 540,000 cubic meters per day. Tap water distribution volume also increased by 5.0% as compared to total tap water distribution in 2018. Due to the increased demand for tap water in the household sector from real estate development projects to support the expansion of Nakhon Pathom and Samut Sakhon provinces, including supporting the supply of additional water supply in the PWA's other service areas.

(2) Production Process

The water source for production of tap water by TTW is the area in middle course of Tha Chin River. The raw water in natural source in general is contaminated with physical, chemical and biological substances and not proper for production of tap water. Followings are processes used in the production of drinkable tap water.

- There must be no micro-organism in tap water in the production and transmission of tap water through pipe system and to the faucets of users.
- Must not contain any bio-organism, suspended or mixed in tap water, transmitted through the pipes until it reaches the faucet of the users.

- (c) All of the gases, diluted in the water must be removed from tap water.
- (d) All unwanted contaminating substances that may cause harm or instant or chronic condition to human such as Cadmium, lead, Phenol and Cyanide must be removed out of the tap water.
- (e) Must remove unwanted substances from the tap water as much as possible. Tap water must not have smell or taste unwanted by the consumers.
- (f) Tap water must be treated well so it can satisfy the needs for drinking, cleaning and industrial purposes by the users.

PTW Production

(1) Production Technology

The technology, used by PTW to produce tap water is similar to that of TTW, i.e., all production steps are controlled by SCADA System which is an automatic system, operated through tele-communications system, Control and adjustment of work rates for various units throughout the system, such as water flow rate, pressure, etc., can all be carried out via computer using the SCADA System in the control room building. Moreover, the system to obtain or pump raw water into the treatment plant has the capacity of 500,000 cubic meter/day.

PTW's maximum production capacity as of December 31, 2019 was 488,000 cubic meters per day. The total sum of 488,000 cubic meters per day comprises:

- Installed production capacity of the water plant was 288,000 cubic meters per day
- Additional production capacity was 200,000 cubic meters per day due to expansion of the water production plant and construction of the Booster Pump Station in the Liap Khlong Premprachakon road area on the Bulk Transition Main (BTM) between the water plant and the Rangsit water distribution station. Production details are as follows:

Average Quantity of Tap Water Produced by PTW during 2017 - 2019

Unit : Cubic meter per day

Description	2017	2018	2019
Production Capacity	488,000	488,000	488,000
Average Water Sales Volume	372,065	399,806	408,042
Utilization of Production (%)	76.24%	81.95%	83.6%

In 2019, PTW had an average tap water supply volume of 408,042 cubic meters per day, equal to 83.6% of the total tap water production capacity at 488,000 cubic meters per day. Tap water distribution volume also increased by 2.1% as compared to total tap water distribution in 2018. Due to the increasing demand for tap water in the household sector from the expansion of Pathum Thani Province, including supporting the supply of additional water supply in other service areas of the Provincial Waterworks Authority.

(2) Production Process

PTW tap water production process has identical procedures as that of TTW.

Raw Material and Suppliers

(1) Raw material used in the production of TTW

- (a) Raw water that TTW uses for the production of tap water is from Tha Chin River which is pumped to the water treatment plant in Bang Ra Kum Sub-District, Banglen District, Nakhon Pathom Province without any cost, except for the 200 Baht/year concession fee. Payment must be made to the Ministry of Natural Resources and Environment as the concessionaire. Additionally, the Company must pay compensation to the concessionaire's inspector, paid in advance annually in the amount of 200 baht per year per concession. As TTW has received two concessions, therefore, TTW must pay compensation of 400 baht per year to the concessionaire's inspector.
- b) Main chemical substances used is Liquid alum, Potassium permanganate, Liquid chlorine, Polyelectrolyte, Lime
TTW purchases raw materials from a variety of suppliers, selecting those manufacturers that have standard product quality, whose products have been tested in the TTW chemical laboratories, who have the ability to deliver and keep reserve products according to the needs of TTW, and who offer said products at the lowest prices.

As the most important chemical substance required for the production of tap water, the total purchase of lime is the highest, compare with other chemical raw material, TTW buys lime from several domestic suppliers and since it is a raw material without strict specification, if the supply is not available by the regular suppliers, TTW could easily buy it from other suppliers.

(2) Raw material used in the production of PTW

- (a) Raw water that TTW uses for the production of tap water is from Chao Phraya River which is pumped to the water treatment plant in Ban Pathum Sub-District, Sam Khok District, Pathum Thani Province. PTW pays 200 Baht/year concession fee.
- b) Main chemical substances used is Liquid alum, Liquid chlorine, Polyelectrolyte, Lime

PTW doesn't use potassium permanganate in the tap water production process because the nature of raw water from Chao Phraya River is different from the water from Tha Chin River. Raw water from Tha Chin River is composed of certain chemicals that cause the water to have color and potassium permanganate help remove that color.

Environment Impacts

TTW

TTW strongly recognizes the importance of environmental conservation. However, the tap water production process create sludge which is treated by the sludge dewatering process in which polyelectrolyte is used to create sludge before being discharged at the dumping area, prepared by TTW. The treated water acquired from the sludge dewatering process is recycled into the tap water treatment system through the "Zero Discharge". TTW examines the sludge regularly every year by laboratory with certified standard.

Regarding chemical waste generated by wash water from the laboratory, in the past, TTW hired a chemical treatment company on a case-by-case basis, about once or twice a year, without a long-term contract. This is because the amount of chemical waste needing treatment on a yearly basis is minimal, while the amount of tap water produced is likely to increase steadily, which means that waste created during the production process—tap water sludge—is increasing as well. Recognizing the importance of its social and environmental responsibility, TTW has joined hands with the Laem Phak Bia Environmental Research and Development Project under Royal Patronage, and with the Department of Environmental Science, Faculty of Environment, Kasetsart University, in conducting a study on the use of tap water sludge left over from the production process as a raw material for creating shared value (CSV) in nearby communities in the form of social development projects between the Organization and society/communities both now and in the future.

In 2019, as a result of the tap water sludge research and study conducted in collaboration with the Laem Phak Bia Environmental Research and Development Project under Royal Patronage, TTW obtained the following 3 types of products: 1) compost, 2) fuel briquettes, and 3) construction bricks. At the Company's head office, concepts for the creation of compost using tap water sludge mixed with green waste have also been applied, whereby fresh food waste is sorted into a separate waste bin. This fresh food waste is then mixed with tap water sludge in a 2:1 proportion per the composting method obtained from the tap water sludge research carried out by the Faculty of Environment at Kasetsart University. The compost is then used to fertilize and care for trees within the head office premises, the objective being to further expand research of tap water sludge in order to benefit society in a larger way, as well as to raise awareness among employees regarding waste separation and recycling for environmental protection.

TTW also strictly complies with environment-related laws and support the government and local environmental agencies such as the Environment Office Region 5, the Ministry of Natural Resources and Environment, Nakhon Pathom Province and the Love Tha Chin River Club to implement sustainable development and water conservation project in order to keep the quality of water in Tha Chin River in good condition, and adherence to good occupational health and safety principles. Thus far, TTW has had no disputes and/or lawsuits related to the environment.

PTW

PTW also recognizes the importance of environmental conservation. PTW uses Zero Discharge system in which no water is discharged back into raw water source. The Company recycle the treated water, left over from the sludge dewatering process back into the tap water production.

Analysis carried out at the end of 1999 by the General Environmental Conservation Public Company Limited (GENCO) found that sludge created in the production process does not contain toxic substances that cause environmental contamination. Thus far, PTW has provided said sludge, completely free of charge, to external parties and communities requiring sludge for land reclamation within the areas in which PTW operates.

In the past, PTW contracted GENCO on a year-by-year basis to eliminate chemical residues left over from the cleaning of storage tanks, chemical preparation tanks, and water from the laboratory. Said waste chemicals were sent to GENCO for treatment about once a year, at a volume of not more than 5 tons per year. However, since expiry of the last contract at the end of 2006, PTW has not continued its yearly contracts with GENCO, although said substances continue to be correctly disposed of according to relevant laws.

In 2019, as a result of the experimental research and study of tap water sludge conducted in collaboration with the Center of Excellence on Hazardous Substance Management at Chulalongkorn University, TTW obtained the following 4 types of products: 1) fluoride absorbents, 2) interlocking bricks, 3) floor tiles, and 4) clay tiles. The Company has also used said clay tiles in the refurbishment of school buildings at Wat Ratchdhammaram School in Na Khok Sub-District, Mueang District, Samut Sakhon Province, as part of the Student Quality of Life Promotion in Disadvantaged Schools Project, Year 3, of the Office of Air Chief Marshal Prajin Jantong. The objectives of the project were to increase the value of waste created in the tap water production process by utilizing it in construction projects, as well as to promote the image of the Company in regard to social responsibility.

Satisfaction Surveys

The Company understands the importance of providing good services to customers (PWA) in its Samut Sakhon - Nakhon Pathom and Pathum Thani - Rangsit areas. The Company therefore conducts regular customer satisfaction surveys every 6 months and summarizes the results of these annually in order then to utilize said results to improve and develop the efficiency and quality of the products and services of the company. In 2019, the Company completed a customer satisfaction survey, the results of which can be summarized as follows:

Number of Areas in Customer Satisfaction Survey	PWA, Both Areas, 8 Branches
<p>▶ Survey topic details</p>	<ol style="list-style-type: none"> 1. Tap Water Quality 2. Tap Water Supply Adequacy 3. Tap Water Supply Continuity 4. Personnel Service Quality
<p>▶ Customer satisfaction factors</p>	<ul style="list-style-type: none"> • Tap Water Cleanliness • Tap Water Pressure • Tap Water Supply Continuity • Appropriateness of Dress Code • Etiquette and Politeness • Service Attentiveness • Information Accuracy • Information Speed • Documentation Completeness • Communication Efficiency Levels • Problem Solving Speed and Efficiency • Support for PWA Activities

Business Development

Pursuant to the 20-Year Master Plan on Water Resource Management during 2018 - 2037 conducted by the Office of the National Water Resources (ONWR), it sets the framework to manage water resources in line with the Water Resource Act B.E. 2561 and support the development of the nation as stipulated in the 20-Year National Strategy Plan during 2018 - 2037.

International market

The research department of Stock Exchange of Thailand revealed that as of the end of 2018, the trend of foreign direct investment by Thailand's listed companies is going upward. Of all listed companies, 44% or 231 companies have significant investments in foreign markets at the total amount of 199,260 mil. Baht. Of such investments, 12% or the total amount of 23,273 mil. Baht is invested in the Resources sector.

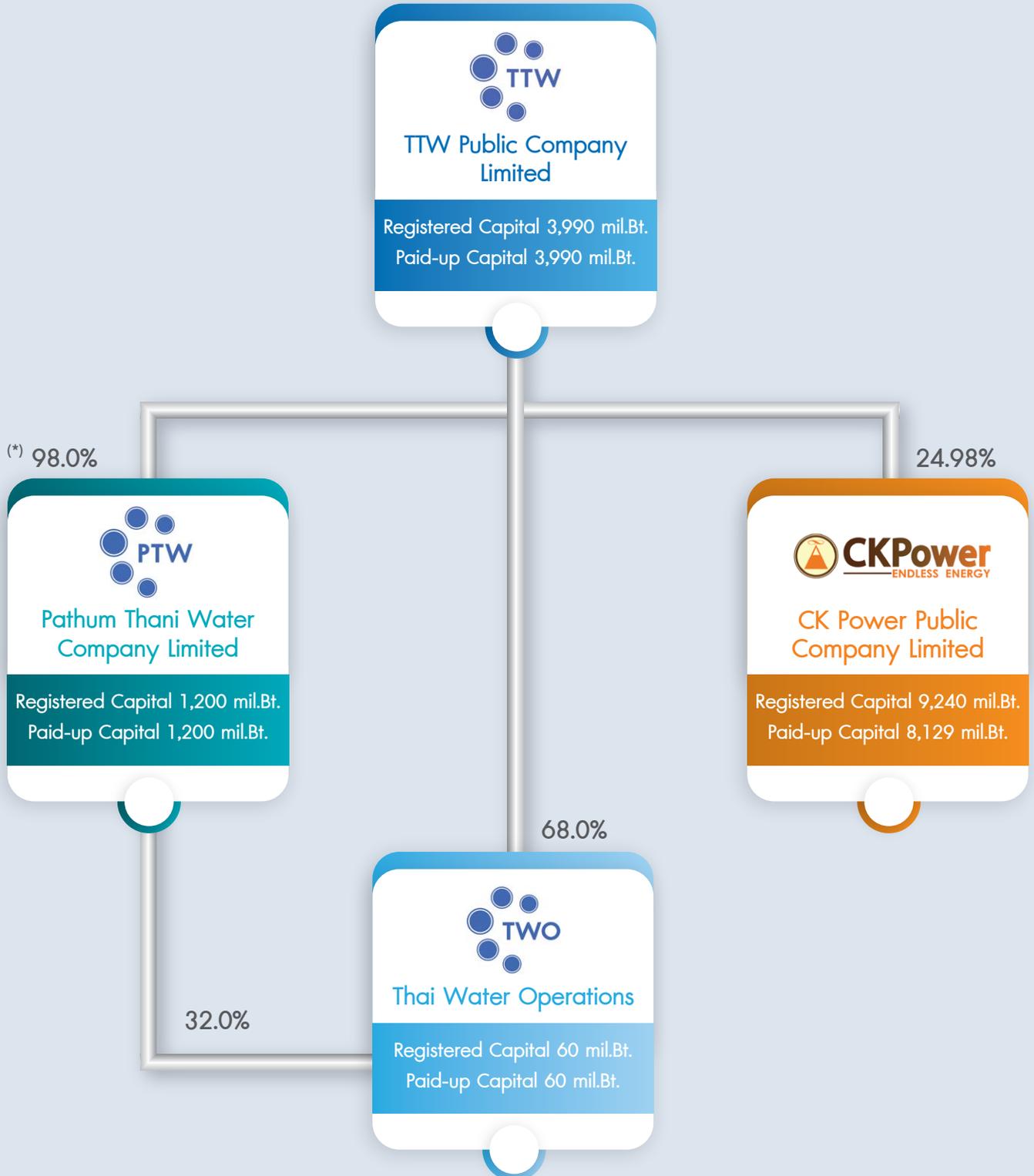
TTW has sought any feasible opportunities for water-related businesses in foreign markets particularly in CLMV, at which, such frontier markets require the continuous development in infrastructure as well as clean water for local people to easily access.

Furthermore, TTW has diversified its investment to energy and eco-friendly businesses through its affiliates by using the company's financial strength for sustainable growth.



TTW and its Subsidiaries Structure

As of 31 December 2019



Remark : ⁽¹⁾ 2% is owned by Provincial Waterworks Authority (PWA)



List of Subsidiaries

Pathum Thani Water Company Limited

- **Business Category** Produce and distribute tap water to the Provincial Waterworks Authority (PWA) in Pathumthani - Rangsit area
- **Registered Capital** 1,200,000,000 Baht
- **Paid-up Capital** 1,200,000,000 Baht
- **Divided into Common Stock** 12,000,000 Shares
- **Par Value** 100 Baht per share
- **Address** 43 Moo 3 Chiangrak Noi - Bang Sai Road, Baan Pathum, Samkhok, Pathumthani 12160
Tel (+662) 019-9484
Fax (+662) 420-6064
- **Website** www.ptw.co.th

Thai Water Operations Company Limited

- **Business Category** Operate and Maintain tap water production, distribution system and Wastewater treatment system
- **Registered Capital** 60,000,000 Baht
- **Paid-up Capital** 60,000,000 Baht
- **Divided into Common Stock** 600,000 Shares
- **Par Value** 100 Baht per share
- **Address** 30/10 Moo12 Buddha Monthon 5 Road, Rai Khing, Sampran, Nakhon Pathom 73210
Tel (+662) 019-9480
Fax (+662) 420-6064
- **Website** www.two.co.th

CK Power Public Company Limited

- **Business Category** Holding Company, by holding shares in other companies engaging in the business of production and sales of electricity generated from various kinds of energy, both local and overseas, and providing consulting service and other management services related to electricity production projects.
- **Registered Capital** 9,240,000,000 Baht
- **Paid-up Capital** 8,129,382,039 Baht
- **Divided into Common Stock** 9,240,000,000 Shares
- **Par Value** 1 Baht per share
- **Address** 587 Viriyathavorn Building, 19th floor, Sutthisarn Vinijchai Road, Din Daeng, Bangkok 10400.
Tel (+662) 691-9720
Fax (+662) 691-9723
- **Website** www.ckpower.co.th



Risk Management

TTW Public Company Limited conducts risk management in business operations so that organizational levels based-risks in each aspect can be managed to reach the acceptable levels, by the encouragement from the management that makes the operational plans to become practical and successful. This can be accomplished by having each operational sector propose operational plans and report the performances quarterly to the Risk Management Officer (RMO), and make a summary of risk management meetings in each quarter to report to Risk Management Committee (RMC). In case of political, economic and social changes, the company always makes a self-review in order to keep up with current situations and to make itself updated. Therefore, if the company is always prepared, it can adjust strategies or operational plans for many issues, resulting in good outcomes in the future. With good risk management, if any incident affecting the organization occurs, the impact in many aspects can be rectified or lessened and also crises can be turned into opportunities for the company.

In 2019 the company reviewed the register of the organizational risks and revised a list of risks resulting from both internal and external factors. However, the company still implements organizational risk management in accordance with Enterprise Risk Management Framework, which is divided into 3 parts in terms of Strategy, Operation, and Finance by arranging for a register of risks consisting of risk items, risk control measures and monitoring operating results of risk management designated plans continuously with the following details:

Strategic Risk

1. **The water supply was not according to the business plan.** There were 4 risk factors.
 - 1.1 Support PWA to increase water sales volume into potential area or expand the service area under the contract.
 - 1.2 Monitoring the other tap water producers both public and private sectors that would affect the water supply in the service area of the company at present and in the future.
 - 1.3 Monitoring and analysis of abnormalities in the volume of water distribution of the company.
 - 1.4 Manage the maintenance of machinery, main equipment and electrical systems, as well as formulate solutions and preventive measures.

Operating Risk

2. **Quality of tap water was not according to the sales-purchase tap water contract.** There were 2 risk management measures
 - 2.1 Establish a surveillance program and proper monitoring.
 - 2.2 Coordinate the information exchange with relevant agencies.

Financial Risk

3. **Adding new businesses in water, energy and the environment.** There were 2 risk management measures
 - 3.1 Tracking the information and the movement in business related to the company both domestically and internationally including changing in laws
 - 3.2 Studies and develop the investment projects in infrastructure according to government policies and investment plans and seek allies.



Internal Control

TTW's Board of Directors and the management team recognize the importance of internal control and risk management systems. If, in the course of business operation, any type of risk may occur, all departments in the Company be able to address such risk with the laid out measure by mitigating the risk to a lower or acceptable level. The Company tries to have in place a sound risk management and control system to ensure that it can operate to achieve the business goals of stable and sustainable growth and efficient operation. The Company strongly believe that if resource management and control system is appropriately put in place, it would be able to achieve the laid out business goals.

In recognizing the importance of internal control systems, the Board of Directors has assigned the Auditing Committee which comprises 3 independent committee members to direct and supervise internal control system and risk management system of the company efficiently and correctly in accordance with good corporate governance principle, transparency, precision and reliability. At the meeting on November 8, 2018, the Board of Directors resolved to approve a total of 6 internal auditing plans

The Company has an Internal Audit Section and the manager of this section has completed training courses relating to internal audit. The company's internal audit department is the inspector in accordance with the approved plan. After the audit is completed, the Internal Audit Section shall report the results of the audit to the Managing Director. The Internal Audit Section shall also report the results of the internal audit directly to the Company's Auditing Committee in order to ensure independence in performing the auditing.

The Company has conducted the internal audit according to the Professional Standards of Internal Audit and Internal Control Practice of the Committee of Sponsoring Organizations of the Tread way Commission: COSO which is widely recognized in respect of principle and content of assessment in 2019.



Related Party Transactions

TTW complies with requirements and rules and regulations of the Securities and Exchange Commission (SEC). In a case that TTW is to engage party transaction that may lead to a conflict of interest, an approval from the Board of Directors must be sought. The Audit Committee will determine the justification of the engagement in such transaction by taking into account the maximum benefits for the company. The prices and conditions in the transaction must be based on normal business nature, fair price, or by comparing it to a market price. Any directors who related to such transaction that may lead to a conflict of interest shall not be eligible to attend or vote in the meeting to review such agenda.

Moreover, TTW also has a policy to disclose any related party transactions as defined in the announcement of The Stock Exchange of Thailand on the criteria, conditions and method for the disclosure of related party transaction of a listed company and in compliance with the requirements, stipulated in the Securities and Exchange Act. Related party transaction were based on market prices and fair and at arms' length.

For the accounting period, ended of 31 December 2019, the company has disclosed related party transactions in the note to financial statement that has already been audited by the auditor of the company in compliance with generally acceptable accounting standards and Annual Registration Statement 2019 (form 56-1), which contained the following details

1) Transaction of TTW with CH.Karnchang Public Company Limited (CK)

CK engages in the construction business and a full range of development, investment and management of large-scale infrastructure concession project within the country and the region. CK is also TTW's related company since CK is TTW's major shareholder, holding shares in TTW amounting to 19.40 percent of TTW's registered and paid-up capital. TTW and CK have one common director, namely Mr. Plew Trivisvavet.

Transaction	Transaction Volume (Thousand Baht)		Transaction Nature / Necessity and Justification
	Accounting Period Ended December 31, 2019	Accounting Period Ended December 31, 2018	
Tap water and wastewater treatment			
• Accounts receivable	9.8	45.0	• Tap water and wastewater treatment service charges at the rate as specified in the Notification of the Industrial Estate Authority of Thailand
• Sales of treated water	119.0	164.0	
• Service income	30.7	42.4	
Improvement of water supply project			
• Project costs during construction	6,626.5	31,402.7	• TTW engaged CK to improve the water supply pumping system amount 38.0 million baht, period of 10 months, which the price had been considered by independent engineering as a reasonable price.
Improvement for Water Supply and Distribution Systems at Banglen Water Treatment Plant Project (Phase 1)			
• Project costs during construction	117,466.3	-	• TTW engaged CK to improve water supply and distribution system at Banglen water treatment plant (phase 1) amount 349.7 million baht, period of 18 months, which the price had been considered by independent engineering as a reasonable price.
• Prepaid construction costs	46,693.9	1,325.3	
• Construction payable	7,994.0	6,088.6	

2) Transaction of TTW with Pathum Thani Water Company Limited (PTW)

PTW engages in the tap water production and sale for Provincial Waterworks Authority (PWA) in Pathum Thani - Rangsit area, TTW holding shares in PTW amounting to 98.0 percent of PTW's registered and paid-up capital. TTW and PTW have 4 common directors, namely, (1) Mr. Phairuch Mekarporn, (2) Mr. Hideo Matsumoto, (3) Dr. Patarut Dardarananda, and (4) Ms. Walainut Trivisvavet.

Transaction	Transaction Volume (Thousand Baht)		Transaction Nature / Necessity and Justification
	Accounting Period Ended December 31, 2019	Accounting Period Ended December 31, 2018	
Investment in PTW			
• Dividend income	932,393.9	887,037.0	• TTW invested in PTW by receiving the dividends from PTW's operations which has been approved by PTW Board of Directors and PTW's Shareholders meeting
• Management income	6,000.0	6,000.0	• TTW provides management support services such as, Personnel and administration, Purchasing, Account and Finance, the service fees is comparable and referring to the personnel employment
• Interest income	13,663.7	29,561.6	• TTW provided long term loan with an interest rate calculated as MLR minus an amount of difference as defined in contract, which the rate comparable to the cost from financial institute.
• Long term loans	171,440.0	461,080.0	
• Interest receivable	37.6	217.0	

3) Transaction of TTW with Thai Water Operations Company Limited (TWO)

TWO engages in the business of provider of maintenance service for production and wastewater treatment systems TTW holding shares in TWO amounting to 68.5 percent of TWO's registered and paid-up capital. TTW and TWO have 2 common Executives, namely, (1) Ms. Walainut Trivisvavet and (2) Mr. Tanat Siricharoen.

Transaction	Transaction Volume (Thousand Baht)		Transaction Nature / Necessity and Justification
	Accounting Period Ended December 31, 2019	Accounting Period Ended December 31, 2018	
Engagement for the production and wastewater treatment systems Management			
• Sale and service cost	36,897.5	36,444.0	• TTW engaged TWO to provides maintenance service for production and wastewater treatment systems, which the service fees is comparable and referring to the personnel employment
• Security bond creditor	5,000.0	5,000.0	
• Administration cost income	9,600.0	9,600.0	• TTW provides management support services such as, Personnel and administration, Purchasing, Account and Finance, the service fees is comparable and referring to the personnel employment

4) Transaction of TTW with CK Power Public Company Limited (CKP)

CKP operates its core business by holding shares in other companies that engage in production and sale of electricity generated from various types of energy. As at December 31, 2019, TTW was CKP's major shareholder holding 24.98 percent of CKP's registered and paid-up capital. TTW and CKP have 3 common Directors, namely, (1) Dr. Thanong Bidaya, (2) Mr. Plew Trivisvavet and (3) Dr. Patarut Dardarananda.

Transaction	Transaction Volume (Thousand Baht)		Transaction Nature / Necessity and Justification
	Accounting Period Ended December 31, 2019	Accounting Period Ended December 31, 2018	
Increase in Shareholding Percentage <ul style="list-style-type: none"> Investments in associated company 	990,693.0	-	<ul style="list-style-type: none"> On September 30, 2019, TTW converted 165,000,000 units of warrants to purchase ordinary shares of CKP into 165,115,500 ordinary shares of CKP at the price of Baht 6.00 per share which is the price specified in the warrants. The company invests in CKP and received dividends from their operations, which has been approved at the CKP's Board of Directors meeting and / or at the CKP's shareholder meeting.
<ul style="list-style-type: none"> Dividend income 	52,238.0	41,977.0	

5) Transaction of TTW with Bangpa-in Cogeneration Company Limited (BIC)

BIC engage in the production and distribution of electricity and steam from the cogeneration system. BIC is CKP's subsidiaries that TTW holding 24.98 percent of CKP.

Transaction	Transaction Volume (Thousand Baht)		Transaction Nature / Necessity and Justification
	Accounting Period Ended December 31, 2019	Accounting Period Ended December 31, 2018	
Tap Water sales and waste water treatment <ul style="list-style-type: none"> Trade receivables Sales of treated water income Service income 	4,164.9	4,468.3	<ul style="list-style-type: none"> Tap water and wastewater treatment service charges at the rate as specified in the Notification of the Industrial Estate Authority of Thailand
	50,466.5	45,876.8	
	3,262.5	2,966.2	

6) Transaction of TTW with Expert Transport Company Limited

Expert Transport Company Limited engages in the Large lorry transportation business, have 1 common Director, namely Mr. Plew Trivisvavet.

Transaction	Transaction Volume (Thousand Baht)		Transaction Nature / Necessity and Justification
	Accounting Period Ended December 31, 2019	Accounting Period Ended December 31, 2018	
Tap Water sales and waste water treatment <ul style="list-style-type: none"> • Trade receivables • Sales of treated water income • Service income 	<p>2.3</p> <p>20.6</p> <p>5.3</p>	<p>1.6</p> <p>17.5</p> <p>4.8</p>	<ul style="list-style-type: none"> • Tap water and wastewater treatment service charges at the rate as specified in the Notification of the Industrial Estate Authority of Thailand

7) Transaction of TTW with Bangpa-in Land Development Company Limited (BLDC)

BLDC engages in the business of operation of the Bangpa-in Industrial Estate, sale of areas and management and service provision of certain utilities within the Bangpa-in Industrial Estate. TTW and BLDC have 1 common director, namely Mr. Plew Trivisvavet.

Transaction	Transaction Volume (Thousand Baht)		Transaction Nature / Necessity and Justification
	Accounting Period Ended December 31, 2019	Accounting Period Ended December 31, 2018	
Lease of area in Industrial Estate for new raw water pumping station construction and laying raw water pipelines <ul style="list-style-type: none"> • Land rental 	<p>1,200.0</p>	<p>1,200.0</p>	<ul style="list-style-type: none"> • Land rental for new raw water pumping station construction and laying raw water pipelines in Bangpa-in Industrial Estate, the rental rate has been considered by an independent appraiser which was reasonable price.
Service Fee <ul style="list-style-type: none"> • Service Fee 	<p>1,205.9</p>	<p>1,205.9</p>	<ul style="list-style-type: none"> • TTW paid service fee to BLDC at the rate of 50% of the amount that IEAT collects from BLDC, which is an agreement in the contract for the right to produce, distribute and provide services which has been approved by the extraordinary general meeting of shareholders no.1/2009.
Memorandum of agreement for payment of construction costs Bang Pa-In Industrial Estate Flood Protection Dam <ul style="list-style-type: none"> • Service Fee • Trade payables and Other payables 	<p>1,543.5</p> <p>275.3</p>	<p>1,157.6</p> <p>275.3</p>	<ul style="list-style-type: none"> • TTW has signed an agreement to pay for the construction cost of the flood protection dam of Bangpa-in Industrial Estate. The contract is for a period of 10 years, starting from April 2018 to March 2028. The reference service fee is the price that BLDC charges from other customers in Bangpa-in Industrial Estate.

Transaction	Transaction Volume (Thousand Baht)		Transaction Nature / Necessity and Justification
	Accounting Period Ended December 31, 2019	Accounting Period Ended December 31, 2018	
Pumping Service • Service Fee • Trade payables and Other payables	1,396.4 251.0	1,349.4 245.8	• BLDC Pump the treated wastewater into the public railways to TTW at a comparable cost to the actual cost. • Water supply and waste water treatment fees The rate is charged equal to other customers in Bangpa-in Industrial Estate.
Tap Water sales and waste water treatment • Sales of treated water income • Service income	1,236.4 318.0	845.7 218.9	

8) Transaction of TTW with Bangkhenchai Company Limited (BKC)

BKC engages in the business of production and distribution of electricity from the solar power, BKC is CKP's subsidiaries that TTW holding 24.98 percent of CKP.

Transaction	Transaction Volume (Thousand Baht)		Transaction Nature / Necessity and Justification
	Accounting Period Ended December 31, 2019	Accounting Period Ended December 31, 2018	
Solar rooftop electricity generation project • Electricity cost • Accrued expenses	7,160.8 1,157.6	- -	• On September 12, 2018, TTW has entered into a power purchase agreement with BKC for a period of 25 years from 2019 to 2044, with the electricity tariff having a 10% discount from the electricity charge that the Provincial Electricity Authority charges.

9) Transaction of TTW with Mitsui & Co., LTD (Thailand) (Mitsui)

Mitsui & Co., LTD (Thailand) engages in the business of a general trading company, distributor of steel, machinery, chemicals, plastics, and food items, Mitsui is also TTW's related company since Mitsui is TTW's major shareholder, holding shares in TTW amounting to 25.98 percent of TTW's registered and paid-up capital.

Transaction	Transaction Volume (Thousand Baht)		Transaction Nature / Necessity and Justification
	Accounting Period Ended December 31, 2019	Accounting Period Ended December 31, 2018	
Raw material cost • Chemical cost • Trade payables and Other payables	8,344.4 1,953.8	1,769.3 583.1	• Chemical price is the selling price that is comparable to what the company buys from other general sellers in the market.

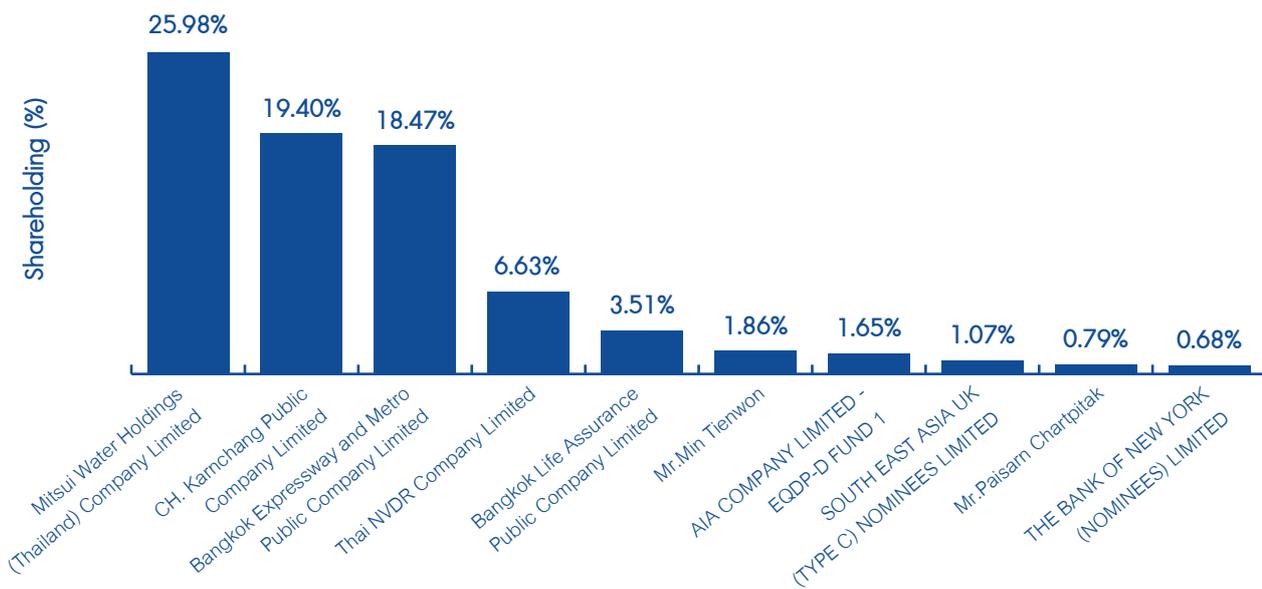


Shareholding Structure

As at December 31, 2019, the Company's registered capital amounted to 3,990,000,000 Baht, divided into 3,990,000,000 ordinary shares, at the par value of 1 Baht per share, which paid-up capital of 3,990,000,000 Baht.

The Company has no other shares than ordinary shares.

Top 10 major shareholders as at December 30, 2019 which was the most recent closing date of the share register were as follows:



List of Shareholders	Number of shares	Shareholding (%)
1. Mitsui Water Holdings (Thailand) Company Limited	1,036,500,000	25.98%
2. CH. Karnchang Public Company Limited	774,077,400	19.40%
3. Bangkok Expressway and Metro Public Company Limited	736,900,000	18.47%
4. Thai NVDR Company Limited	264,485,922	6.63%
5. Bangkok Life Assurance Public Company Limited	139,904,800	3.51%
6. Mr. Min Tienwon	74,000,000	1.86%
7. AIA COMPANY LIMITED - EQDP-D FUND 1	65,742,100	1.65%
8. SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	42,800,800	1.07%
9. Mr. Paisarn Chartpitak	31,500,000	0.79%
10. THE BANK OF NEW YORK (NOMINEES) LIMITED	27,165,300	0.68%



Dividend Policy

(1) TTW Dividend Payment Policy

The Board of Directors meeting on 18 March 2008 resolved to set a policy for dividends payment to shareholders, which will consider the demand for money according to the company's goals in the next 5 years, including maintaining the debt to equity ratio of the company to be at an appropriate level. If there is a possibility to pay dividend, the company will consider paying as high rate as possible. However, such rate shall not be less than 50% of its net profit after corporate income tax, statutory reserve, and other reserves required by terms of relevant agreements.

The Company's dividend payment in the previous year was as follows:

Year	2015	2016	2017	2018	2019
Earning per Share (Baht)	0.62	0.60	0.68	0.67	0.72
Dividend per Share - First half (Baht)	0.30	0.30	0.30	0.30	0.30
Dividend per Share - Second half (Baht)	0.30	0.30	0.30	0.30	0.30 ^(*)
Dividend per share (Baht)	0.60	0.60	0.60	0.60	0.60
Dividend Payout Ratio (percent)	97.47	100.00	88.67	89.76	83.86

Remark *The Dividend Payment for the second half of 2019 will be approved at the 2020 Annual General Meeting of Shareholders.

(2) Dividend Payment Policy of the Subsidiaries

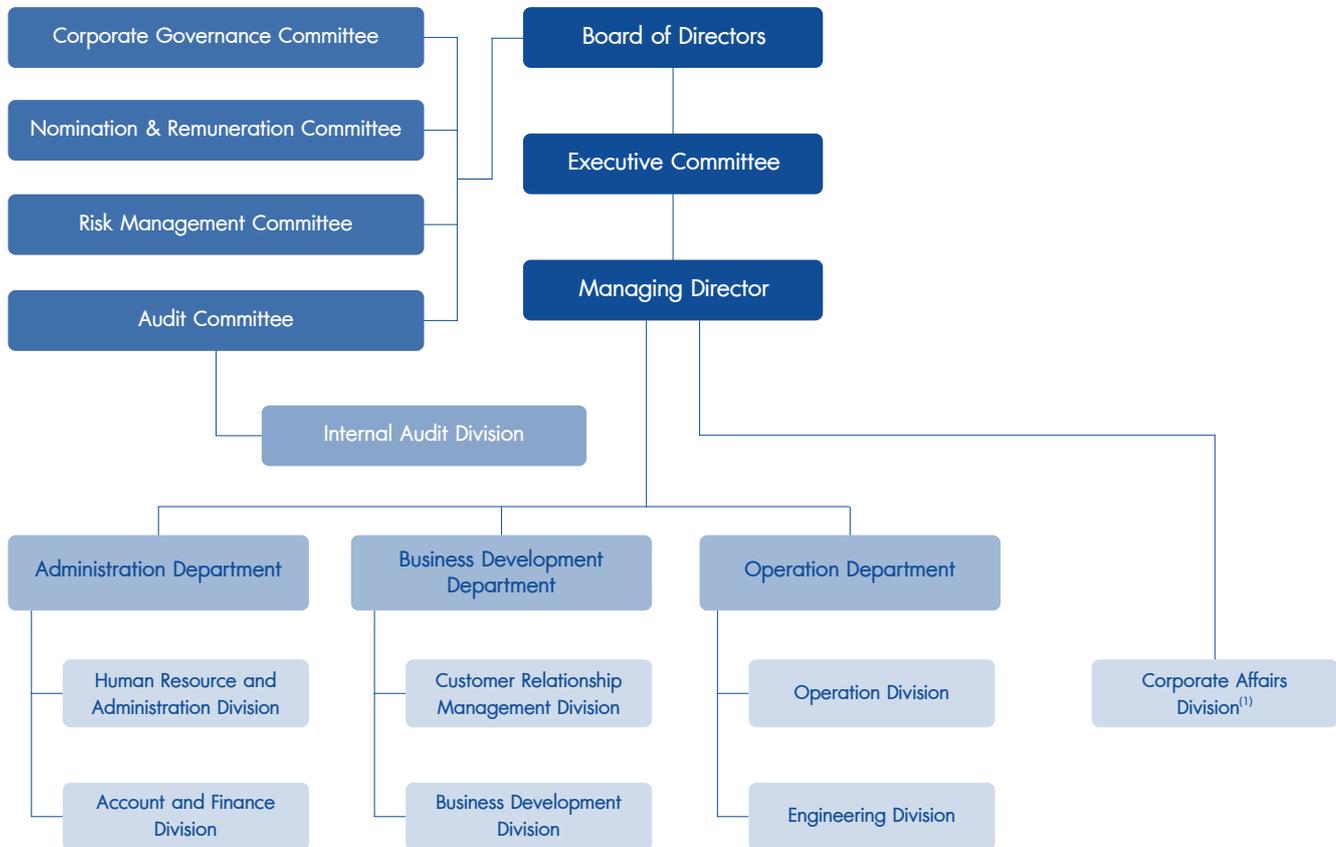
The Board of Directors of subsidiaries have the policy to pay dividend based on operating performance and with consideration of each company's financial position, cash flow and investment plan in accordance with the regulations of the subsidiaries in Chapter 6 dividends and reserves are as follows

- Announcement of any dividends (Except interim dividends) must be approved by the general meeting of shareholders only Notice of payment of dividends must be made in writing to all shareholders whose names appear in the shareholder registration book.
- Each dividend payment, the company must allocate a reserve fund of at least 1 in 20 of the profit until the reserve reaches 1 in 10 of the company's capital. The company's directors may propose to the general meeting of shareholders. Request to approve the allocation of other reserves more that is possible in the business management of the company
- The Board of Directors may pay interim dividends to shareholders from time to time, as the Board of Directors deems that the company has sufficient profits to do so.
- If the Company still has accumulated losses, payment of dividends is prohibited.



Management Structure

The Management Structure of TTW Public Company Limited, as at December 31, 2019



Remark: ⁽¹⁾ Legal and Compliance Department under the Corporate Affairs Division

The Company's management structure consists of the Board of Directors, five subcommittees (the Executive Committee, the Audit Committee, the Risk Management Committee, the Nomination and Remuneration Committee and the Corporate Governance Committee) and the management team.

Board of Directors

(1) Structure of the Board of Directors

The Board of Directors ("Board") has main responsibility to conduct business in a way that will benefit TTW, shareholders and stakeholders including employees and communities where TTW operates its business. Additionally, the Board works with the Management in formulating TTW's vision and policy and approving corporate budget. The Board also monitors the Management's performance and suggests sound resolutions to problems, in accordance with the law, objectives and regulations of the company. As well as resolutions of the shareholders' meeting that are lawful by establishing a structure for the board of directors and management that can be adequately inspected and balanced

TTW's Board comprises not less than 5 members as stipulated in the Company's Articles of Association, and the company's directors must have qualifications as required by law, which comprises not less than 1 in 3 independent directors of the total director and not less than 3 person.

As of December 31, 2019, TTW's Board comprises 12 directors as follows:

- 11 non-executive directors, 91.66% of total directors, comprising:
 - 4 independent directors, 33.33% of total directors,
 - 7 representative directors, 58.33% of total directors, and
- Managing Director, the only executive member, 8.33% of total directors.

The lists of names of the Board of Directors and number of meeting attendance are shown below:

Director	Position	Date of Appointment	Number of meeting in 2019
1. Dr. Thanong Bidaya	Independent Director and Chairman of the Board of Directors	17 December 2008	5/5
2. Mr. Plew Trivisvavet	Director and Vice Chairman of the Board of Directors	26 September 2006	4/5
3. Mr. Phongsarit Tantisuvanitchkul	Director and Chairman of the Executive Committee	25 February 2016	3/5
4. Mr. Phairuch Mekarporn	Independent Director, Chairman of the Audit Committee, Chairman of the Nomination and Remuneration Committee and Corporate Governance Committee	26 September 2006	4/5
5. Mr. Somnuk Chaidejsuriya	Independent Director, Chairman of the Corporate Governance Committee, Audit Committee, Nomination and Remuneration Committee	26 September 2006	4/5
6. Dr. Sombat Kitjalaksana	Director and Executive Committee	11 September 2000	4/5
7. Mr. Suvich Pungchareon	Director and Executive Committee	26 September 2006	5/5
8. Mrs. Payao Marittanaporn ^(*)	Director, Chairman of the Risk Management Committee, Nomination and Remuneration Committee	17 February 2015	5/5
9. Dr. Patarut Dardarananda	Independent Director, Audit Committee, Risk Management Committee and Corporate Governance Committee	12 December 2018	5/5
10. Mr. Shunsuke Murai	Director, Nomination and Remuneration Committee	27 February 2018	5/5
11. Mr. Hideo Matsumoto	Director, Executive Committee and Risk Management Committee	21 December 2017	5/5
12. Ms. Walainut Trivisvavet	Director, Executive Committee, Risk Management Committee, Corporate Governance Committee and Managing	1 March 2018	5/5

Remark (*) was appointed to be Chairman of the Risk Management Committee as per the resolution of the Board of Directors meeting no.1/2019 held on February 26, 2019.

Ms. Sudarat Chiamchan, Corporate Affairs Director, as the Company Secretary

The composition is based on the diversity of gender, individual's skills and experiences that would contribute to the balance of board composition and benefit to Company's business as follows:

- Diversity of gender

Gender	Number	Percentage
Male	10	83.33
Female	2	16.67
Total	12	100.00

- Diversity of expertise and experiences

Director	Water Business/ Energy Business/ Engineering	Accounting/ Finance/ Economics/ Business Administration	Law	Strategic/ Business Planning	Corporate Governance/ Internal Control	HR Development
1. Dr. Thanong Bidaya	✓	✓	-	✓	✓	✓
2. Mr. Plew Trivisvavet	✓	✓	-	✓	✓	✓
3. Mr. Phongsarit Tantisuvanitchkul	✓	✓	-	✓	✓	✓
4. Mr. Phairuch Mekarporn	✓	✓	-	✓	✓	✓
5. Mr. Somnuk Chaidejsuriya	✓	-	✓	✓	✓	✓
6. Dr. Sombat Kitjalaksana	✓	✓	-	✓	✓	✓
7. Mr. Suvich Pungchareon	✓	-	✓	✓	✓	✓
8. Mrs. Payao Marittanaporn	✓	✓	-	✓	✓	✓
9. Dr. Patarut Dardarananda	✓	-	✓	✓	✓	✓
10. Mr. Shunsuke Murai	✓	-	✓	✓	✓	✓
11. Mr. Hideo Matsumoto	✓	✓	-	✓	✓	✓
12. Ms. Walainut Trivisvavet	✓	✓	✓	✓	✓	✓
Total	12	8	5	12	12	12

(2) Authorized Directors

1. Any two of these six directors, Mr. Plew Trivisvavet, Mr. Phongsarit Tantisuvanitchkul, Dr. Sombat Kitjalaksana, Mrs. Payao Marittanaporn, Mr. Suvich Pungchareon, and Ms. Walainut Trivisvavet jointly sign and affix the company's seal; or
2. Either Mr. Plew Trivisvavet or Mr. Phongsarit Tantisuvanitchkul or Dr. Sombat Kitjalaksana or Mrs. Payao Marittanaporn or Mr. Suvich Pungchareon, and or Ms. Walainut Trivisvavet either Mr. Shunsuke Murai or Mr. Hideo Matsumoto, totaling two directors, jointly sign and affix the company's seal.

(3) Independent Directors

The Company has a policy to appoint independent director at least 1/3 of the total number of Board members and no fewer than 3 persons by the consideration of appointment of independent directors will consider the legal requirements, Notification of the Stock Exchange of Thailand and the Securities and Exchange Commission in Subject: Definition of Independent Directors As well as the Charter of the Board of Directors on the qualifications of the Board of Directors. The company has determined the qualifications of independent directors that more strict than the definition of independent directors of the SEC as follows.

1. Shall hold shares not exceeding 0.5% of the total number of voting shares of the Company, subsidiary, associate or juristic person that may be conflict;
2. Shall not be related to the management of the company, its subsidiaries and its associated companies, Moreover, shall not be a major shareholder, a temporary or full-time employees and an advisor regularly earning salaries from the company, its subsidiaries, its associated companies and its major shareholders;
3. Shall not be a person related by blood or legal registration as father, mother, spouse, sibling, or child, including spouse of child, of an executive, major shareholder, controlling person, or person to be nominated as executive or controlling person of the Company or its subsidiary;

4. Shall not have any direct or indirect conflicts of interest against the management of the company and its subsidiaries, and its associated companies for the period of not less than one year prior to nomination except the Board of Director was attentively considered that such conflict of interest not affecting the operation and have independent decision-making of Independent directors;
5. Shall not be a director who has been appointed as representative of the company's director, major shareholder or shareholders who are related to the major shareholder;
6. Shall be independently perform the duties and give the opinion or report on the result of duties as assigned by the Board of Directors, uncontrolled by the management or major shareholders and related person or relative of such person;
7. Shall be able to attend meetings of the Board of Directors and make independent judgment;
8. Shall not operate any business which has the same nature as and is in significant competition with the business of the company or its subsidiaries, or not being a principal partner in any partnership, or not be an executive director, employee, staff, or advisor regularly earning the salaries; or holding shares not exceeding 0.5 percent of the total number of voting right of any other company operating business which has the same as and is in significant competition with the business of the company or its subsidiaries;
9. Shall not have any characteristics which make him/her incapable of expressing independent opinion with regard to the company's business affairs;
10. Shall be able to look after the interests of all shareholders equally;
11. Shall be able to prevent conflicts of interest;
12. Shall not have been convicted of violating security or stock exchange laws, financial institution laws, life insurance laws, general insurance laws, anti-money laundering laws or any other financial law of a similar nature, whether Thai or foreign, by an agency with authority under that certain law. Such wrongful acts include those involved with unfair trading in shares or perpetration of deception, fraud, or corruption.

As at December 31, 2019, the Company had four independent directors, who have the qualifications under the Notification of the Capital Market Supervisory Board, from a total of all 12 directors (one-third of all directors), as follows:

Name	Position
Dr. Thanong Bidaya	Independent Director, Chairman of the Board of Directors
Mr. Phairuch Mekarporn	Independent Director, Chairman of the Audit Committee, Chairman of the Nomination and Remuneration Committee and Corporate Governance Committee
Mr. Somnuk Chaidejsuriya	Independent Director, Chairman of the Corporate Governance Committee, Audit Committee, Nomination and Remuneration Committee
Dr. Patarut Dardarananda	Independent Director, Audit Committee, Risk Management Committee and Corporate Governance Committee

During the year, the independent directors provided the independent judgment and recommendations when considering and making decision on significant issues such as investment projects, organization structure, and other issues related to the corporate governance, for the best interest of the Company. They also were concerned about all stakeholders and prevented any actions which caused conflicts of interest among the Company, executives, directors and major shareholders.

(4) Chairman

It is a policy of the Company that the Chairman of the Board of Directors and the Managing Director shall not be the same person and shall be independent directors, who have no interest in the Company's management, in order to clearly distinguish between the policy making, and the day-to-day management. The chairman has a leading role and controls the meeting of the board of directors to be efficient and effective by encouraging all directors to participate in meetings, help, advice, and supporting the business operations of the management through the Managing Director. In this regard, Dr. Thanong Bidaya, as an independent director and the Chairman of the Board of Directors, has knowledge and ability in line with the Company's business strategies, and also has acceptable experience, which can rest assured that he will be able to lead the Company to accomplish the Company's vision, mission and strategic plans for the company, shareholders, and stakeholders to achieve long term benefits, monitoring the management operations, arranging for preparation of financial statements and significant information presented to Board of Directors quarterly as well as encouraging the corporate governance policy, social and environmental responsibilities of the company.

Administrative Responsibilities

- a. Supervising overview of company's strategies and policies to constitute justice as well as supervising company's customer with equality
- b. Emphasis on business operations by conforming with the law in terms of regulatory agencies and corporate governance as well as to the resolutions of shareholders' meetings

Board of Directors Meetings

Presiding over as Chairman of the meeting and attending every meeting to constitute Board of Directors Meetings efficiently as well as encouraging all directors to express their opinions by delegating administrative authority to the management appropriately, supervising and arranging all directors to receive correct, on-time and clear information to be used for decision-making which shall lead to achievement of the organization efficiently, providing time management sufficiently for Board of Directors to consult and express opinions widely in related issues during the important agenda. Chairman of the Board utilizes the policy of enhancing good relations between Executive Directors and Non-executive Directors.

Development and Evaluation of Work Efficiency

- a) Providing Orientation Program and operation visit for all new directors which can assist new directors to understand and adapt themselves to the organization rapidly
- b) Support and promoting all directors to attend skills development training, various fields of knowledge which are beneficial for performing directors duties in well-known and recognized institutes such as Thai Institute of Directors (IOD) and Stock Exchange of Thailand (SET) etc.
- c) Support and promoting all directors working as a team which constitutes efficiency and effectiveness in working, arranging evaluation of the Board's operations both self-evaluation, cross evaluation and group evaluation and taking such evaluation outcome used to improve and develop the Board's operations
- d) Providing monitoring system and assessment of the organization's operations being consistent to policy regularly and continuously

Relationship between Shareholders

Supervising and arranging communications between shareholders of the company and providing opportunities for shareholders to communicate with the Board for exchanging opinions

Shareholders Meeting

Presiding over as Chairman of every Shareholders meeting and a responsible is assigned to supervise correctly as defined by law and related regulations as well as making sure that all directors are notified to attend the meeting. It is an opportunity for shareholders to exercise their rights openly in attending the meeting and voting in Shareholders Meeting, asking questions and additional explanation, acknowledgement of the annual report, approval Financial Statements, approving appropriation of profits and dividends, director appointment and compensation paid to directors, auditor election and proposing remuneration of auditors and approval of Company's Memorandum of Association amendment.

Other Roles of Chairman of Board of Directors

Performing duties with honesty, supervising structure of the Board appropriately, supervising in taking policies and the Board's decisions for operating effectively, promoting corporate governance, and social and environmental responsibility activities in all levels ranging from directors, top management to employees by operating in accordance with guidelines of the Board's structure to promote corporate governance of the company.

(5) Appointment, Resignation and Retirement from Directorship

The shareholders' meeting appoints directors who have the qualifications and do not have any prohibited characteristic as specified by law, and do not have any characteristic indicating a lack of appropriateness in respect of trustworthiness in management of a business whose shares are held by public shareholders as specified by the SEC Office. That is, the Board of Directors shall be composed of at least five directors, and at least one-third of all such directors must be independent directors, and at least half of all such directors must reside in Thailand. In case of a vacancy on the directorship position otherwise than retirement by rotation, the Board of Directors may select any person who is qualified as a replacement director at the following meeting with the votes of three-fourths of the remaining number of directors. The replacement director will hold office only for the remaining term of the director

whom he or she replaces. In each annual ordinary general meeting of shareholders, one-third of the total number of directors shall vacate their office, whereby those directors to vacate their office shall be the directors who have been in office for the longest term. Upon expiration of the term of office, a vacating director may be re-appointed under the resolution of the shareholders' meeting.

(6) Scope of powers, duties and responsibilities of the Board of Directors

1. Supervising the company's operations to ensure compliance with laws, objectives and the Company's Articles of Association, as well as resolutions of the shareholders' meetings, and protecting the company's interests based on the good corporate governance principles
- (2) Determining policies and directions of the company's operations and supervising the management to take actions to ensure compliance with the policy with efficiency and effectiveness so as to result in the optimum economic value to the business and great prosperity to the shareholders
- (3) Approving vision, missions, corporate values as anticipated by the Company, and the business ethics
- (4) Arranging for and supervising the administration in compliance with the good corporate governance principles
- (5) Considering approval for budget for investment and budget for the company's annual business operations, including monitoring the use of the company's resources
- (6) Providing complete, correct and sufficient reports on financial information, data and general information which are important to shareholders, and affirming the certification of the reported information
- (7) Arranging for the company to have an efficient internal control and audit system as well as appropriate and adequate risk management measures, including following on such matters on a regular basis
- (8) The Board has also formulated a charter for the Executive Committee, the Risk Management Committee and Nomination and Remuneration Committee as a guideline for their duties
- (9) Supervising the Executive Committee, Sub-committees and the management to comply with the specified policy
- (10) Considering performance evaluation, determination of salaries, wages, welfare, bonuses, allowances and other remuneration, including expenses and facilities of the Managing Directors, as well as determining backup plan for nominating personnel to hold major office of the management should the management become unable to perform the duties.
- (11) Considering revision of the scope of authorization, duties, responsibilities and roles of the Executive Committee, Subcommittees and the management as appropriate

(7) Subcommittees

Based on the powers under the Board of Directors' Charter, the Board of Directors appoints five subcommittees to perform the duty to conduct the Company's management, as follows:

1. Executive Committee

As at December 31, 2019, the Executive Committee comprises five members, per names and number of their meeting attendances listed below:

Name	Position	Number of Meetings in 2019
1. Mr. Phongsarit Tantisuvanitchkul	Chairman of the Executive Committee	5/5
2. Dr. Sombat Kitjalaksana	Executive Committee	5/5
3. Mr. Suvich Pungchareon	Executive Committee	5/5
4. Mr. Hideo Matsumoto	Executive Committee	5/5
5. Ms. Walainut Trivisvavet	Executive Committee and Secretary to the Executive Committee	5/5

Remark : The Executive Committee has the scope of powers and duties per the details in the section of Corporate Governance.

2. Audit Committee

As at December 31, 2019, the Audit Committee comprises three independent directors, per names and number of their meeting attendances listed below:

Name	Position	Number of Meetings in 2019
1. Mr. Phairuch Mekarporn	Chairman of the Audit Committee	4/4
2. Mr. Somnuk Chaidejsuriya	Audit Committee	3/4
3. Dr. Patarut Dardarananda	Audit Committee	4/4

Remark : The Audit Committee has the scope of powers and duties per the details in the section of Corporate Governance.

The Internal Audit Manager is the secretary to the Audit Committee

3. Risk Management Committee

As at December 31, 2019, the Risk Management Committee comprises one independent director, two non-executive directors, and one executive director, totaling four persons, per names and number of their meeting attendances listed below:

Name	Position	Number of Meetings in 2019
1. Mrs. Payao Marittanaporn	Chairman of the Risk Management Committee	4/4
2. Dr. Patarut Dardarananda	Risk Management Committee	4/4
3. Mr. Hideo Matsumoto	Risk Management Committee	4/4
4. Ms. Walainut Trivisvavet	Risk Management Committee and Secretary to the Risk Management Committee	4/4

Remark : The Risk Management Committee has the scope of powers and duties per the details in the section of Corporate Governance.

4. Nomination and Remuneration Committee

As at December 31, 2019, the Nomination and Remuneration Committee comprises two independent directors and two non-executive directors, totaling 4 persons, per names and number of their meeting attendances listed below:

Name	Position	Number of Meetings in 2019
1. Mr. Phairuch Mekarporn	Chairman of the Nomination and Remuneration Committee	2/2
2. Mr. Somnuk Chaidejsuriya	Nomination and Remuneration Committee	2/2
3. Mrs. Payao Marittanaporn	Nomination and Remuneration Committee	2/2
4. Mr. Shunsuke Murai	Nomination and Remuneration Committee	2/2

Remark : The Nomination and Remuneration Committee has the scope of powers and duties per the details in the section of Corporate Governance.

The Corporate Affairs Director as the Secretary to the Nomination and Remuneration Committee

5. Corporate Governance Committee

As at December 31, 2019, the Corporate Governance Committee comprises three independent directors and one executive director, totaling four persons, per names and number of their meeting attendances listed below:

Name	Position	Number of Meetings in 2019
1. Mr. Somnuk Chaidejsuriya	Chairman of the Corporate Governance Committee	2/2
2. Mr. Phairuch Mekarporn	Corporate Governance Committee	2/2
3. Dr. Patarut Dardarananda	Corporate Governance Committee	2/2
4. Ms. Walainut Trivisvavet	Corporate Governance Committee and Secretary to the Corporate Governance Committee	2/2

Remark : The Corporate Governance Committee has the scope of powers and duties per the details in the section of Corporate Governance.

(8) Board of Directors of Subsidiaries

The Company had its subsidiaries, namely, Pathum Thani Water Company Limited and Thai Water Operations Company Limited. The Management Structures, Lists of Directors and Authorized Directors of Subsidiaries as at December 31, 2019 was as follows:

1. Pathum Thani Water Company Limited (PTW)

PTW's Board of Directors consisted of 6 directors, per names and number of their meeting attendance listed below:

Name	Position	Number of Meetings in 2019
1. Mr. Phairuch Mekarporn	Chairman of the Board of Directors	4/4
2. Mr. Chayodom Kanchanomai	Honorary Chairman	4/4
3. Dr. Patarut Dardarananda	Director	4/4
4. Mr. Hideo Matsumoto	Director	4/4
5. Mr. Chaiwat Utaiwan	Director	1/4
6. Ms. Walainut Trivisvavet	Director, Managing Director and Secretary	4/4

PTW's Authorized Directors

Any two of these four directors, Mr. Chayodom Kanchanomai, Mr. Chaiwat Utaiwan, Mr. Hideo Matsumoto, and Ms. Walainut Trivisvavet jointly sign and affix the company's seal.

2. Thai Water Operations Company Limited (TWO)

TWO's Board of Directors consisted of 4 directors, per names and number of their meeting attendance listed below:

Name	Position	Number of Meetings in 2019
1. Mr. Ratn Santaannop	Chairman of the Board of Directors	4/4
2. Mr. Chaiwat Utaiwan	Director	4/4
3. Ms. Walainut Trivisvavet	Director	4/4
4. Mr. Tanat Siricharoen	Director, Managing Director and Secretary	4/4

TWO's Authorized Directors

Any two of these four directors, Mr. Ratn Santaannop, Mr. Tanat Siricharoen, Mr. Chaiwat Utaiwan, and Ms. Walainut Trivisvavet jointly sign and affix the company's seal.

Management

The Board of Directors clearly separates roles, duties and responsibilities between the Board of Directors and Management, in order to clearly distinguish between the policy making, and the day-to-day management of the company in accordance with the policies, plans, goals, regulations and company rules, including to comply with the resolutions of the Board of Directors' meeting with a budget that has been strictly approved, honestly, and to protect the interests of the company and the shareholders to the best, according to the principles of good corporate governance by reporting progress from operations in accordance with resolutions and significant matters to the Board of Directors meeting every quarter

(1) The Company's Management Structure

As at December 31, 2019, the Company had a total of 8 executives as follows:

Name	Position
1. Ms. Walainut Trivisvavet	Managing Director
2. Mr. Tanat Siricharoen	Assistant Managing Director, Operations Group Acting Engineering Director
3. Mr. Somkiat Pattamongkolchai	Account and Finance Director Acting Assistant Managing Director, Administration Group
4. Ms. Sudarat Chiamchan	Corporate Affairs Director and Company Secretary
5. Mr. Hongthong Artit	Business Development Director
6. Mr. Pipat Katikul	Operations Director
7. Mr. Chatchawan Tienprasertkij	Acting Customer Relationship Management Director
8. Mrs. Busawan Pholprasert	Acting Human Resource and Administrative Director

Remark : Information on qualification of persons holding position as the Company's executives appears in Attachment 1 - the Company's Annual Registration Statement for the year 2019 (Form 56-1)

(2) Scope of powers, duties and responsibilities of the Managing Director

At the Board of Directors Meeting, resolutions were made to designate the scope of authorized and duties of the Managing Director as follows:

- (1) Having authorized to approve execution of any juristic acts which would have binding effect upon the Company within an amount of not exceeding Baht 5,000,000 (Five Million Baht only)
- (2) Having authorized to issue, amend, and adjust the Company's work rules, orders and regulations, e.g., employment, appointment, demotion, discipline of staff and employees, determination of salaries and other payments, including welfare and benefits
- (3) Having authorized to delegate authority to the Company's executive staff, such as Assistant Managing Director to perform duties on behalf of the Managing Director in particular matters such as purchasing, employment, payment instruction as deemed appropriate
- (4) Having authorized to appoint any person or group of persons to operate the business of the Company under the supervision of the Managing Director, or authorizing such person to take actions as the Managing Director deems appropriate, and also having authorized to change, amend, cancel or revoke such authorization
- (5) Having authorized for adjustment, transfer, closure and merger or expansion of the organization structure at such levels lower.

6. Having authorized to determine salary rates and other remuneration, including expenses and facilities of Division Director or equivalent and higher to seek approval of the from the Executive Committee
- (7) Having authorized to determine the structure of salary rates and other remunerations of staff at such levels lower than Division Director or equivalent provided that the salary rates (excluding other remunerations and benefits)
- (8) Having authorized to employ, appoint, impose disciplinary action, terminate, dismiss, remove, determine salaries, bonuses, welfare and other remunerations, including expenses and facilities of the Company's staff who receive salaries at the rate (only the salary rate, excluding any other benefits received) of not exceeding 200,000 Baht/month and/or the Company the Company's staff in such positions lower than Division Director or equivalent. Apart from those mentioned, the Managing Director shall seek approval of the Executive Committee. In this regard, the authority to take the following actions may be delegated, either in whole or in part to workgroups, the Board of Directors, the management, group of persons or any director, as appropriate
- (9) Having duty to supervise all businesses of the Company to ensure compliance with resolutions and policies of the Board of Directors
- (10) Having duty to submit balance sheets, financial statements and income statements of the Company to the Board of Directors for approval
- (11) Having duty to propose significant issues to the Board of Directors or the shareholders' meetings for consideration and approval or for any other purposes as appropriate
- (12) Having duty to conduct feasibility studies on new projects and having authorized to approve such projects, as delegated by the Executive Committee
- (13) In case the Managing Director is unable to perform duties, the Managing Director shall appoint a Division Director or another person to act for and on behalf of the Managing Director from time to time whereby such person shall have the authorized and duties equivalent to the Managing Director
- (14) Performing other duties as delegated by the Board of Directors from time to time
However, the Managing Director and the person authorized by the Managing Director has no authorized to approve any matters or transactions in which the Managing Director or persons who may have conflict, have interests or may have conflict of interests in any other manners, would enter into with the Company or its subsidiaries, as defined by the Securities and Exchange Commission and Stock Exchange of Thailand.

8.3 Company Secretary

The Board of Directors' Meeting No.3/2015 on July 26, 2012, resolved to approve the appointment of Ms. Sudarat Chiamchan, Corporate Affairs Director, to hold offices as Company Secretary, with the duties and responsibility as prescribed in the Securities and Exchange Act (No. 4) B.E. 2551, Section 89/5 and Section 89/16. She was also appointed as Board's secretary to support Board activities such as Board Meetings, Board Orientation, including provide important information, rules, regulations to the Board as well as to coordinate subsequent actions under the Board's resolution, details of duties and responsibilities as follows

- (1) Giving advice primarily to Board of Directors about regulations, rules and requirements of the Company and follow up with correct and regular practices, including reporting changes with significance to Board of Directors
- (2) Organizing the Shareholders meetings and Board of Directors meetings according to the Company's Articles of Association and codes of conduct
- (3) Recording reports of AGM of shareholders and Board of Directors meetings as well as making a follow-up with practices in compliance with the resolutions of AGM of shareholders and Board of Directors meetings
- (4) Supervising disclosure and reporting of information for the responsible parts in accordance with the regulations and requirements of The Securities Exchange of Thailand and The Securities and Exchange Commission
- (5) Contacting and communicating with general shareholders so that they are informed of the rights of shareholders and information of the Company
- (6) Supervising and coordinating in activities of Board of Directors, including the orientation of directors
- (7) Keeping the Company's important documents, such as register of directors, invitational letters of Board of Directors meetings, reports of Board of Directors meetings, Annual Report, invitational letters of shareholders meetings, reports of shareholders meetings and reports of interests of directors or executives

In 2019, the Corporate Secretary has attended training seminars and discussions in various topics, arranged by regulators which oversee listed companies and the Thai Institute of Directors Association (IOD), in order to improve and increase efficiency of the Corporate Secretary's performance and corporate governance.

The details of qualifications of the person who holds the position of Company Secretary are described in Attachment 1 - the Company's Annual Registration Statement for year 2019 (Form 56-1).



Board of Directors and Management



Dr. Thanong Bidaya

Age 72 years
Position in the Company Independent Director
 Chairman of the Board of Directors

Date of Appointment 17 December 2008

Education / Training

- Ph.D. in Management, Northwestern University, U.S.A.
- M.A. in Economics, Northwestern University, U.S.A.
- B.A. in Economics, Yokohama National University, Japan
- Directors Accreditation Program (DAP) 25/2004, Thai Institute of Directors Association

Shareholding in the Company (%)

Direct : 0.0085 Indirect : - None -

Family Relationship between Director and Executive Management - None -

Work Experience

Position in Listed Company

2012 - Present Chairman of the Board of Directors, Independent Director

CK Power Public Company Limited

2012 - Present Chairman of the Board of Directors, Independent Director

Scan Inter Public Company Limited

2018 - Present Chairman of the Board of Directors, Independent Director

S.Khonkaen Foods Public Company Limited

2018 - Present Chairman of the Board of Directors

Property Perfect Public Company Limited

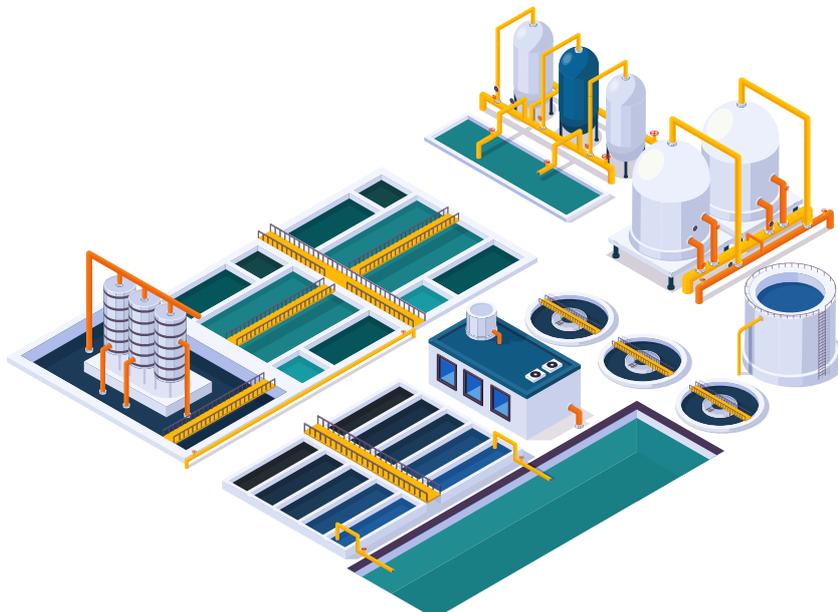
Position in other Companies

2010 - Present Chairman of the Board of Directors

Xayaburi Power Company Limited

2005 - 2006 Minister of Finance

2005 Minister of Commerce





Mr. Plew Trivisvavet

Age 74 years

Position in the Company Director

Vice Chairman of the Board of Directors

Date of Appointment 26 September 2006

Education / Training

- Honorary Doctor of Civil Engineering, **Rajamangala University of Technology Isan**
- Honorary Doctor of Civil Engineering, **Nakhon Phanom University**
- Honorary Doctor of Civil Engineering, **Kasetsart University**
- Honorary Doctor of Science (Engineering), **Thai-Nichi Institute of Technology**
- Master of Electrical Engineer, **Osaka University, Japan**
- Bachelor of Electrical Engineer, **Osaka University, Japan**
- Energy Literacy Leadership Program, class10 **Thailand Energy Academy (TEA)**
- Director Accreditation Program (DAP), Class 18/2004, **Thai Institute of Directors Association**
- Director Certification Program (DCP), Class 50/2004, **Thai Institute of Directors Association**
- Finance for Non-Finance Directors (FND), Class 13/2004, **Thai Institute of Directors Association**
- Capital Market Academy Executive Program (CMA), Class 4/2007, **Capital Market Academy**
- National Defense Course for the Joint State-Private Sectors, (Thai NCD), Class 366, **Thai National Defense College**

Shareholding in the Company (%)

Direct : 0.0050

Indirect : 0.0025

Family Relationship between Director and Executive Management

Miss Walainut Trivisvavet's uncle

Work Experience

Position in Listed Company

- 2016 - Present Vice Chairman of the Board Directors and Chairman of Executive Committee
Bangkok Expressway and Metro Public Company Limited
- 2015 - Present Chairman of Executive Board
CH. Karnchang Public Company Limited
- 2011 - Present Director and Chairman of Executive Committee
CK Power Public Company Limited
- 2007 - Present Corporate Governance and Risk Management Committee Member
CH. Karnchang Public Company Limited
- 2003 - Present Nomination and Remuneration Committee Member
CH. Karnchang Public Company Limited
- 1998 - 2015 Chairman of the Board of Directors / Chairman of Executive Committee
Bangkok Metro Public Company Limited
- 1994 - 2015 Chairman of Executive Committee and President
CH. Karnchang Public Company Limited

Position in other Companies

- 2010 - Present Chairman of Executive Committee
Xayaburi Power Company Limited
- 2006 - Present Chairmen of Executive Committee
Nam Ngum 2 Power Company Limited
- 2004 - Present Chairman of Executive Committee
Southeast Asia Energy Company Limited
- 1999 - Present Chairman of Executive Committee
Construction Material Supply Company Limited
- 1996 - Present Chairman of the Board of Directors and Chairman of Executive Committee
Northern Bangkok Expressway Company Limited (NECL)
- 1991 - Present Director
CH. Karnchang Real Estate Company Limited



Mr. Phongsarit Tantisuvanitchkul

Age 47 years
Position in the Company Director
 Chairman of the Executive Committee

Date of Appointment 25 February 2016

Education / Training

- Master of Engineering, University of Michigan Ann Arbor, U.S.A.
- Bachelor of Engineering, Kasetsart University
- Understanding the Fundamental of Financial Statement Program (UFS), Class 9/2007, Thai Institute of Directors Association
- Finance for Non-Finance Director (FND) Program, Class 35/2007, Thai Institute of Directors Association
- Director Certification Program (DPC), Class 155/ 2012, Thai Institute of Directors Association

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Family Relationship between Director and Executive Management

- None -

Work Experience

Position in Listed Company

2016 - Present Director
 Bangkok Expressway and Metro Public Company Limited

2016 - Present Senior Executive Vice President - Operation Group
 CH. Karnchang Public Company Limited

2011 - 2017 Executive Vice President - Business Development
 CH. Karnchang Public Company Limited

2014 - 2015 Director
 Bangkok Metro Public Company Limited

Position in other Companies

2017 - Present Chairman of the Board
 Bangkok Metro Networks Company Limited



Mr. Phairuch Mekarporn

Age 74 years
Position in the Company Independent Director
 Chairman of Audit Committee
 Chairman of Nomination and Remuneration Committee
 Corporate Governance Committee
 Member

Date of Appointment 26 September 2006

Education / Training

- M.S.M.E., California State University, Long beach, U.S.A.
- B.S.M.E., Chulalongkorn University
- Advanced Audit Committee Program (AACP), Class 17/ 2007, Thai Institute of Directors Association
- Director Certification Program (DCP), Class 81/2006, Thai Institute of Directors Association
- Advanced Management Program: The International Senior Managers' Program, Harvard University, Graduated School of Business Administration, U.S.A.
- Independent Directors Forum 1/2019 "Trips and Tricks for Dealing with Question in AGM", Thai Institute of Directors Association
- Digital Business Sustainability, EY office Limited

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Family Relationship between Director and Executive Management

- None -

Work Experience

Position in Listed Company

2004 - Present Independent Director
 Chairman of Nomination and Remuneration Committee
 Audit Committee
 Thai Optical Group Public Company Limited

Position in other Companies

2007 - Present Chairman of the Board of Directors
 Pathum Thani Water Company Limited

1996 - 2003 Managing Director
 Siam Kraft Industry Company Limited

1989 - 1996 Managing Director
 Thai Paper Company Limited

1985 - 1989 Managing Director
 TIP Fibre-Cement Company Limited



Mr. Somnuk Chaidejsuriya

Age 69 years
Position in the Company Independent Director
 Chairman of Corporate Governance Committee
 Audit Committee Member
 Nomination and Remuneration Committee Member
Date of Appointment 26 September 2006

Education / Training

- Master of Law, Chulalongkorn University
- Bachelor of Law, Chulalongkorn University
- Thai Barrister-at-Law, Institute of Legal Education, Thai Bar Association
- Advanced Audit Committee Program (AACP), Class 9/2005, Thai Institute of Directors Association
- Director Certification Program (DCP), Class 46/2004, Thai Institute of Directors Association
- Diploma, National Defense Course for the Joint State-Private Sectors, Class 11, Thai National Defense College

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Family Relationship between Director and Executive Management - None -

Work Experience

Position in Listed Company
 - None -

Position in other Companies

2004 - Present Independent Director / Chairman of Risk Management Committee / Audit Committee / Nomination and Remuneration Committee
Don Muang Tollway Public Company Limited

2016 - 2019 Chairman of Nomination and Remuneration Committee
Advance Finance Public Company Limited

2015 - 2018 Chairman of Audit Committee
Loxley Wireless Public Company Limited

2012 - 2016 Vice Chancellor
Navamindradhiraj University (formerly University of Bangkok Metropolis)

1999 - 2000 Board Member and Executive Director
The Marketing Organization for Farmers (MOF)

1997 - 1998 Governor
 Deputy Governor for Operation
 Deputy Governor for Legal Affairs and Land Ownership
Expressway Authority of Thailand (EXAT)



Dr. Sombat Kitjalaksana

Age 63 years
Position in the Company Director and Executive Committee Member
Date of Appointment 11 September 2000

Education / Training

- Dr. Techn. (Soil Mechanic), University of Innsbruck, Austria
- Bachelor and Master of Engineering (Civil), Chulalongkorn University
- Director Certification Program (DCP), Class 81/2006, Thai Institute of Directors Association
- Directors Accreditation Program (DAP), Class 36/2005, Thai Institute of Directors Association

Shareholding in the Company (%)

Direct : 0.0250 Indirect : - None -

Family Relationship between Director and Executive Management - None -

Work Experience:

Position in Listed Company:

2015 - Present Director, Managing Director, Executive Committee
Bangkok Expressway and Metro Public Company Limited

2014 - 2015 Managing Director and Executive Committee
Bangkok Metro Public Company Limited

2005 - 2015 Director
CH. Karnchang Public Company Limited

2001 - 2010 Vice President for Business Development
CH. Karnchang Public Company Limited

2000 - 2011 Managing Director
Bangkok Metro Public Company Limited

Position in other Companies

2009 - Present Director
Bangkok Metro Networks Company Limited



Mr. Suvich Pungchareon

Age	73 years
Position in the Company	Director Executive Committee Member
Date of Appointment	26 September 2006
Education / Training	<ul style="list-style-type: none"> • Master of Political Science, Sukhothai Thammathirat University • Bachelor of Electrical Engineering, Tohoku University, Japan • Diploma Program on Politics and Governance in Democratic Systems, Class 8/2004, King Prajadhipok's Institute • Diploma Program on Public Economy Management, Class 1/2003, King Prajadhipok's Institute • Director Certification Program (DCP), Class 37/2003, Thai Institute of Directors Association • Mini MBA, Berkeley University, U.S.A.
Shareholding in the Company (%)	Direct : - None - Indirect : - None -
Family Relationship between Director and Executive Management	- None -
Work Experience	
Position in Listed Company	
At present	Advisor Bangkok Expressway and Metro Public Company Limited
2003 - 2006	Managing Director Bangkok Expressway Public Company Limited
1989 - 1994	General Manager Bangkok Expressway Public Company Limited
Position in other Companies	
1996 - 2003	Managing Director Northern Bangkok Expressway Company Limited

Mrs. Payao Marittanaporn

Age	63 years
Position in the Company	Director Chairman of the Risk Management Committee Nomination and Remuneration Committee Member
Date of Appointment	17 February 2015
Education / Training	<ul style="list-style-type: none"> • Master of Business Administration, Chulalongkorn University • Higher Diploma in Auditing, Thammasat University • Bachelor of Accountancy, Chulalongkorn University • Director Certification Program (DCP), Class 48/2004, Thai Institute of Directors Association • Role of the Compensation Committee (RCC), Class 9/2009, Thai Institute of Directors Association • Capital Market Academy Leader Program, Class 11/2010, Capital Market Academy (CMA)
Shareholding in the Company (%)	Direct : - None - Indirect : 0.000003
Family Relationship between Director and Executive Management	- None -
Work Experience	
Position in Listed Companies	
2015 - Present	Director / Corporate Governance and Risk Management Committee Member / Executive Director / Managing Director Bangkok Expressway and Metro Public Company Limited
2007 - 2015	Director / Executive Director / Managing Director Bangkok Expressway Public Company Limited
2013 - 2014	Director / Nomination and Remuneration Committee Member / Risk Management Committee Member TTW Public Company Limited
Position in other Companies	
2004 - Present	Director and Executive Director Northern Bangkok Expressway Company Limited
2007 - Present	Acting Managing Director Northern Bangkok Expressway Company Limited
2011 - 2014	Director Xayaburi Power Company Limited



Dr. Patarut Dardarananda

Age 61 years
Position in the Company Independent Director
 Audit Committee Member
 Risk Management Committee Member
 Corporate Governance Committee Member

Date of Appointment 12 December 2018

Education / Training

- Doctor of Philosophy Program in Public Administration (Ph.D. Public Administration), **Ramkhamhaeng University**.
- Master of Science in Engineering (Civil), **Youngstown State University, Ohio, USA**.
- Bachelor of Engineering (Civil), **Chulalongkorn University**.
- Leadership Succession Program (LSP 1), **Institute of Research and Development for Public Enterprises**
- Director Certification Program (DCP), Class 271/2019, **Thai Institute of Directors Association**
- Advanced Audit Committee Program (AACP), Class 34/2019, **Thai Institute of Directors Association**
- Risk Management Program for Corporate Leaders (RCL), Class 18/2019, **Thai Institute of Directors Association**
- Digital Business Sustainability, **EY Office Limited**

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Family Relationship between Director and Executive Management - None -

Work Experience

Position in Listed Company

2019 - Present Independent Director, Audit Committee and Nomination and Remuneration Committee
CK Power Public Company Limited

Position in other Companies

2016 - Sep 2018 Permanent Secretary,
the Bangkok Metropolitan Administration (BMA)

2015 - 2016 Deputy Permanent Secretary,
the Bangkok Metropolitan Administration (BMA)

2014 - 2015 Director General of the Department of Public Works

2013 - 2016 Board of Directors
Mass Rapid Transit Authority of Thailand

2012 - 2014 Deputy Director General of the Department of Public Works

2006 - 2012 Deputy Inspector General,
Office of the Permanent Secretary



Mr. Shunsuke Murai

Age 54 years
Position in the Company Director
 Nomination and Remuneration Committee Member
Date of Appointment 27 February 2018

Education / Training

- Bachelor's degree, in Faculty of Law, **Nagoya University, Japan**

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Family Relationship between Director and Executive Management - None -

Work Experience

Position in Listed Company

- None -

Position in other Companies

2018 - Present Divisional Operating Director Infrastructure Projects
 Business Division Asia Pacific Business Unit
Mitsui & Co., Ltd (Singapore)

2016 General Manager Human Resources and General Affairs Department Planning & Administrative Division (Machinery & Infrastructure)

2014 General Manager Personnel & General Affairs Department Infrastructure Projects Business Unit

2012 General Manager Third Department Third Projects Development Division

2012 General Manager Second Department IPP Business Management Division

2009 General Manager First Department Second Power Project Development Division

2007 Deputy General Manager Investment Administration Division

2004 General Manager Project Division Mitsui & Co. (Brasil) S.A. Filial Rio de Janeiro
Mitsui & Co., Ltd. (Brazil)

1999 Assistant General Manager Chemical Plant Division

1996 Manager Project Division

1989 Joined Chemical Plant Division
Mitsui & Co., Ltd. (Japan)



Mr. Hideo Matsumoto

Age 47 years
Position in the Company Director
 Executive Committee Member
 Risk Management Committee Member

Date of Appointment 21 December 2017

Education / Training

- Bachelor of Arts in Policy Management (1996)
Keio University
- Director Certification Program (DCP), Class 256/2018,
Thai Institute of Directors Association

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Family Relationship between Director and Executive Management - None -

Work Experience

Position in Listed Company

- None -

Position in other Companies

2017 - Present Director
Mitsui Water Holdings (Thailand) Co., Ltd.

2017 - Present Senior Vice President & General Manager
Infrastructure Projects Division
Mitsui & Co., Ltd. (Thailand)

2017 - Present Director
Pathum Thani Water Company Limited

2016 - 2017 Deputy General Manager
Fourth Department, First Projects Development
Division
Mitsui & Co., Ltd. (Tokyo)

2011 - 2016 Deputy General Manager
Third Department, First Projects Development
Division
Mitsui & Co., Ltd. (Tokyo)

2005 - 2011 Deputy Project Director
Mitsui & Co., Ltd. (Thailand)



Ms. Walainut Trivisvavet

Age 49 years
Position in the Company Director
 Executive Committee Member
 Risk Management Committee Member
 Corporate Governance Committee
 Member
 Managing Director

Date of Appointment 1 March 2018

Education / Training

- Master of Science in Administrative Studies, Sub-concentration :
Financial Economics,
Boston University, USA
- Bachelor of Business Administration,
Assumption University
- Director Certification Program (DCP), class 201/2015,
Thai Institute of Directors Association
- Advanced Audit Committee Program (AACP), Class 20/2015,
Thai Institute of Directors Association
- Company Reporting Program (CRP), Class 13/2015,
Thai Institute of Directors Association
- Capital Market Academy Executive Program (CMA), Class 24/2017,
Capital Market Academy
- Top Executive Program in Commerce and Trade (TEPCoT) 11/2018
Commerce Academy, University of the Thai Chamber of Commerce
- Certification Program in Investor Relations, 2016,
Thai Listed Companies Association
- Chief Financial Officer Certification Program (CFO), Class 19,
The Federation of Accounting
- Advance Certificate Course in Public Economics Management for
Executives,
King Prajadhipok's Institute
- How to Transform Your Business to Become an Exponential
Company in a Digital Era,
The Stock Exchange of Thailand
- Credit Spotlight On Thailand,
S&P Global Ratings & TRIS Rating
- Global Business Dialogue 2019: Designing New Growth Model
towards Sustainability,
Thailand Management Association



Mr. Tanat Siricharoen

Age 60 years

Positions in the Company Assistant Managing Director,
Operations Group
Aging Engineering Division Director

Education / Training

- Bachelor's degree: Bachelor of Industrial Electrical Technology
King's Mongkut's Institute of Technology North Bangkok
- Director Accreditation Program (DAP), Class 99/2012,
Thai Institute of Directors Association
- Director Certification Program (DCP), class 170/2013,
Thai Institute of Directors Association
- Business Reporting Program (BRP),
Thai Institute of Directors Association, 2015
- Monitoring and Controlling Business Performance,
Thailand Management Association (TMA), 2015
- Strategic Risk Management,
Strategic Business Development Center Limited Company, 2017
- Integrated Water Management for Executives, Class 3,
Thai Waterworks Association (TWWA)

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Experience

Operation Director
TTW Public Company Limited
Operation Manager
Thai Water Operations Company Limited
Operation Director
BJT Water Company Limited
Maintenance Manager
BJT Water Company Limited
Other current positions
Director / Managing Director
Thai Water Operations Company Limited

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Family Relationship between Director and Executive Management Grandchild of Mr. Plew Trivisvavet

Experience

Position in Listed Company

2015 - 2018 Assistant Managing Director Administration Group
TTW Public Company Limited
2014 - 2015 Assistant Managing Director Finance Department
Bangkok Expressway Public Company Limited

Position in other Companies

2019 - Present Director
Center of Excellence on Hazardous Substance Management
2016 - Present Director, Managing Director
Pathum Thani Water Company Limited
2016 - Present Director
Thai Water Operation Company Limited
2014 - 2017 Managing Director
Fahamorn Machinery Company Limited
2014 - 2017 Managing Director
R.S.B Construction Company Limited



Mr. Somkiat Pattamamongkolchai

Age 47 years

Positions in the Company Account and Finance Director
Acting Assistant Managing Director
Administration Group

Education / Training

- Master's degree: Master of Accounting
Thammasart University
- Bachelor's degree: Bachelor of Commerce and Accountancy
Chulalongkorn University
- Director Certification Program (DCP), Class 121/2009,
Thai Institute of Directors Association
- Director Accreditation Program (DAP), Class 79/2009,
Thai Institute of Directors Association
- Business Reporting Program (BRP),
Thai Institute of Directors Association, 2015
- TLCA Executive Development Program,
Thai Listed Companies Association, 2015
- Strategy Management Program,
Fiscal policy research institute foundation, 2018
- TLCA CFO Professional Development Program,
The Securities and Exchange Commission, Thailand 2019

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Experience

Director
Pathum Thani Water Company Limited

Director
Thai Water Operations Company Limited

Director
CK Power Public Company Limited

Director
Bangkhenchai Company Limited

Assistant Audit Manager
EY Office Limited (Formerly Ernst & Young Limited)

Other current positions

- None -



Ms. Sudarat Chiamchan

Age 55 years

Position in the Company Corporate Affairs Director and
Company Secretary

Education / Training

- Master of Management
Mahidol University
- Bachelor of Business Administration (Accounting)
Ramkhamhaeng University
- Director Certification Program (DCP), Class 186/2014,
Thai Institute of Directors Association
- Company Secretary Program (CSP), Class 43/2011,
Thai Institute of Directors Association
- Company Reporting Program (CRP), Class 2/2011,
Thai Institute of Directors Association
- Effective Minutes Taking (EMT), Class 24/2012,
Thai Institute of Directors Association
- Advance Audit Committee Program (AAP), Class 20/2015,
Thai Institute of Directors Association
- Business Reporting Program (BRP),
Thai Institute of Directors Association, 2015
- Board Nomination & Compensation Program (BNCP 1/2017),
The Thai Institute of Directors Association, 2017
- Corporate Governance for Executives (CGE), Class 6/2016),
Thai Institute of Directors Association
- Boardroom Success through Financing & Investment(BFI),
Thai Institute of Directors, 2018
- Orientation Course - CFO FOCUS ON FINANCIAL REPORTING,
Federation of Accounting
- Role of the Company Secretary in Shaping Corporate Culture,
The Thai Institute of Directors Association, 2019
- Audit Adjustments,
The Thai Institute of Directors Association, 2019

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Experience

Accounting and Finance Manager
PathumThani Water Company Limited

Accounting and Finance Manager
Index International Group Company Limited

Other current positions

- None -



Mr. Hongthong Artit

Age 52 years
Position in the Company Business Development Director

Education / Training

- Master's degree: Master of Engineering (Infrastructure and Management)
Kasetsart University
- Bachelor's degree: Bachelor of Engineer (Mechanical Engineering)
King Mongkut's Institute of Technology North Bangkok
- TMA Thailand Management Day 2018,
Thailand Management Association (TMA)
- Business Reporting Program (BRP),
Thai Institute of Directors Association
- Myanmar insight 2018,
Thai Business Association of Myanmar
- TLCA Executive Development Program, (EDP) 2016
Thai Listed Companies Association
- Energy Symposium 2016,
The Federation of Thai Industries

Shareholding in the Company (%)

Direct : 0.00001 Indirect : - None -

Experience

Customer Service Director
TTW Public Company Limited
 Operation Manager
PathumThani Water Company Limited
 Engineering and Construction Section Chief
TTW Public Company Limited
 Pipeline Site Manager
JWTWCK Joint Venture

Other current positions

- None -



Mr. Pipat Katikul

Age 52 years
Position in the Company Operation Director

Education / Training

- Master's degree: Business Administration
National Institute of Development Administration (NIDA)
- Master's degree: Computer and Engineering Management
Assumption University
- Bachelor's degree: Bachelor of Science (Microbiology)
King Mongkut's University of Technology Thonburi
- Executive Development Program (EDP) class of Year 2018 :
Thai Listed Companies Association
- Strategic Risk Management,
Strategic Business Development Center Limited Company, 2017
- Monitoring and Controlling Business Performance,
Thailand Management Association (TMA), 2015
- Business Reporting Program (BRP),
Thai Institute of Directors Association, 2015
- Business Capability Enhancement Program (BCEP),
Thai Institute of Directors Association, 2014

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Experience

Acting Engineering and Construction Director
TTW Public Company Limited
 Quality and Efficiency Manager
Thai Water Operations Company Limited
 Operations Manager - Pathum Thani Water Treatment Plant
Thai Water Operations Company Limited
 Business Development Manager
Thai Tap Water Supply Public Company Limited
 Operations Manager
BJT Water Company Limited

Other current positions

- None -



Mr. Chatchawan Tianprasertkit

Age 55 years
Position in the Company Acting Customer Relationship Management Director

Education / Training

- Master's degree Master of Business Administration (Management) Sripatum University
- Bachelor's degree Faculty of Commerce and Accountancy, Department of Statistics, Computer Program, Chulalongkorn University
- Business Reporting Program (BRP), Thai Institute of Directors Association, 2015
- Governance, Risk and Compliance; TRIS Academy of Management, 2014
- Internal Audit Certification Program, The Federation of Accounting Professions, 2013
- Water loss management, Dhurakij Pundit University, 2017
- Risk Management Program, Thai Institute of Directors Association, 2011
- Leadership for QMS and EMS, SGS (Thailand) Limited, 2018
- Water Leadership Program, 2019
Water Institute for Sustainability, The Federation of Thai Industries

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Experience

Manager - Internal Audit Division
 TTW Public Company Limited
 Information Technology Director
 TTW Public Company Limited
 Marketing Director
 TTW Public Company Limited
 Senior Manager - Business Development Division
 Bangkok Metro Public Company Limited
 Operation Support Manager - Operation Division
 Bangkok Metro Public Company Limited
 Manager - Software Applications for Business Administration
 Business Application Co., Ltd.
 Manager - Computer Division
 Siam Kayaba Company Limited

Other current positions

- None -



Mrs. Busawan Pholprasert

Age 47 years
Position in the Company Acting Human Resources and Administrative Director
 Human Resources Development Manager

Education / Training

- Master's degree: Master of Art - Public Administration, Kasetsart University
- Bachelor's degree: Bachelor of Political Science, Thammasart University
- Leadership for QMS and EMS, SGS, 2018, SGS (Thailand) Limited
- Engaging Thailand's Workforce, 2018, ARIP Public Company Limited
- The Effect of the minimum Wage and Compensation Management, 2018, Personnel Management Association of Thailand
- Risk Management, 2017, Holistic Development Center Co., Ltd.
- Preparation of Thailand's Industry for Transition towards Industry 4.0, 2017
- Building Employee Engagement during Change, 2017 Dale Carnegie
- New Business Challenges of the Digital Workforce, 2017 Business Plus

Shareholding in the Company (%)

Direct : - None - Indirect : - None -

Experience

Human Resources Manager
 Progress Software Co., Ltd.
 Human Resources Manager
 T.N Information System Co., Ltd.

Other current positions

- None -



Director and Indirect Shareholding by Directors and Executives until December 31, 2019

Director / Executive	Position	TTW shares held as of December 31, 2018	Increase / (Decrease) in TTW shares held in 2019	TTW shares held as of December 31, 2019	Percentage of Shares held (%)
Dr.Thanong Bidaya Spouse and minor children	Independent Director and Chairman of the Board of Director	342,500 -	- -	342,500 -	0.0085 -
Mr.Plew Trivisvavet Spouse and minor children	Vice Chairman of the Board of Director	900,000 100,000	700,000 -	200,000 100,000	0.0050 0.0025
Mr.Phongsarit Tantisuvanitchkul Spouse and minor children	Chairman of the Executive Committee	- -	- -	- -	- -
Mr.Phairuch Mekarporn Spouse and minor children	Independent Director	- -	- -	- -	- -
Mr.Somnuk Chaidejsuriya Spouse and minor children	Independent Director	- -	- -	- -	- -
Dr.Sombat Kitjalaksana Spouse and minor children	Director	1,000,100 -	- -	1,000,100 -	0.0250 -
Mr.Suvich Pungchareon Spouse and minor children	Director	- -	- -	- -	- -
Mrs.Payao Marittanaporn Spouse and minor children	Director	- 100	- -	- 100	- 0.000003
Dr.Patarut Dardarananda Spouse and minor children	Independent Director	- -	- -	- -	- -
Mr.Shunsuke Murai Spouse and minor children	Director	- -	- -	- -	- -
Mr.Hideo Matsumoto Spouse and minor children	Director	- -	- -	- -	- -
Ms.Walainut Trivisvavet Spouse and minor children	Managing Director	- -	- -	- -	- -
Mr.Tanat Sirichareon Spouse and minor children	Assistant Managing Director, Operation Group	- -	- -	- -	- -
Mr.Somkiat Pattamamongkolchai Spouse and minor children	Account and Finance Director Acting Assistant Managing Director, Administration Group	- -	- -	- -	- -
Ms.Sudarat Chiamchan Spouse and minor children	Corporate Affairs Director	- -	- -	- -	- -
Mr.Hongthong Artit Spouse and minor children	Business Development Director	400 -	- -	400 -	0.00001 -
Mr.Pipat Katikul Spouse and minor children	Operation Director	- -	- -	- -	- -
Mr.Chatchawan Tienprasertkij Spouse and minor children	Acting Customer Relationship Management Director	- -	- -	- -	- -
Mrs.Busawan Pholprasert Spouse and minor children	Acting Human Resource and Administration Director	- -	- -	- -	- -



Activities for Society, Quality of Life, and Environment

Sustainable Development Policy

TTW Public Company Limited (TTW) recognizes the importance of operating sustainable business in parallel with social development and environmental conservation by applying the Sustainable Development Goals (SDGs) as the guideline. The Company's business operation covers all economic, social and environmental dimensions under the principle of corporate governance and our main responsibilities to produce tap water that is clean, safe and meets international standard, delivered to customers and the public to have a better quality of life, as in the company's aspiration of "Quality Water for a Better Life".

We also realizes that strong social foundation is an important factor for creating sustainability under the Company's mission "To be Thailand's leading company in Water, Energy and Eco-Friendly Businesses." Our aim is also to create satisfaction and maximum benefit to stakeholders. The Company, therefore, determines to operate water production business under the integrated framework of corporate governance, risk management, personnel development and care, social responsibilities, environmental conservation and fair and ethical stakeholders' treatment, by creating mutual value between the companies and society according to the CSV guidelines (Creating Shared Value).

Throughout 2019, the Company has continued to operate with a high level of social responsibility and environmental stewardship, in order to provide sustainability to stakeholders in all sectors. In normal business operations (CSR in-process), the Company promotes and utilizes business strategies, good corporate governance, business risk assessment, procurement process improvements, fair treatment of all stakeholders, the promotion of innovation in work processes as a result of Kaizen activities, and the delivery of quality tap water that meets international standards to the Provincial Waterworks Authority and to all water users in service areas. Our water is used for both consumption and production in the industrial sector, thus helping to support the country's economic development and resulting in continual improvement in the quality of life of the Thai people. As for the Company's CSR operations outside of normal business operations (CSR after-process), the Company supports a wide variety of public charitable activities in the community and engages in educational promotion, health and hygiene promotion, community problem-solving, environmental stewardship, and water and energy-saving campaigns, while also striving to help improve the quality of life of the community.

Implementation and Reporting

The Company includes social responsibility report as a part of its annual report and publishes the separate "Sustainability Report" in order to report on the implemented activities that covered all 3 sustainable performances, namely, economic, social and environmental, including the dissemination of concept and results of social and environmental activities to stakeholders through the Company's website: <http://www.ttwplc.com>

Data published in the Company's Sustainability Report covering the time period from January 1 - December 31 of 2019 includes a survey of stakeholder expectations as well as the examination, selection and prioritization of key sustainability issues in order to meet said stakeholder expectations. The Sustainability Report is based on and in accordance with the international standards and guidelines of the Global Reporting Initiative (GRI Standard).

Actions Taken In Compliance with Policy

All Company operations must be carried out in accordance with the sustainable development policies and models of the Company. This includes quality improvement in the value chain, environmentally friendly business practices, the development of work processes, the creation of added value and the development of employee potential, the understanding of value in the use of resources, energy conservation, the promotion and expansion of educational opportunities for youth, the use of business expertise to promote better quality of life, the creation of shared value between the Company and the community, and participation in solving community water resource issues in order to reduce and control potential impacts and to create value for stakeholders. The Company has formulated the following policies and guidelines for sustainable development and environmental conservation:

1. To develop business process according to the main missions of the Company
2. To create consciousness among all levels of employees on social and environmental responsibilities.
3. To promote social and environmental activities in CSR process by focusing on the prevention of social and environmental impacts.
4. To promote the organization's sustainable development based on Global Reporting Initiative (GRI)
5. To promote participation of all employees and business partners in CSR activities with a view to creating consciousness on "Sustainable Development" across the organization.
6. To recognize the importance and to promote business and social development and innovation that create added value to the Company, stakeholders, society and environment.

Community and Social Development

The Company is always aware that it is a part of society as a whole and thus, must grow together with it. For an organization to grow in a sustainable manner, it must do so on the foundation of a sustainable society. The Company is therefore committed to fulfilling its social responsibilities through various CSR activities and to carrying out sustainable business operations based on a balanced stakeholder foundation in order to benefit and improve the quality of people in society, thus resulting in a strong community that can stand on its own as a model for sound, sustainable progress.

In 2019, the Company carried out a survey of the expectations and needs of target communities in the Company's service areas, in order to identify any issues, expectations or needs of said communities and then to meet those needs and create activities that would be beneficial to society and the environment. Issues identified were then summarized and itemized as social and environmental responsibility activities, the details of which appear in the Sustainable Development Report for 2019.

Environmental Responsibility

The Company is committed to sustainable business practices grounded on a firm foundation and perfect balance of economic, social, and environmental factors. The Company attaches great importance to environmental responsibility and conducts its business in a manner that does not negatively impact the environment, promotes energy conservation, values efficient use of resources, conserves water, carries out comprehensive water resource management, and creates environmental stewardship and conservation projects in order to preserve natural resources and the environment for future generations.



Occupational Health and Safety

1. Occupational Health and Safety

TTW realizes that occupational safety and health program is an integral part of the business operation and is directly related to both qualitative and quantitative productivity. Its implementation also leads to a sustainable coexistence with the surrounding communities. The company therefore focuses the efforts on creating knowledge, understanding, realization and conscience on occupational safety and health in all departments and among all levels of staffs, including senior executives and operational-level staff.

The company has formulated policies and managerial structure for occupational safety, health and environment in accordance with the standards, stipulated in the Occupational Safety, Health and Environment Act B.E. 2554 and other work safety-related laws. We use these as basic practical guidelines to help our employees to ensure safety standard in their works.

2. Environmental Quality, Occupational Safety and Health Policies

Our company is determined to implement the environment quality, occupational safety and health activities by emphasizing on the participation of our personnel in order to ensure continuing development as follows.

1. Producing running water with quality that is responsive to the needs of customers.
2. Ensuring maximum satisfaction from direct and indirect customers.
3. Improving and developing knowledge, ability, skill and expertise of our employees on continuing basis to ensure that they have consciousness on environment quality and occupational safety and health.
4. Complying with the laws and requirements on the nature and problems relating to environment and work safety of the company.
5. Preventing pollution from the company's business activities that may affect natural environment, including the efficient use of energy and resources.
6. Preventing and mitigating accidents, danger and illness that occurred to our employees and those who involve with the operation of the company while performing the duties.
7. Preparing for any possible emergency incident and working to ensure that such incidents would not affect personnel and properties that are inside and outside of the company

The management was responsible to support on budget, manpower, time sufficiently and appropriately to drive quality, environment, occupational health and safety to be in accordance with the policies, objectives and goals set

3. Occupational Safety in the Company Group

For the supervision and inspection of operations, to ensure safety standards are being met and that any accidents that could cause damage to a person or to property while working with the Company are prevented or their effects minimized, the following occupational safety guidelines and rules have been established:

1. Clothing must be well-fitted and suitable for safe operation.
2. Personal protective equipment (PPE) must be worn in all specified work areas or job types.
3. The use of drugs, alcohol, or intoxicants is prohibited anywhere in the factory area. If intoxicated, do not enter the factory premises.
4. No smoking in the factory premises, except for in designated areas only.
5. No sparks allowed on factory premises without prior permission from responsible parties.
6. Do not use company machinery and/or equipment without receiving prior permission from the responsible parties.
7. Every time machinery is being repaired or cleaned, said machine must first be turned off completely and a "Danger. Do not start the machine." sign must be placed visibly on the machine.
8. Do not hang, swing, or climb on forklifts. These are not for passenger transportation.
9. Do not tease, joke, and/or take any action which may cause danger to oneself or others or Company property.

10. Do not use air that is part of the operations of machinery or equipment to dry your body, clothes, personal belongings, or anything else.
11. Any areas marked with “No entry without permission” signs are strictly prohibited from entry by any non-related parties.
12. Work permits are required before starting any high-risk operation as stipulated by the Company.
13. Do not work or operate alone in any job that specifies more than one person is required.
14. Do not pull or press the fire alarm without due cause.
15. Report to a supervisor in any case whatsoever of a fire, accident, or near-accident.

All employees and stakeholders in the TTW Public Company Limited group must strictly comply in the event that an investigation identifies any violation with cause for punishment according to personnel management rules and regulations for employees and/or the manual for safe work procedures.

4. Occupational Safety, health and Environment Committee

TTW has elected and appointed the Occupational Safety, Health and Environment Committee to perform the duties that include the formulation of policies, action plans and training on occupational safety in order to prevent and decrease the number of occupational accidents, injury, illness, suffering or unsafety. The Committee’s duties also include the submission of reports and recommendations on measures or guidelines to improve or correct the occupational safety standard so that they are in compliance with the occupational safety-related laws and occupational safety standard to the management. This is to ensure occupational safety for employees, contractors and third parties who perform their works or use the services of the company, including the survey on occupational safety performance, the reviewing of injury statistics, the setting of occupational safety reporting system. The company requires that employees at all level comply with the guidelines under the supervision of the Occupational Safety, Health and Environment Committee as follows;

Occupational Safety, health and Environment Committee

Name	Position	Position in OHSEC
1. Mr. Pisit Ditnin	Employer representatives, Executive level	Chairman of OHSEC
2. Mrs. Benjawan Rattalermsak	Employer representatives, Commanding level	Committee
3. Mr. Praphonth Poochaphanth	Employee representative Operational level	Committee
4. Mr. Phonlakit Asawawatrakul	Employee representative Operational level	Committee
5. Mr. Nopadol Tangsuwan	Employer representatives, Commanding level	Committee and Secretary

5. Accident statistics

Year	Number of accidents (times)	Injury Frequency Rate (IFR)	Injury Severity Rate (ISR)
2015	0	0	0
2016	0	0	0
2017	3	1.12	6,747.00
2018	0	0	0
2019	0	0	0



Report of the Compliance to Good Governance Principles

Corporate Governance

Business management with good corporate governance is an important factor, which demonstrates the management system that is efficient, fairness, transparency, accountability, and ensures responsibility towards the community, society, and environment, to build trust and confidence of shareholders, investors, and all stakeholders. The Board of Directors has adhered to and complied with the Principles of Good Corporate Governance of the Stock Exchange of Thailand (SET), the regulations of the Securities and Exchange Commission (SEC), and the Capital Market Supervisory Board, and in the line with the ASEAN Corporate Governance Scorecard (ASEAN CG Scorecard), to enable the Company to achieve its vision and mission with both stability and sustainability.

Corporate Governance Policy

The Board of Directors recognizes the importance of good corporate governance, and has therefore established a corporate governance policy in written form to serve as a guideline for the Board of Directors, executives and employees of the company to adhere to so that management of the Organization may be carried out with fairness, transparency, accountability and efficiency. This corporate governance policy covers all key matters in accordance with all 5 categories of the Stock Exchange's principles of good corporate governance, including the rights of shareholders, equitable treatment of shareholders, the role of stakeholders, information disclosure and transparency, and the responsibilities of the board, enabling all members of the Board of Directors, executives and employees to put its principles into practice in all work and operations as follows:

1. The Board of Directors strives to create more value for the company in the long run by supervising and operating with care and be careful according to the capacity for the maximum benefit of shareholders while taking care to prevent conflicts by taking responsibility for decisions and actions as directors of the Board of Directors.
2. The Board of Directors will treat the shareholders and the all parties equally.
3. The Board of Directors will operate with sincerity and can be checked by disclosing information to all concerned parties accurately, completely and in time.
4. The Board of Directors will always regard to the risk that could be occurred in the business. It will be controlled and manage the risk appropriately.
5. The Board of Directors will provide an Ethics of working for directors, executives and employees. The Board of Directors must be an example of Ethics, and being a good role model for executives and employees according to the corporate governance principles of the company.
6. The Board of Directors must have an annual self-evaluation on a regular basis to be used as a framework to monitor the performance of the committee of the company.

The Board of Directors is aware of compliance with the CG Code by the Office of the SEC and thus has adapted said principles to be in line with the Company's operations. The corporate governance policy is reviewed annually and the criteria are adjusted based on the foundational principles of good corporate governance and in accordance with the changing environment.

In 2019, the Board of Directors considered the CG code, regulations and criteria of regulatory agencies, CGR's criteria and ASEAN CG Scorecard which the Company had yet to accomplish as well as explained reasons and alternative practice guidelines as follows:

Unaccomplished Items	Reasons
<ol style="list-style-type: none">1. The Board of Directors should determine that independent directors can continually assume director positions for not longer than 9 years since the date of the first appointment.2. The Board of Directors should determine the maximum length that directors and members of committees can assume their positions.	<p>The Board of Directors has not determined the period of office for an independent director, director, and sub-committee to assume, as it is believed by the Board of Directors that every director has knowledge, ability, experience and an understanding in the business operations, with independence in expressing opinions deemed beneficial for the company.</p>

Communication of and Compliance with the Corporate Governance Policy

The Board of Directors communicates and disseminates the details of the corporate governance policy to all directors, executives and employees at all levels of the Company, as well as to all interested parties via the Company's website at www.ttwplc.com in order to create awareness and understanding and to ensure correct practices, thus boosting confidence among stakeholders.

Additionally, the Company has prepared a corporate governance and business ethics manual to set forth principles and guidelines for directors, executives and employees alike, and has also provided media and a variety of activities to help enhance employee understanding of good corporate governance throughout the Company. In the past year, major activities in this regard were as follows:

- Dissemination of information and good corporate governance practices to directors Management and staff for acknowledged by internal communicating within the news boards, meetings between employees, Executives and managing directors, which organized monthly and through the company intranet such as, disseminating letters for cooperation to refrain from trading or changing possession of Company's security via electronic mail.
- Report on the principles of good corporate governance practices of the Company to the Corporate Governance Committee and the Board of Directors.
- Training about good corporate governance principles to employees such as lectures on the topic of good corporate governance policy and anti-corruption practices in the orientation for new employees, and provide a test of knowledge before and after the lecture.

Monitoring of Compliance with the Corporate Governance Policy

In the past year, the Company's Board of Directors and all employees consistently complied with good corporate governance policies. As a result of this commitment, in 2019, the Company received a number of awards and accreditations for its good corporate governance as follows:

1. In 2019, the Thai Investors Association announced that TTW received a full 100 points for the 6th consecutive year in the quality assessment by the Annual General Meeting of Shareholders.
2. The Thai Institute of Directors (IOD) announced the results of their Corporate Governance Report of Thai Listed Companies for 2019 (CGR), with TTW receiving a rating of "excellent".
3. TTW was ranked as 1 in 100 companies listed on the Stock Exchange of Thailand as being outstanding in Environmental Social Governance or ESG100 in the 2019 Resources Group.
4. TTW was selected for the Thailand Sustainability Investment (THSI) listing for the year 2019 in the SET market capitalization of THB 30 billion - THB 100 billion category.

In 2019, the Thai Institute of Directors (IOD) conducted an annual corporate governance survey to monitor the development of corporate governance among listed companies. The Company prepared a data form for presentation in accordance with the criteria for Corporate Governance Reports of Thai Listed Companies (CGR) in order to review implementation and compliance with the 5 aspects of good corporate governance, summarized as follows:

Section 1 Rights of Shareholders

The Company recognizes the importance and equality of all shareholders, both minor shareholders and institutional investors, and therefore encourages shareholders to exercise their basic legal rights in all aspects, including share of business profits, trading or transferring of shares, receiving sufficient information about the business, shareholder meeting attendance to exercise voting rights in appointing and/or removing directors, determination of director remunerations, appointment of auditors and determination of audit fees, and all matters affecting the Company. In addition, the Company supports and treats shareholders equally in all matters, such as providing important and up-to-date information via the Company website, providing opportunities for shareholders to propose items for the agenda and nominate candidates for directorship, arranging Company visits for shareholders, and providing opportunities to participate in social responsibility activities of the Company. The Company refrains from taking any action that would violate or infringe upon the rights of shareholders in any way.

1. Shareholders' Meeting

The Board of Directors considers the Annual General Meeting of Shareholders (AGM) a very important event. AGM is held within 4 months from the Company's closing date of accounting period to accommodate shareholders' participation in monitoring the Company's performance. An extraordinary general meeting of shareholders can be held by the Board of Directors on a case by case basis to consider a special agenda that affects or involves the shareholders' interests and requires the shareholders' approval. TTW's AGM was arranged in accordance with AGM checklist issued by the Thai Investors Association, Listed Companies Association and SEC as follows:

Before the Shareholders' Meeting Date

TTW provided shareholders with complete meeting documents in advance to support their decision making. Shareholders were encouraged to attend the meeting and TTW strived to facilitate shareholders' exercise of voting rights, in case they could not attend the meeting as follows:

- Meeting schedule and agenda were distributed via SET portal and TTW's website on February 26, 2019 before delivering the meeting documents by post, 43 days prior to the AGM date. The record date for the rights to attend the meeting and receive dividends was also detailed in the meeting notice.
- Meeting notice and agenda, in both Thai and English, were sent to shareholders by clearly separating each agenda item as prescribed in Chapter 4 of TTW's Articles of Association: Shareholders' Meeting. The appointment of directors and consideration of directors' remuneration were under separate agenda items. Each agenda item consisted of background, objective and rationale, Board's opinions, number of votes needed, policy and criteria of determination of remuneration, policy and criteria of director nomination, profiles of nominated directors, details of previous minutes, conditions and procedures of attending the meeting, 3 proxy forms (form A, B and C), as required by the Department of Business Development, Ministry of Commerce and an annual report, which were delivered to shareholders on March 11, 2019, 30 days before the AGM date. Notice and supporting documents were published for 3 consecutive days in newspapers to notify shareholders in advance, so that they could have adequate information before attending the meeting. Also, other relevant details were published on TTW's website before sending hard copies to shareholders in order to allow them to have enough time to review such information. Meeting notices were delivered to shareholders by post on March 20, 2019, 21 days prior to the AGM date. Contact numbers were also provided for further inquiries and for proposing additional information relating to the appointment of directors, as in compliance with the best practice guidelines by SEC and SET.
- To encourage the institutional investors' attendance, the Investor Relations Unit coordinated with the institutional investors on their submission of registration documents to TTW 7-14 days in advance for document checking in order to facilitate the administrative procedures on the actual meeting day.
- Providing shareholders with communication channels to forward their inquiries on meeting agenda in advance to cg@ttwplc.com or facsimile number 02-420-6064 by determined the criteria for sending questions in advance on the company website www.ttwplc.com to ensure the shareholders' utmost benefits and full legal rights.

On the Shareholders' Meeting Date

TTW strongly encouraged shareholders to exercise their rights by attending and voting at the shareholders' meeting. The meeting was conducted in a transparent, correct, and accountable manner ranging from the registration, vote counting to result announcement, in order not to violate or deprive of the shareholders' rights. Shareholders' inquiries and opinions were welcomed and taken into consideration as follows:

- Directors, executives and external auditors from EY Office Limited (EY) attended the AGM altogether in order to answer shareholders' questions and acknowledge their opinions. For the AGM 2019, 12 directors including the Chairman and directors attended the meeting which accounted for 100 percent of the total number of the Board members. The Chairman of the Board, the Chairmen of all subcommittees and the President together with senior executives also attended the meeting and explained details of information regarding agenda items and answered shareholders' questions.

- TTW identified the names of directors having conflicts of interest in respect to any agenda item in the meeting notice. Those directors were not present in the meeting while any given agenda item was being considered.
- Shareholders and institutional investors' facilitation was TTW's first priority. The map of the meeting venue was attached to the meeting notice and several registration counters were appropriately and adequately provided for shareholders' convenience.
- Provide personnel to provide full details of the Company's business operations to shareholders. Shareholders' inquiries were warmly welcomed and clarified by the executives, Investor Relations Unit, Corporate Affairs Division, Account and Finance Division, Business Development Division, Operations Division and Engineering Division.
- One volunteer shareholder was invited to observe the vote counting process. Representatives from the Thai Investors Association also observed the meeting.
- Provide auditors who do not perform the audit duties of the company and lawyers who are not corporate counsel Witness the meeting
- Shareholders, who registered after the meeting had already started, were allowed to vote for the ongoing and the remaining agenda items.
- The shareholders' meeting was convened according to the sequence of the agenda. Each agenda presentation included the background, supporting rationale and recommendation. The significant information and details were included in the meeting notice delivered to shareholders, without any ad hoc agenda during the meeting.
- Shareholders were equitably treated and were allowed to raise questions and opinions. All questions were addressed and clarified by the Chairman and completely recorded in the minutes of the meeting.
- Offices of N & K Co., Ltd. was hired as an inspector to audit shareholders' or their representatives' registration documents, meeting quorum, compliance of the voting and vote counting procedures with the Company's Articles of Association, as well as to inspect shareholders' ballot collection and voting results. In this regard, the inspector reported that the meeting and the voting procedures were transparent and in compliance with the Company's Articles of Association, relevant laws and SET's best practices of good governance. In addition, the inspector reported that TTW highly respected the rights of its shareholders to actively participate in the meeting and voice out their opinions as well as efficiently facilitated shareholders in all matters.

For the AGM 2019, there were 971 shareholders attending the meeting, which 577 shareholders attending the meeting in persons and 394 shareholders by proxies, representing 3,252,370,957 shares which accounted for 81.51% of the total issued shares, decrease from the year 2018 accounted for 0.11% which the 2018 were 918 shareholders attending the meeting in person and by proxies, representing 3,255,922,473 shares which accounted for 81.60% of the total issued shares.

After the Shareholders' Meeting Date

- After the AGM, TTW concluded resolutions for each agenda item to shareholders and SET via SET Portal according to SET's criteria of information disclosure. In 2019, meeting resolutions were notified on April 11, 2019, immediately after the meeting.
- TTW prepared minutes of the meeting which recorded name list of directors and executives together with their titles, auditors and meeting inspector attending the meeting, voting and vote counting procedures, voting card instructions, the Board's recommendations, inquiries and recommendations of shareholders and clarifications from the management. Details on the number of approvals, disapprovals, abstentions and voided ballots, and resolutions of each agenda item were also included and published on the company's website: www.ttwplc.com on April 24, 2019 which occurred within 14 days after the meeting date as required by SET's criteria.
- TTW disseminated images and sounds recorded in the meeting on its website for absent shareholders' acknowledgement.
- The shareholders' meeting approved the dividend payment, the company notified the meeting resolution including details of dividend payment to shareholders through the SET Portal and coordinated with the TSD and announced the dividend payment on Newspaper to ensures that shareholders receive the complete and accurate dividend rights

2. Company Visit and Knowledge Enhancement for Shareholders and Investors

Shareholders and investors are invited to visit the Company and meet the executives to enhance their understanding of business and follow up the progress of the Company's business operations. In 2019, company visits were continuously arranged for investors, analysts and investors, of which the details can be found in the Information Disclosure and Transparency section.

Section 2 Equitable Treatment of Shareholders

1. Equal Treatment

The Board of Directors recognizes the importance of ensuring fairness and equality in the interests and treatment of all shareholders, foreign shareholders, and institutional investors, and, to this end, has set forth a policy regarding the equitable treatment of shareholders in the good corporate governance policy of the Company. In addition to those practices prescribed by law, the policy includes the following practices:

- Provide opportunity for shareholders to propose items for the agenda for the annual general meeting of shareholders and to nominate in advance candidates for director positions from September 1, 2019, to December 31, 2019, with all rules and procedures disclosed on the Company website and notification sent to shareholders via the SET Portal system of the SET.
- The Company has a policy to protect the rights of all shareholders, that is, that no agenda point may be added to the meeting agenda without advance notification of all other shareholders. This is to provide shareholders with the opportunity to study meeting agenda information ahead of time before voting. All shareholders of the Company have the right to vote according to their number of shares. Each share equals one vote. No shares have any special privileges that would restrict or limit the rights of any other shareholders.
- Ballots were employed in vote counting for all agenda items for transparency and accountability. The appointment of individual director was done by shareholders. Offices of N & K Co., Ltd. was invited as an inspector to ensure that the shareholders' meeting was conducted transparently and in compliance with the laws and the Company's Articles of Association. Shareholders, who were unable to attend the AGM in person, could vote through proxy. The 3 proxy forms as introduced by the Department of Business Development, Ministry of Commerce were provided and 2 Company's independent directors who did not have conflicts of interest with the AGM agenda could be alternatively appointed as volunteer proxies. The proxy forms were made available for shareholders on TTW's website.
- Since most shareholders attending the AGM were Thai, the meeting was, therefore, conducted in Thai. However, in order to facilitate foreign shareholders, TTW prepared the meeting notice and supporting documents in both Thai and English versions.
- Ballots were employed in vote counting for all agenda items, especially in the appointment of individual director was done by shareholders, the votes equaled the number of shares held for the election of one director.
- The policy stipulates that any directors who have an interest in any matter being considered shall forfeit their right to vote on said matter and must not be present at the meeting regarding said agenda point.

2. Prevention of Internal Information Usage

The Company has stipulated, in writing, guidelines for the prevention of internal information usage and has shared said guidelines with all Directors, executives and employees, all of whom are well informed and comply strictly with these and other important principles on the topic of supervision of the use of internal information.

3. Prevention of Conflicts of Interest

The Board of Directors has a policy to prevent conflicts between personal interests and the interests of the company, which has been stipulated in the code of conduct for directors and employees as follows:

1. Ensure the compliance with rules, procedures and disclosure of connected transaction information as strictly required by laws or regulatory agencies and according to the company's regulations.
2. Avoid doing transactions that are connected to oneself or related persons / juristic persons, which may cause a conflict of interest with the company.

3. In the case of a connected transaction which does not comply with general trading conditions in accordance with the principles approved by the Board of Directors, or the nature and size of the transaction is not within the discretion of the management must pass a review and provide comments from the audit committee before proposing for approval from the board of directors or shareholders.
4. In the case that it is necessary to make a connected transaction such transactions must comply with general commercial conditions in accordance with the principles approved by the Board of Directors, with transparency and fairness like doing transactions with third parties and taking into account the best interests of the company.
5. Stakeholders must not be involved in the consideration of transactions that have a conflict of interest.

Section 3 Role of Stakeholders

1. Rights of Stakeholders

In addition to protecting the rights of shareholders, the Board has a policy to protect the rights of all stakeholders, which emphasized the issues that might affect business operation directly, and matters considered as duties which should be done to the society as a whole. Therefore, in good corporate governance policy and the code of ethics for business, the Board had clearly provided the guidelines for fulfilling the needs of stakeholders in each group, for the directors, executives and staff adhered to could be summarized as follows;

Employees

The Company and its subsidiaries have established employee policies and have provided a manual of such policies so that all employees are clearly aware of the policies and the welfare practices that employees deserve, including fair and equal treatment of all employees without exception regardless of birthplace, race, religion, gender, marital status, language, or position. The Company does not use or support the use of child labor, human trafficking, or any form of fraud or corruption. The Company also offers opportunities for employment for persons with disabilities. The Company has in place policies and guidelines regarding fair employee compensation and welfare at a level comparable to other businesses in the same industry.

The Company also provides a variety of benefits in addition to those prescribed by law, such as the establishment of a provident fund at suitable rates according to length of employment, annual health checkups, medical expenses, health insurance, life insurance, accident insurance, etc. The Company provides office cars for executive management, allowing them to have greater flexibility and convenience in performing their jobs. The Company also promotes various activities for employees, such as the establishment of the TTW Running Club and participation in running events organized by external agencies, and has provided a first aid room, a gym and exercise equipment, in order to promote good health among employees.

The Company places great importance on long-term human resource development and has put in place policies and practices regarding the development and creation of opportunities for employees in terms of learning and development of potential. The Company believes that its personnel are its most valuable resource in driving the Organization as a whole towards a common goal and, therefore, is determined to develop its personnel and provide them with appropriate knowledge, abilities, and a good quality of life. To this end, the Company has adopted a professional management system in human resource management in order to maximize employee potential and capacity and therefore to benefit employees. The Company has also organized appropriate learning programs, beginning on the day employees first start work with the Company until the day they retire, and encourages employees at all levels to further their education and to add new skills by attending seminars and workshops with leading institutions. Additionally, the Company continues to develop employee participation across the board by the employee satisfaction survey, the employee engagement survey, the employee participation in welfare management occupational health and safety, which the company has specified as policies and guidelines about workplace safety and hygiene through the Occupational Safety and Health Committee to ensure safety for life as well as property of employees and the company. The company considers safety both for the operation of the employees and to the utility users by providing training to a team of technicians and engineers, as well as employees who work regularly in the water supply process so that they can perform their duties efficiently and safely, due diligence in the care of its employees, throughout the year 2019, neither the Company nor its subsidiaries had any disputes, lawsuits or complaints between the Company and its employees. This also includes no accidents requiring time off work.

Customers

The company adheres to its obligations with customers as a manufacturer and distributor of tap water by adhering to the principles of treating every customer by delivering goods and services that are clean, sufficient, continuous on the basis of fairness And to build lasting relationships between each other. The company has set out policies and guidelines with customers. Regarding actions and responsibility to customers in concrete.

1. Provide accurate information, sufficient and up to date for customers about the products and services without saying exceeding the truth that causes customers misunderstand about the quality, quantity or any conditions of that product or service.
2. Comply with various conditions strictly for customers. In case that any conditions cannot be met, customers must be notified to find the solutions to solve the problems.
3. Contact with customers politely, effective and should be reliable for customers.
4. Provide systems and processes for customers to make complaints about the quality, quantity, and safety of products and services, including the speed of response or delivery and to take the utmost action in order to provide customers with quick response.
5. Maintain the confidentiality of customers and not use it for the benefit of themselves or those involved wrongfully.
6. Do not request or accept or pay any benefits, which indicates actions that are dishonest to customers

In the year 2019, there is no dispute between the company and the customer. In the tap water production and distribution business, TTW can produce tap water for customers according to the contract. Overall, the availability of tap water is higher than the criteria specified in the tap water purchase contract, and able to produce tap water in accordance with the World Health Organization (WHO) standards.

Creditors

TTW observes the obligated commitment it has for all creditors by strictly conforming to terms and conditions of loan contracts without concealing actual financial status, and by providing financial information to creditors periodically. TTW operates its business based on solid principles and in a disciplinary manner. The company manages its capital in line with the proportion of the debts. TTW has defined the policy and practice guidelines on how to deal with creditors properly, so as to establish the confidence and reliability in the eyes of creditors. The company adheres to the principles of practice as below.

1. The company shall make the repayment of all debts, loans and interests; and fulfill the responsibilities for all collaterals. The company shall strictly comply with the terms and conditions of contracts and agreements.
2. In a case that TTW cannot fulfill the conditions set in agreements, TTW shall notify the creditors in advance in order to mutually find a solution.

In 2019, TTW and its subsidiary companies were able to completely fulfill all the terms and conditions that had been agreed with creditors; and never committed any defaults on loans.

Business Counterparts

The major stakeholders of TTW are business counterparts from outside (external service providers). TTW selects its counterparts by considering whether their business strategies are consistent with that of TTW, which may involve competitiveness, continuity of business, customer protection and service, and risk management methods. TTW has formulated the policies for dealing with counterparts properly which emphasize fair treatment to them, as overseen and directed by the company in accordance with its bylaws. Counterpart Selection Criteria of TTW as follows.

1. Follow the quality policies, environment, sanitation health and safety of the company.
2. Complying strictly with the regulations in order to work safety of the contractor.
3. Do not use child labor under the age of eighteen years to work.
4. In the case of business partners using foreign workers in the workplace, documents or permits must be obtained from the relevant government agencies to show to the company. They should have received permission or approval from the company and / or those of the company assign only.
5. Treat their workers with equality and must not violate human rights or good humanitarian principles
6. Act or take care of their labor as appropriate and in accordance with the Labor Protection Act that was enforced at that time.

With these areas of selection criteria, TTW has been able to maintain the excellent quality of tap water manufacturing and distribution, free from any potential risks upon customers.

In 2019, no dispute occurred between TTW or its subsidiary companies and business counterparts or contractual counterparties. For resist corruption, bribery and graft.

Competitors

TTW treats business competitors within a frame of proper competition and does not take advantage over the competitors through an illegal method. TTW has defined rules, criteria and standards that are favorable for working together with the competitors. For example, TTW shall not search for business information of counterparts and competitors in a wrongful way; and shall not destroy the reputation of competitors by making a negative accusation towards them. TTW has adopted a concrete policy about how to treat the competitors fairly and responsibly.

1. Do not participate in the agreement between the company and its competitors.
2. Do not make agreements with competitors that restrict inappropriate competition, such as discussions about costs or pricing with competitors.
3. Be careful in participating in research, exchanging information or participating in any activities with competitors if they wish to use any information to use from the public sources first
4. Do not make any agreements which limit business opportunities without unfair treatment to business partners, dealer or other person.
5. In the event that the company will join the business overseas by joint investment, merger or acquisition of other operators the responsible agency must check the laws and regulations about the prevention of non-discrimination or trade competition of that country.
6. Do not discriminate in any actions of the company to stakeholders to be affected by that operation.

In 2019, no dispute occurred between TTW or its subsidiary companies and the competitors.

Business Competitor

Competitors are third parties that the company must compete in accordance with their business practices. Competition must proceed fairly, not distorting fraudulent information or using any other method that is not correct according to the good competitive environment. The company is the largest tap water supplier and distributor in Thailand by producing and supplying water to the Provincial Waterworks Authority that is a partner without direct competitors However, the company also stipulates a policy and practice regarding competitors

1. Treat competitors within the framework of fair and fair competition etiquette.
2. Conduct within the framework of good competition.
3. Do not destroying the reputation of business competitors by malicious and without false information.
4. Do not seeking confidential information of business competitors by dishonest methods or by using inappropriate methods.
5. Do not take any action that is an infringement of intellectual property and the copyrighted work of others or competitors.

Conflict of interest

The Board of Directors has a policy to prevent conflicts between personal interests and the interests of the company. As defined in the Code of Conduct for directors and employees as follows:

1. Take care of the company compliance with the rules, procedures and disclosure of connected transactions as strictly required by law or regulatory agency and according to the company's regulations
2. Avoid making transactions that are related to oneself or related persons / juristic persons. That may cause conflicts of interest with the company.
3. In the case of a transaction that is a connected transaction that does not comply with general trading conditions according to the principles approved by the Board of Directors or the nature and size of the transaction is not within the authority of the management must be reviewed and commented by the Audit Committee before proposing for approval from the Board of Directors or shareholders
4. In the event that it is necessary to make a connected transaction the transaction must be in accordance with general trading conditions according to the principles approved by the Board of Directors. With transparency and fairness as if doing transactions with third parties and taking into account the maximum benefits of the company
5. Stakeholders must not take part in considering the items that they have a conflict of interest.

Community and Society

TTW operates its business with a cautious concern about communities and society, especially the communities where TTW has an operation in. It has been included in the mission of TTW that the company shall be a good member of society and extend attentiveness towards communities. Therefore, this has been a part of duties and responsibilities to be performed and taken by the management and all employees, starting from providing true and update information, living with communities peacefully by paying respect to their cultures and traditions, taking part in developing good quality of life for community people, and cooperating with communities in developing lively environment of localities, which would lead to sustainable development for society as a whole. As well as participation the development a quality of life and Co-operate with local creative communities and social for sustainability.

Promotion and development “Quality of community life” in the area around the Water Treatment Plant

The company gives importance to communities around the company’s water supply regularly by supporting initiatives and develop various projects that covers both education occupational hygiene, as well as environmental care for better quality of life for people in the community. The company has operated as a project and activities continuously. And can be divided into 3 types of projects, consisting of development of community life in the area around the water treatment plant In the promotion of water conservation learning and the conservation of upstream forests and the environment which the Board of Directors has clearly defined as a policy regarding fair treatment and social responsibility and disclose the practice.

In 2019, the Company continued to operate with social responsibility and environmental stewardship, providing sustainability to all stakeholders in accordance with the “quality water and quality of life” concept in both normal business operations (CSR in-process) and social responsibility works outside of normal business operations (CSR after-process). The Company supports a wide variety of public charitable activities in the community and engages in educational promotion, health and hygiene promotion, community problem-solving, environmental stewardship, and water and energy-saving campaigns, and strives to help improve the quality of life of the community overall. Details of such activities are outlined under Article 10 Corporate Social Responsibility and in the Sustainable Development Report.

Environmental Implementation

TTW is well aware that operating a business without responsibility would cause severe impacts on environment, especially in the communities where TTW operates its business. Therefore, TTW has a strong commitment to protect and conserve environment by giving importance as if it is a business operating factor of TTW. However, according to the experience of TTW in operating its business for several years, TTW realizes very well that by conducting everything in compliance with rules and regulations alone is not effective enough for the protection and conservation of environment. There are other important factors to be considered apart from abiding by the defined rules and regulations, which include the development of internal action plan for emergency situations, the quality control system and regular procurement of advance technologies for mitigating the impacts on environment. In order to ensure the compliance with the rules and regulations regarding emergency situations and quality control system, TTW has adopted a policy for running its business following the environmental standards and safety in waste management and noise in accordance with the International Standard System ISO 14001: 2004

The Performance result of environmental and safety qualities were monitoring and keep in systematically and regularly follow up from the safety inspection Section.

Environmental Achievements

1. Annual meeting was organized every year to consider and discuss the issues related to environmental laws.
2. Environmental protection policy was set up in accordance with TISI Standard 14001. TTW adopted this policy to ensure the sustainability of environment protection and conservation in favor of better living condition (as detailed in “TISI Standard of Environmental Management System 14001 (ISO 14001)”).
3. Goals and objectives of environmental management has been defined and assigned to be achieved by employees inside the organization and those working under the supervision of other work units in various operating sites. The durations of operation and implementation have also been defined clearly. TTW is well aware that training and selling ideas to employees at all levels would lead to achievement of environmental policy.

4. TTW conducted an assessment of significant factors that might cause environmental impacts on the activities of the organization and found that the regulations and procedures currently employed by TTW could effectively reduce the impacts on environments.
5. In-house training project was established for all employees in accordance with environmental management policy with an aim to instill and raise the awareness regarding the environment. This training project organized training sessions both at the headquarters and affiliated work units.
6. TTW has put best efforts in convincing and encouraging all business counterparts to comply with environmental standards.
7. Set the policies to promote efficient of resources

Environmental Education and Training for Employees

The majority of environmental management issues arise from genuine misunderstandings and, as such, the Company has therefore prescribed guidelines for educating and raising awareness, both directly and indirectly, among its employees by encouraging attendance of various training courses related to environmental preservation. In 2019, the following training and courses were provided: Waste Water Recycling For Industry, Study tour in water and environmental management in Singapore, Water Footprint Assessment, Water Pollution Control System Controller, occupational health and the working environment in order to reduce the danger of employees, Managing Ignitable Hazards and, visit the National Occupational Safety and Health Exhibition.

Efficient Use Resources

TTW supports the recycling of materials through a promoting campaign for efficient use of resources, such as using both sides of the paper, turning off air-conditioners and electricity during an office break or during a long absence of executive management from their rooms, and using a car pool for a same operation or direction. The implementation of these projects may not yield a clear result in term of reduction in energy costs or expenditures; however, it would help develop personal awareness that employees. TTW has established policies and guidelines as follows:

1. To operate and develop energy management system appropriately. It is regarded as a part of TTW's business operation and has to be implemented in accordance with laws and other relevant regulations.
2. To continuously improve the energy efficiency which is appropriate to business nature, technology and to follow the best practice
3. To set TTW's annual plan and goal for the energy conservation appropriately in each year and communicate to all employees for accurate understanding and compliance
4. TTW regards that energy conservation is responsibility of all executives and employees at all levels to cooperate and follow the measure in order to accomplish its goals
5. To support human resources, budget, time as well as training courses, and encourage all employees' participation through presenting their opinions that are valuable to energy management.
6. The Management and Green Committee will review and revise the energy conservation policy, goal and energy management plan to ensure their appropriateness and consistency with current situation on an annual basis.

2. Observation of Human Rights

TTW supports the conduct in compliance with "Universal Declaration of Human Rights" and other international standards of human rights by refraining from formulating any policies that would violate the human rights; and by operating its business in line with international standards of human rights. TTW also organized training for new employees regarding the code of ethics and human rights policy of the company. In 2016, TTW announced a whistle blower policy as the channel for employees to submit the complaints about corruption, the violation of rules and regulations, or unfair treatment, to related work units. The activities defined by TTW in relation to human rights indicates very well that TTW gives a serious concern on transparency and the compliance with good corporate governance principles.

In 2019, TTW did not receive any complaints regarding the violation of human rights from employees, business counterparts and local people in TTW's operating areas. So, there is a certain level of confidence that TTW operation has not imposed (or does not have a potential to cause) any effects on local communities. The policies defined by the Board of Directors for all the management and all employees to refrain from violating the human rights, and to comply with Universal Declaration of Human Rights, are as follows.

- Give priority to basic human rights to promote respect for rights and freedoms by not discriminating against or with views on race, color, religion, sex, nationality, age, education, disability or any other status that is considered international human rights.
- Equally treat every process of employment, from recruitment to compensation including working hours and holidays, performance evaluation, training and development progress planning and others aspects without discrimination.
- The company does not use forced labor, child labor and/or illegal foreign workers including punishment that is physical and psychological abuse of employees regardless of whether it is threatening, detaining or any form of abuse or violence.
- The company will treat all employees with equality, provide equal opportunities to work under the rules and regulations of work laws and make announcements from the company which are lawful including allowing employees to express opinions, complaints, rights to access the process of hearing; and clarification before disciplinary action within the organization.
- The company encourages employees to exercise their rights as citizens by constitutionality. And other laws associated and will not violate human rights of any stakeholders related to the company when there is a conflict or political instability.
- The company and all employees do not support corruption related to any business of partners, customers or other stakeholders which violates International Human Rights' principles and/or corruption.

3. Non-infringement of Intellectual Property and Copyright

TTW has adopted the policies and practice guidelines regarding the non-infringement of intellectual property or copyright. TTW has a team of risk management officers chaired by the Managing Director. This team shall submit the report on the implementation of this matter to Risk Management Committee for review, which covers the mandatory requirement for all employees to sign their names in an agreement that they shall not commit any crimes related to computer use, and any infringement of intellectual property. TTW has adopted a policy regarding the use of information technology system of TTW Group and subsidiary companies. The work applications or software programs of employees are inspected to prevent the use of infringed or non-work-related software.

1. Comply with the laws related to intellectual property of Thailand and all countries where the company goes into business which is considered the basic norm.
2. Reveal which work, invention and any knowledge caused by the performance of duties or support promoted by the company and let the supervisor know correctly, completely and immediately.
3. Maintain, protect and protect the intellectual property rights of the company both inside and outside the country including respecting and not violating the intellectual property rights of others.
4. Maintain important documents trade secrets and any other information that is confidential to the company, business partners and stakeholders in a safe place. There are appropriate and standardized access methods that are not disclosed to other unrelated persons. This duty continues to be in effect even after being out of the status of being an executive or employee of the company.
5. Do not use intellectual property and confidential information of the company, partners and stakeholders to reproduce, modify or use in any way, for personal benefits or other persons without permission.
6. Report to the supervisor when seeing an action that is a violation of intellectual property, or may lead to a violation of intellectual property or actions that may cause any disputes about the company's intellectual property or another person.
7. Support cooperation in intellectual property with external agencies, both government and private sectors.

4. Anti-corruption and Bribery

TTW has adopted zero tolerance policy regarding the corruption and bribery disclosed on the Company website. Board of Directors, executive management, supervisors, employees in all levels, or any related persons are prohibited from involving in all forms of corruptions in any business transactions; and they shall comply with rules, regulations and laws of any countries that TTW has been dealing a business with. This policy shall be reviewed on a regular basis to identify a necessary revision for catching up with the new amendments of rules, regulations, standards and laws; and with the changes in business. TTW has adopted a policy on anti-corruption and bribery, and has defined the principles in the code of business ethics prohibiting the

employees from requesting or receiving any benefits or assets that may motivate them to perform their duties in a wrongful way, omit the performance of some duties, or cause the company to lose a rightful benefit. Employees are also prohibited from offering or presenting benefits or assets to outsiders to motivate such persons to commit a wrongful action or illegally omit an action in favor of a malpractice in his/her position.

Risk assessment

In 2019, the Risk Management Committee assessed the potential for corruption. By assessing the risk of corruption, separated from other risks In particular, and reporting risks to the Board of Directors with an internal audit unit to supervise the implementation of the risk assessment report.

Training and Communication

In 2019, the Company communicated and organized training to educate employees regarding anti-corruption policies and practices and all related policies. This included publication of anti-corruption articles and guidelines, articles outlining good practices for employees at all levels, lectures regarding anti-corruption practices during orientation for new employees and tests on said lectures, and access to anti-corruption policies and other various policies for employees at all levels via the Company's intranet system, the Company website, and news boards within the Company.

Guidelines for prevention and monitoring of fraud and corruption risks

1. Provide an inspection process Evaluate internal control systems and risk management covering important systems such as procurement systems. Contracting Budgeting and control system accounting system, payment system, etc. in order to prevent and monitor the risk of fraud and corruption including giving suggestions about appropriate solutions
2. Provide channels to receive information about clues or complaints of violations offense or business ethics of the company or guidelines for preventing involvement in corruption or doubts in financial reports or internal control system With a policy to protect information providers or clues and will keep the information of the information provider confidential Including measures to check and determine penalties discipline of the Company and / or related laws In the event that you can contact the whistleblower or the complainant, the company will notify the result of the operation in writing.
3. The head of the relevant department is responsible for monitoring the operation. Improvements to correct errors (if any) and report to authorized persons respectively.

Guidelines for Monitoring and Evaluating Implementation of Anti-corruption Practices

1. Require executive management and employees to carry out regular self-assessment of their performance in regard to compliance with the Good Corporate Governance Handbook and the Company's Code of Business Conduct, which includes the Company's good corporate governance policy and guidelines for prevention of any and all forms of corruption, as well as the Code of Ethics/Conduct for all employees.
2. Establish and organize examination of internal control system, risk management, and corporate governance by the internal audit department, and provide continuous feedback and recommendations accordingly. Carry out audits in accordance with the annual audit plan approved by the audit committee and report significant audit results and recommendations to the audit committee.
3. Assign the internal audit department to be responsible for ongoing testing and evaluation of fraud and corruption risk in order to implement anti-fraud and anti-corruption measures effectively, as well as to carry out follow-up, review, and improvement of anti-corruption measures on a regular basis. Assessment results must be presented in a timely and consistent manner to the Risk Management Committee and to the Board of Directors respectively.
4. If investigation finds any information or a complaint contains evidence with sufficient and reasonable grounds for the possibility of misconduct or for any action that may have a significant impact on the Company's financial position or performance, including any violation or action that is against the law or code of business ethics or anti-corruption measures of the Company, or if there are any doubts in regard to financial reports or the internal control system, the Audit Committee will report said issues to the Board of Directors so that actions can be taken and improvements made within a timeframe deemed appropriate by the Audit Committee.

The company provides communication guidelines for prevention of involvement in corruption. By publishing on various channels such as the intranet of the group and on the company's website In order for the management And all employees acknowledge and abide by

Complaint and clue measures

TTW has provided measures for complaints and clues by disseminating such measures in the Principles of Corporate Governance. And on the website of the company and reviewed this measure in order to ensure that complaints received are effective and complete. And also helps in tracking supervise and monitor the performance of directors, executives and employees of the TTW Group to comply with laws, regulations, principles of corporate governance Business ethics and not taking any action that may indicate fraud.

Channels for reporting clues or complaints

The Board of Directors has set up measures to report clues or complaints of unlawful conduct or behavior that may indicate corruption or misconduct of individuals in the organization, both from employees and other stakeholders Including incorrect financial reports or defective internal control system and has a mechanism to protect employees and informants of clues by creating a secret database system that is only accessible to related parties to allow stakeholders to participate in monitoring the interests of the company more efficiently. Issues that can and should be reported:

- Any practices that are against the law or relevant regulations, including the code of conduct/ethics
- Corruption or fraud
- Suspicious actions relating to money laundering, accounting, finance, or control and monitoring practices

In the case of any complaint of possible offense, a committee will be appointed to investigate the matter and take action in accordance with applicable regulations. Said committee will be made up of representatives from departments having no interest in the matter under investigation. Whistle-blowers may raise their concerns with the Audit Committee, the Board of Directors, or the Corporate Governance Department via 2 separate channels as follows:

- by email at : cg@ttwplc.com
- by post addressing one of the committees at the following address :
TTW Public Company Limited
30/130 Moo 12 Buddha Monthon 5 Road, Raikhing, Sampran, Nakhon Pathom 73210

Providing protection to those who report complaints or whistleblowers and related persons

Complainants or whistleblowers, violations or non-compliance with laws Will receive appropriate and fair protection from TTW, for example, without changing job positions Job description, workplace, suspend, threaten, disrupt work practice, dismissal or any other action. That is not fair to those who report the complaint or the informant for information about the complaint TTW will keep it confidential. not disclosed to unrelated people except those that need to be disclosed in accordance with the law must keep the information confidential and not disclose to other people except as required by law if there is a deliberate violation of the information released TTW will proceed with punishment according to TTW regulations and / or take legal action as the case may be.

Action when receiving complaints

1. The independent director will appoint the working group to collect the complaint.
 2. Working group assigned will consider screening information to propose steps and proper management methods
 3. The working group that has been assigned to present the measures that have violated or not complying with the code of conduct, policies for the Board of Directors to consider with regard to total damage
 4. Chairman of the Audit Committee or independent director or company secretary report to the Board of Directors for acknowledgment and report to the stakeholders who are the complainants if the complainant discloses himself
- In 2019, there were no complaints from stakeholders.

5. Social and Environmental Responsibility

The Company places great importance on sustainable business practices and operations. As the Company's mission is clearly stated; "To grow on a firm, continuous and sustainable basis in order to accomplish our vision through the balance of interests among customers, employees, business partners, shareholders, communities and environments". The Company is therefore as committed to the protection and preservation of the environment as it is to the business operations of the Company. However, the Company understands that compliance with regulations alone is not enough to protect and conserve the environment and that there are a wide variety of important factors that must be observed and practiced in addition to following established rules and guidelines. This includes the development of internal plans to support emergency situations and good quality control systems, as well as the continued search for modern technological advances that can help to reduce environmental impact. In compliance with regulations regarding emergency situations and quality control systems, the Company has adopted a policy for business conduct in accordance with environmental and safety standards in waste management and noise per the International Standard System ISO 14001:2004.

In addition, the company has educated and trained employees on environmental management in order to truly understand employees. The operation results and various environmental and safety quality tests will be stored systematically, and has been regularly monitored by the safety inspection department, including the treatment of stakeholders as well as participation in social and community development in the areas where the company operates by conducting business with good governance as a basis for the management system to be efficient, fair, transparent and accountable, to build confidence for shareholders stakeholders and all parties involved will lead to sustainable business growth and increase the capability of long-term competitiveness for the organization as well. In this regard, the report on the social and environmental responsibility performance of the company is detailed in the Sustainability Report of the year 2019.

6. Company Contact Channels

Stakeholders may contact the company to express opinions, suggestions, or any complaints that are not fraud or corruption-related via the following channels:

Channels	Electronic mails	Telephone numbers
Board of Directors And Company Secretary Department	cg@ttwplc.com	02 019 9490 - 3 , 02 019 9484 - 9 Ext. 1103, 1106
Investor Relations	ir@ttwplc.com	02 019 9490 - 3 , 02 019 9484 - 9 Ext. 1108, 1110

The mailing address is :

TTW Public Company Limited, 30/130 Moo 12 Buddha Monthon 5 Road, Raikhing, Sampran, Nakhon Pathom 73210

Section 4 Disclosure and Transparency

The Company recognizes the importance of disclosing financial information, non-financial information, and other important information in an accurate, comprehensive, timely, and transparent manner and via equal, easy-to-access channels, according to the rules and regulations set forth by regulatory agencies, the principles of good corporate governance of the SEC, and the criteria for the evaluation of good corporate governance, in a manner that is suitable to the changing environment and that responds to the role of online media technology. Disclosure of Company information includes written information in both Thai and English and non-written information covering all methods of communication, allowing shareholders and stakeholders to be thoroughly informed via the dissemination of various types of information through communication channels such as in-person meetings, telephone conferencing, interviews, and various online media such as websites, Facebook, etc.

1. Information Disclosure Channels

TTW constantly updates significant information via the following channels:

- Regulatory agencies : SET's website (www.set.or.th) and SEC's website (www.sec.or.th)
- TTW's website at www.ttwplc.com
- Annual Report and Form 56-1
- Management Discussion and Analysis (MD & A)
- TTW's Online Media
- Mass media: PR News, Newspaper, advertising media, journals and television
- Shareholders, individual investors, securities analysts and institutional investors
 - Press conference to investors and analysts (Analyst Meeting)
 - Providing information for investors and analysts via phone
 - Company Visit
 - Delivery of meeting notice by post

2. Responsible Units and Persons for Information Disclosure

- Responsible Units for information disclosure
 - Company Secretary Department : To SEC, SET, and major shareholders
 - Investor Relations Department : To minor shareholders, securities analysts, institutional investors and individual investors
- Responsible Persons for information disclosure
 - Managing Director
 - Senior executives assigned by the Managing Director

3. Information Disclosure of Concerned Units

Company Secretary Department

The Corporate Secretary Division is responsible for disclosing information as required by SET and SEC in a correct, complete and transparent manner and proceeded through procedures. In 2019, 24 notifications were submitted to SET.

All information published by the Company is comprehensive, accurate, and complete. For efficient disclosure of said information, the Company ensures information on its website is up-to-date and complete, allowing shareholders and investors to search quickly for any publicly available information. Said information is presented on the Company website in both Thai and English. Key information available is as follows:

- Company Profile, Vision and Mission, Organization Structure, and Company's subsidiaries data.
- Corporate Governance consisting of the principles of good corporate governance, corporate governance policy, and risk management policy.
- Board of Director and Sub-Committee, Executives, Board's Charter, Responsibility and Term of Office of Board of Director.
- Information for investors consisting of significant financial information, structure of shareholders, and major shareholders
- Meeting notice, an invitation to attend the Annual General Meeting of Shareholders and Extra General Meeting of Shareholders, Form 56-1, and Annual Report
- News and movements of the organization consisting of news about the business operation and CSR activities
- Investor Relations and Company Secretary's contact
- Providing information to analysts or investors who visit and consult with TTW executive management.
- Provide an on-site presentation to investors.
- Organize an Analysts Meeting
- Providing information via public media such as newspapers, magazines, journals and televisions.

Investor Relations

The Investor Relations Department is responsible for communicating with institutional investors, shareholders, and analysts, according to the fundamental principles of accuracy, adequacy, timeliness, equality, fairness, integrity, honesty and compliance with the company's good corporate governance policy and principles, including has established an annual investor relations plan continuously. Due to TTW's emphasis on caution in disclosing information and equally treat all stakeholders. By determining the "Silent Period" that is, a period during which the investor relations do not conduct any direct investor relations activities, including meetings or calls with any investor or analyst two weeks before results announcements. In the event that an analyst meeting will be conducted after the financial statements are disclosed. To ensure adherence to Principle 7: Ensure Disclosure and Financial Integrity of SEC's CG Code, the Board assigned the Investor Relations Department to develop a Code of Conduct for TTW's Investor Relations practitioners. The significant issues were as follows:

1. Accurate, adequate and timely disclosure of essential and necessary information for investment decisions.
2. Retention of inside information.
3. Equal and fair disclosure of information by means of access and inquiry by all parties concerned.
4. Performance of duties with integrity in the profession on the basis of equal treatment without any discrimination and commission as personal incentives for personal gains other than for the benefit of the Company and relevant stakeholders.

TTW also emphasizes information disclosure via investor relations activities. The executive's management has participated in the activities by presenting and meeting with investors to create a good understanding of the company's management. Foster good relationships with investors as well as encouraging the continuous exchange of opinions. The main activities in 2019 were as follows:

Activities	Times
Analyst Meeting	1
Opportunity Day	2
Investors (Free float) visit the tap water production process and meet the executive management at Pathum Thani Water Treatment Plant.	1
Conference Call	6
Seminars and meetings with investors and securities analysts.	11
Communicate information to investors and securities analysts Via online media (Social Media) including Facebook Fanpage, Instagram, Youtube Channel, LinkedIn.	1-2 times / week
Communication Via emails and phones	3 times / Day

Financial Statement Preparation

TTW is responsible for preparing financial reports that are accurate, complete and transparent and protecting the Company's assets against loss or utilization of unauthorized persons, and preventing corruption and unusual operations to be in line with Thailand's generally accepted accounting standards, and regular implementation of appropriate accounting policy, as well as considering the reasonability and prudence in the preparation of the company's financial statements to enhancing stakeholders' confidence in financial reports. The Board has then assigned the Audit Committee to oversee preparation of TTW's financial reports which must be correct, complete and in compliance with relevant laws and notifications, and regular implementation of appropriate accounting policy. The Board also prepares a report on the Board's responsibility towards the financial reports which covers significant matters according to the SET Code of Best Practice for Directors of Listed Companies as shown in the auditor's report in the annual report.

In 2019, the Company allowed the auditor from EY Office Company Limited to be the auditor of the Company, knowledgeable professional expertise is independent. And received approval from the SEC by the financial statements of the company certified without conditions and correct as it should be in essence according to generally accepted accounting principles and approved by the Audit Committee / the Board of Directors before disclosing to the shareholders.

The Company has prepared a Management Discussion and Analysis (MD&A) report to provide an in-depth, analytical disclosure of financial status, performance factors affecting financial status, and any significant financial changes to shareholders and investors on a quarterly basis. Said report is disclosed via the SET portal system of the SET along with financial statements. It is also disclosed on the Company's website to facilitate access by any other interested parties. Thus far, the Company has disclosed such information by quarterly and annual financial statements in advance before the due date. In addition, there has never been any history of amendment of said disclosed financial statements in any way.

In this regard, the Board of Directors carries out a review of internal control system efficiency via the Audit Committee in order to reasonably ensure that all recording of financial and accounting data is accurate, complete, and sufficient for maintaining assets and identifying any weaknesses so as to prevent any significant fraud or unusual operations.

4. Securities Trading or Changing by Directors and Executives

The Company requires directors and executives to report trading of the Company's securities in order to prevent the buying or selling of securities using inside information and to avoid any grievances regarding the appropriateness of insider trading. As such, directors and executives are prohibited from buying, selling, or making any changes to their holdings in Company securities for a period of 1 month before the disclosure of financial statements, financial status, business status or any other important data of the Company to investors. Additionally, directors and executives are required to report any changes in their interests in the Company. Said information is updated every year and is kept for internal use only in compliance with the Notification of the Capital Market Supervisory Board No. Tor Chor 2/2552 regarding the reporting of interests of directors, executives, and related parties.

Guidelines

- The Company shall send a letter to directors and executives, including spouses and minor children, requesting cooperation in refraining from trading or making any changes to holdings in Company securities and to provide reports to the Corporate Governance Committee and Board of Directors on a quarterly basis.
- The Company shall require employees who have access to important Company information that could affect the movement of stock prices to refrain from trading any Company securities or wait until the public has received said information and has the time to evaluate it before doing so in order to comply with the Company's internal information protection policy.
- The Company shall require directors or executives to report to the corporate secretary department when trading or making changes to securities holdings in the Company in order to prepare a proper and comprehensive report to regulatory agencies within the timeframe specified by law, consisting of the Report of Securities Holding in (Company) Form (Form 59-1) and the Report of Changes in Securities and Derivatives Holding Form (Form 59-2).
- The Company shall require directors and executives to report any changes in their interests in the Company each and every time there is a change of information. Said information must be updated annually.

Section 5 Board Responsibilities

1. Duties of the Board of Directors

- The Board of Directors is responsible for overseeing the operations of the Company; ensuring compliance with the law, the objectives and regulations of the Company, and the resolutions of shareholders' meetings. All members of the board shall perform their duties with honesty and integrity and carefully protect the interests of the Company, in compliance with the principles and regulations prescribed by the SET and SEC.
- The Board of Directors is responsible for determining the vision, mission, strategies, policies, direction and operational goals of the Company, as well as for providing supervision, ensuring that management has implemented said strategies and policies for the efficient achievement of the Company's objectives and goals. In 2019, the Board of Directors

reviewed the vision, mission, strategies, direction and business operation objectives of the Company, as well as its key policies, to ensure these are appropriate and are in line with current economic and environmental conditions and in accordance with the principles of good corporate governance. The Board of Directors also monitored and ensured that the strategies of the Company were being implemented, reporting business and operational results to the Board of Directors on a quarterly basis, particularly for the purpose of ensuring that the financial and operational goals were on target with the strategic plans of the Company.

- The Board of Directors is responsible for determining investment budgets and annual budgets, as well as for overseeing management operations, in order to achieve said budgets and maximize the benefits of the Company, its shareholders, and general stakeholders.
- The Board of Directors is responsible for providing financial reports and general information important to shareholders in an adequate, complete, correct, and timely manner, and for providing a regulatory system and an effective internal control and audit system with appropriate risk management measures in place and ensuring regular follow-up on such matters. The Board of Directors has also established confidentiality agreements with consultants and other service providers and ensures verification of said parties in accordance with the policies and systems they will be operating under before access to any confidential information is allowed.
- The roles and responsibilities of the Board of Directors, sub-committees, and executive management are clearly separated and defined and the roles, duties, and responsibilities of each are clearly communicated to the Board of Directors, subcommittees, management, and employees of the Company on a regular basis.
- The Board of Directors is responsible to all shareholders for the Company's business operations. Oversight of all business operations is carried out in accordance with policies, guidelines and objectives that will bring maximum benefit to shareholders and all stakeholder groups.

2. Structure of the Board of Directors

The Board of Directors plays a vital role in corporate governance for the best interests of the Company. The Board of directors consists of at least 5 members as stipulated in the Articles of Association. Said persons must have the proper qualifications as specified by law. No less than 3 persons and at least 1 in 3 of the total number of directors must be independent directors. Any changes to the number of directors must receive the approval of the shareholders through a majority vote of not less than two-thirds of shareholders in attendance at the meeting and who are eligible to vote.

As of December 31, 2019, TTW's Board comprises 12 directors as follows:

- 11 non-executive directors, 91.66% of total directors, comprising:
 - 4 independent directors, 33.33% of total directors,
 - 7 representative directors, 58.33% of total directors, and
- Managing Director, the only executive member, 8.33% of total directors.

The Nomination and Remuneration Committee is responsible for screening all candidates for director positions, whether for positions as representatives of shareholders or for positions as independent directors. The Committee shall consider the suitability of said candidates based on the appropriateness of their skills and experience necessary for enhancing the strength of the Board in overseeing the business operations of the Company. The Committee also reviews the candidates' work history for transparency, ethics and morality, responsibility, maturity, and professionalism. The structure of the Board of Directors is reviewed annually. As of 2019, the current board structure consists of 10 male directors and 2 female directors. Said directors are experts in the areas of engineering, accounting, finance, economics, business administration, and law. The Board comprises a variety of professions and expertise essential and beneficial to the business of the Company and its subsidiaries, and provides an appropriate check and balance system within the Board structure that will in turn benefit the Company and its shareholders.

3. Policy and Procedures for Directors and Executives Holding Director's Positions in Other Companies

The Board of Directors recognizes the importance of efficiency in the positions of managing directors. In order for the directors to be able to fully devote their time to overseeing the Company's business, therefore, Company policy stipulates a limitation on the number of listed companies in which directors and executives may hold board positions. Non-executive directors may hold positions on the board of no more than 5 other listed companies. Executive directors may hold positions on the board of no more than 2 other listed companies. At present, there are no directors on the board of the Company who hold more than the number of positions specified above.

4. Subcommittees

In order to well perform its responsibilities to the shareholders, the Board of Directors considers and put in place essential business policy and schedule its meeting monthly except in some circumstances the Board shall call a meeting as a special case or assign the following 5 subcommittees (1) Executive Committee, (2) Audit Committee, (3) Nomination and Remuneration Committee, (4) Corporate Governance Committee and (5) Risk Management Committee, the committee member as follows:

Position in Subcommittees

Name of Directors	Subcommittees					Remark
	Executive Committee	Audit Committee	Nomination and Remuneration Committee	Corporate Governance Committee	Risk Management Committee	
1. Mr. Phongsarit Tantisuvanitchkul	Chairman	-	-	-	-	Non-executive director
2. Dr. Sombat Kitjalaksana	Director	-	-	-	-	Non-executive director
3. Mr. Hideo Matsumoto	Director	-	-	-	Director	Non-executive director
4. Mr. Suvich Pungchareon	Director	-	-	-	-	Non-executive director
5. Ms. Walainut Trivisvavet	Director	-	-	Director	Director	Managing Director
6. Mr. Phairuch Mekarporn	-	Chairman	Chairman	Director	-	Independent Director
7. Mr. Somnuk Chaidejsuriya	-	Director	Director	Chairman	-	Independent Director
8. Mrs. Payao Marittanaporn	-	-	Director	-	Chairman	Non-executive director
9. Dr. Patarut Dardarananda	-	Director	-	Director	Director	Independent Director
10. Mr. Shunsuke Murai	-	-	Director	-	-	Non-executive director

In this regard, the sub-committee structure, the duties and responsibilities under the charter of all 5 sub-committees are disclosed in Section Sub-committee.

5. The Board of Directors' Meeting

To ensure its responsibility towards the shareholders, the Board has reviewed significant business policies and corporate calendar and come to a mutual agreement to hold a Quarterly meeting. An extra meeting can be organized if there is any major unplanned event. The Board can authorize subcommittees to screen or approve the management's activities within the delegated authority. The Board has included business performance report as one of the meeting agenda items for the Board meeting in order that the Board can follow up with the business progress and provide their recommendations in case of any deviation from the approved plan or budget.

Company policy stipulates that for the minimum quorum at the time that the Board of Directors is to pass a resolution in the meeting of the board, at least two-thirds of the total number of directors must be present. Additionally, any directors who may have involvement or interests in any meeting agenda items must refrain from commenting on and must abstain from voting on said items.

The Board of Directors determines its meeting schedule for the year in advance and each director is notified of such, excluding any special meetings. During the final board meeting of 2018, the schedule of the Board of Directors' meetings for 2019 was defined and decided in advance (meeting schedule may be changed), excluding any special meetings, as follows:

	NO. 1	NO. 2	NO. 3	NO. 4
Board of Directors	26 February 2019	13 June 2019	12 August 2019*	2 December 2019
Executive Committee	14 February 2019	9 May 2019	2 August 2019	19 November 2019
Audit Committee	21 February 2019	9 May 2019	8 August 2019	12 November 2019
Risk Management Committee	26 February 2019	13 June 2019	8 August 2019	15 November 2019
Nomination and Remuneration Committee	26 February 2019	-	-	2 December 2019
Corporate Governance Committee	21 February 2019	-	6 August 2019	-

Remark: * A Board of Directors meeting and studying trip in the water supply business in overseas.

The company secretary shall be responsible for organizing all meetings, including shareholder meetings, Board of director meetings, and subcommittee meetings, and shall provide advice regarding legal matters and compliance with policies, regulations and rules set forth by the SET and the SEC regarding board meetings.

In each meeting, the meeting agenda will be clearly specified in advance and a meeting invitation letter shall be sent to the attendees along with the agenda at least 10 days before the meeting. Any supporting documents will be submitted at least 7 days in advance so that the Board of Directors has sufficient time to study all related information before attending the meeting.

In addition, the Board of Directors has stipulated that non-executive directors hold a meeting as appropriate without the participation of any executive directors or management in said meeting. This is in order to provide the opportunity to discuss various issues related to the business of the Company, including management issues or other items of interest. In 2019, there was one non-executive meeting held without any other management present; this was Board Meeting no. 5/2019 held on December 2, 2019. In summary, throughout 2019, a total of 23 Board of Directors and Subcommittee meetings were held as follows:

Name of Directors	Attendances / Total Number of Meetings in 2019							
	AGM	Board of Directors	Executive Committee	Audit Committee	Nomination and Remuneration Committee	Corporate Governance Committee	Risk Management Committee	Attendance (%)
1. Dr. Thanong Bidaya	1/1	5/5	-	-	-	-	-	100
2. Mr. Plew Trivisvavet	1/1	4/5	-	-	-	-	-	83
3. Mr. Phongsarit Tantisuvanitchkul	1/1	3/5	5/5	-	-	-	-	82
4. Mr. Phairuch Mekarporn	1/1	4/5	-	4/4	2/2	2/2	-	93
5. Mr. Somnuk Chaidejsuriya	1/1	4/5	-	3/4	2/2	2/2	-	86
6. Dr. Sombat Kitjalaksana	1/1	4/5	5/5	-	-	-	-	91
7. Mr. Suvich Pungchareon	1/1	5/5	5/5	-	-	-	-	100
8. Mrs. Payao Marittanaporn	1/1	5/5	-	-	2/2	-	4/4	100
9. Dr. Patarut Dardarananda	1/1	5/5	-	4/4	-	2/2	4/4	100
10. Mr. Shunsuke Murai	1/1	5/5	-	-	2/2	-	-	100
11. Mr. Hideo Matsumoto	1/1	5/5	5/5	-	-	-	4/4	100
12. Ms. Walainut Trivisvavet	1/1	5/5	5/5	-	-	2/2	4/4	100

In the year 2019, the Company held 23 meetings of the Board of Directors, with the average attendance of the entire Board of Directors meeting attendance at 95% and the average attendance ratio of the Individual Directors meeting at 95% of the total number of meetings.

6. Self-assessment of the Board of Directors

The Company has specified in the corporate governance policy and the principles of good corporate governance of the Company that the Board of Directors must carry out an annual performance assessment of the entire Board. This assessment is divided into 6 main topics according to the guidelines of the SET, including (1) the structure and qualifications of directors; (2) the roles, duties and responsibilities of the Board; (3) board meetings; (4) the duties of the directors; (5) relationship with management; and (6) the self-development of directors and development of executives. This assessment is to be used as a framework for evaluating the performance of the Board and as an opportunity to jointly consider performance and other issues in order to improve the overall performance of the Board of Directors. The Board has agreed upon the Board Assessment Form, which has also been reviewed by the Corporate Governance Committee. The evaluation process is as follows:

1. The Board of Directors assesses the performance evaluation forms of the Board and Subcommittees.
2. The Company Secretary is responsible for delivering the assessment forms to all directors for evaluation of performance and to return to the Company for analysis and evaluation of the results which shall then be prepared, summarized, and presented to the Nomination and Compensation Committee for consideration of the evaluation results and the development of guidelines for improving operational efficiency.
3. The Nomination and Remuneration Committee shall present said evaluation results and guidelines for the development and improvement of operational efficiency to the Board of Directors for their information and in order to work together to find ways to further support the Board's performance and operations.

In 2019, the Board of Directors has approved the evaluation form for the whole board by giving importance to the duties and responsibilities of the Board of Directors, and Good Corporate Governance. The assessment form covers the duties of the Board of Directors in all aspects and consistent with the attribute and environmental, including having a business ethics of the company. The assessment form is divided into 3 types, consisting of Self-Assessment of the board of directors as a whole, Self-Assessment of committee as a whole, and Self-Assessment of the board of directors and of committee member on an individual basis which has the evaluation criteria as follows:

- 0 : Strongly disagree or No action was taken on that matter
- 1 : Disagreement or the slight action on that matter.
- 2 : Agreement or Proceeding on that matter.
- 3 : Agreement quite a lot or well done on that matter
- 4 : High Agreement or Execute on that matter excellent

The Board of Directors meeting no.5/2019 on December 2, 2019, resolved to acknowledge the self-assessment of the Board of Directors and Subcommittee for the year 2019 consisting of 6 topics as follows

Self-Assessment of the board of directors as a whole

Descriptions	Full Score	Avg. Evaluated Score	
		2019	2018
1. Board structure and qualifications	4	3.9	3.8
2. Roles, duties and responsibilities of the board	4	3.9	3.3
3. The Board meeting	4	3.9	3.4
4. Duties of directors	4	4.0	3.8
5. Relationship with management	4	3.9	3.8
6. Director's self-improvement and management training	4	3.8	3.8
Overall Assessment	4	3.9	3.6

Self-Assessment of committee as a whole

Descriptions	Full Score	Avg. Evaluated Score	
		2019	2018
1. Board structure and qualifications	4	3.9	3.8
2. The committee meeting	4	3.9	3.8
3. In line with the duties and responsibilities of particular committee, the member give priority and devotes sufficient time	4	3.9	n/a
3.1 Executive committee	4	3.9	3.7
3.2 Audit committee	4	3.9	3.6
3.3 Nomination and remuneration committee	4	3.9	3.6
3.4 Corporate governance committee	4	3.9	3.6
3.5 Risk management committee			
Overall Assessment	4	3.9	3.7

Self-Assessment of the board of directors and of committee member on an individual basis

Descriptions	Full Score	Avg. Evaluated Score	
		2019	2018
1. Board structure and qualifications	4	3.9	3.9
2. The committee meeting	4	3.9	3.8
3. Roles, duties and responsibilities of the board	4	3.9	3.9
Overall Assessment	4	3.9	3.8

Self-assessment of the entire board in the overall standard with an average score of 3.9 out of 4 points, self-assessment of sub-committees, the average score is 3.9 out of 4 points and the self-assessment of the Board of Directors with an average score of self-evaluation of each director is 3.9

Performance Evaluation of the Managing Director

In order to comply with good corporate governance principles, the Company carries out an annual performance evaluation of the Managing Director. For the year 2019, this evaluation occurred at the meeting of the Board of Directors no. 5/2019, on December 2, 2019, whereby all were made aware of the performance evaluation of the Managing Director. Evaluation was carried out by non-executive directors. The performance evaluation of the Managing Director is as follows:

Descriptions	Full Score	Avg. Evaluated Score	
		2019	2018
1. Set up & Deployed Strategy	5	4.6	4.1
2. Management & Decision Making	5	4.5	4.5
3. Communication & Relation with Stakeholder	5	4.8	4.6
4. Competency in Finance & Accounting	5	4.7	4.5
5. Performance compare with planning and targets	5	4.8	4.7
6. Self-Learning & Development	5	4.7	4.6
Overall Assessment	5	4.7	4.5

7. Development of Directors

The Company encourages the members of the Board of Directors to develop their knowledge and experience by attending educational and observational trips, training, and seminars covering a variety of courses that will aid in enhancing their knowledge and understanding of the role of a director, and any other matters related to the performance of the Board of Directors and for effective management in accordance with the principles of good corporate governance. The Company also promotes membership in the Thai Institute of Directors (IOD) for its directors for the benefit of receiving important news and information from the IOD.

In 2019, the Company encouraged its Directors and Company Secretaries to attend the following IOD training courses:

- Director Certification Program (DCP271/2019)
- Independent Directors Forum 1/2019 “Tips and Tricks for Dealing with Question in AGM”
- Advanced Audit Committee Program (AAP34/2019)
- Risk Management Program for Corporate Leader (RCL18/2019)
- Role of the Company Secretary in Shaping Corporate Culture
- Seminar on Audit Adjustment

Training courses for directors organized by the Thai Institute of Directors (IOD).

Director	Courses	Director Accreditation Program (DAP)	Director Certification Program (DCP)	Finance for Non-Finance Director (FND)	Risk Management Program for Corporate Leaders (RCL)	Advanced Audit Committee Program (AAP)	Role of the Compensation Committee (RCC)
1. Dr. Thanong Bidaya		DAP 25/2004					
2. Mr. Plew Trivisvavet		DAP 18/2004	DCP 50/2004	FND 13/2004			
3. Mr. Phongsarit Tantisuvanitchkul			DCP 155/2012	FND 35/2007			
4. Mr. Phairuch Mekarporn			DCP 81/2006			AACP 17/2007	
5. Mr. Somnuk Chaidejsuriya		DAP 9/2004	DCP 46/2004			AACP 9/2005	
6. Dr. Sombat Kitjalaksana		DAP 36/2005	DCP 81/2006				
7. Mr. Suvich Pungchareon			DCP 37/2003				
8. Mrs. Payao Marittanaporn			DCP 48/2004				RCC 9/2009
9. Dr. Patarut Dardarananda			DCP 271/2019		RCL 18/2019	AACP 34/2019	
10. Mr. Shunsuke Murai							
11. Mr. Hideo Matsumoto			DCP 256/2018				
12. Ms. Walainut Trivisvavet			DCP 201/2015			AACP 20/2015	

8. Orientation for New Directors

The Board of Directors provides orientation for every new director in order to create a clear understanding of the business and operations of the Company and to ensure directors are well-prepared to perform their duties, in terms of corporate governance, business management, technology, and new innovations, so as to support the efficient performance of their duties, with the Company Secretary as coordinator in various matters, as follows:

1. Business structure, board structure, scope of authority, and related laws
2. Business strategies, including on-site visit to view the production process
3. Arrangement of a meeting with the Chairman of the Board to facilitate inquiry regarding more in-depth information about the Company's business operations

Subcommittees

The Board of Directors has appointed a committee with appropriate knowledge and expertise as a sub-committee to increase the efficiency of corporate governance as the following 5 subcommittees (1) Executive Committee, (2) Audit Committee, (3) Nomination and Remuneration Committee, (4) Corporate Governance Committee and (5) Risk Management Committee, the committee member as follows:

1. Executive Committee

As at December 31, 2019, the Executive Committee comprises five members, per names and number of their meeting attendances listed below:

Name	Position	Number of Meetings in 2019
1. Mr.Phongsarit Tantisuvanitchkul	Chairman of the Executive Committee	5/5
2. Dr.Sombat Kitjalaksana	Executive Committee	5/5
3. Mr.Suvich Pungchareon	Executive Committee	5/5
4. Mr.Hideo Matsumoto	Executive Committee	5/5
5. Ms.Walainut Trivisvavet	Executive Committee and Secretary to the Executive Committee	5/5

Scope of Authorized and duties of the Executive Committee

At the Board of Directors Meeting, a resolution was made to designate the scope of Authorized and duties of Executive Committee as follows:

- (1) Supervising the Managing Directors' performances to ensure compliance with resolutions, policies and strategies as determined by the Board of Directors, as well as providing advice and suggestions to the managing Directors
- (2) Supervising the conduct of feasibility studies on new projects, and approving implementation of projects as it deems appropriate within the amount under (3)
- (3) Having authorized to approve execution of any juristic acts which would have a binding effect upon the company within an amount of not exceeding Baht 50 (Fifty) Million provided that such approval shall involve neither any transactions giving rise to any conflict of interest against the company or its subsidiaries according to Declaration of Office of the Securities and Exchange Commission and Stock Exchange of Thailand
- (4) Having authorized to consider, approve and/or determine policies on administration and business operations of the company or any actions which would have a binding effect upon the company, subject to the scope of policies and strategies as determined by the board of Directors
- (5) Having authorized to employ, appoint, impose disciplinary actions, terminate, dismiss, remove, determine salaries, bonuses, benefits and other remunerations, including expenses and facilities of the company's officers or staff in the position of Division Director or equivalent and higher, but excluding the Managing Director
- (6) Having authorized to appoint, determine authorities and duties, delegate directions of the supervision policy, and determine remuneration, allowances, expenses and facilities for special workgroups for carrying out specific works, including to approve proposals of special workgroups within the amount under (3)
- (7) Having authorized to appoint chairman of the advisors, advisors and/or advisory board to the Executive Committee as appropriate whereby remunerations, allowances, expenses and facilities for the chairman of the advisors, advisors and/or advisory board as mentioned shall be determined by the Nomination and Remuneration Committee
- (8) Performing other duties as delegated from time to time by the Board of Directors

The Executive Committee and the person authorized by the Executive Committee has no authorized to approve any matters or transactions in which the Executive Committee or persons who may have conflict, have interests or may have conflict of interests in any other manners, would enter into with the company or its subsidiaries, as defined by the Securities and Exchange Commission and Stock Exchange of Thailand.

2. Audit Committee

As at December 31, 2019, the Audit Committee comprises three independent directors, per names and number of their meeting attendances listed below:

Name	Position	Number of Meetings in 2019
1. Mr. Phairuch Mekarporn	Chairman of the Audit Committee	4/4
2. Mr. Somnuk Chaidejsuriya	Audit Committee	3/4
3. Dr. Patarut Dardarananda	Audit Committee	4/4

The Internal Audit Manager is the secretary to the Audit Committee

The Audit Committee is knowledgeable and experienced in finance, accounting, management and financial statements review of the Company, Mr. Phairuch Mekarporn as the Chairman of the Audit Committee, is responsible for reviewing the company's financial statements, and the Internal Audit Manager as the Secretary of the Audit Committee.

Scope of authorized and duties of the Audit Committee

At the Board of Directors' Meeting, a resolution was made to designate the scope of authorized and duties of Audit Committee with further amendment regarding authorized and duties of Audit Committee according as following details:

- (1) Reviewing the Company's financial reports to ensure the correctness and adequate disclosure
- (2) Reviewing the internal control and internal audit systems of the Company to ensure the suitability and efficiency by considering independency of Internal Audit Department and approving appointment, removal and termination of Internal Audit Chief
- (3) Reviewing the Company's operations to ensure its compliance with the laws on securities and exchange, the regulations of the Stock Exchange, or such laws, rules and regulations and policies related to the businesses of the Company
- (4) Considering the Company's disclosure in respect of related party transactions or such transactions which may give rise to conflict of interests, to ensure the accuracy, completeness and timeliness
- (5) Considering to approve Annual Internal Audit Plan and personnel of Internal Audit Department
- (6) Considering, selecting, nominating for appointment and proposing remuneration for the Company's auditor to the Board of Directors for further submission to seek approval of the shareholders by considering independency of auditor as well as organizing the meeting with auditors without the management's involvement at least once a year
- (7) Preparing the Audit Committee's corporate governance report to be disclosed in the Company's annual report whereby such report shall be signed by the Chairman of the Audit Committee
- (8) Reviewing Internal Audit Committee Charter and Internal Audit Committee Charter and Internal Audit Department Charter as it is required and appropriate
- (9) Performing other duties as delegated by the Board of Directors and with approval of the Audit Committee

3. Risk Management Committee

As at December 31, 2019, the Risk Management Committee comprises one independent director, two non-executive directors, and one executive director, totaling four persons, per names and number of their meeting attendances listed below:

Name	Position	Number of Meetings in 2019
1. Mrs. Payao Marittanaporn	Chairman of the Risk Management Committee	4/4
2. Dr. Patarut Dardarananda	Risk Management Committee	4/4
3. Mr. Hideo Matsumoto	Risk Management Committee	4/4
4. Ms. Walainut Trivisvavet	Risk Management Committee and Secretary to the Risk Management Committee	4/4

Scope of authorized and duties of the Risk Management Committee

At the Board of Directors Meeting, a resolution was made to designate the scope of authorized and a duty of Risk Management Committee as follows:

- (1) Setting out the Risk Management Policy for the Company as a whole, and assigning the management to perform in compliance with such Policy, including reporting the performance results to the Risk Management Committee
- (2) Developing and reviewing the Company's Risk Management System to ensure its continual efficiency and effectiveness by means of regular evaluation and follow-up of the risk management procedures to be consistent with the specified policy
- (3) Supporting and encouraging the mutual cooperation in risk management at every level of the Company
- (4) Preparing reports on risks and suggestions to the Board of Directors
- (5) Performing other duties as delegated by the Board of Directors

4. Nomination and Remuneration Committee

As at December 31, 2019, the Nomination and Remuneration Committee comprises two independent directors and two non-executive directors, totaling 4 persons, per names and number of their meeting attendances listed below:

Name	Position	Number of Meetings in 2019
1. Mr. Phairuch Mekarporn	Chairman of the Nomination and Remuneration Committee	2/2
2. Mr. Somnuk Chaidejsuriya	Nomination and Remuneration Committee	2/2
3. Mrs. Payao Marittanaporn	Nomination and Remuneration Committee	2/2
4. Mr. Shunsuke Murai	Nomination and Remuneration Committee	2/2

The Corporate Affairs Director as the Secretary to the Nomination and Remuneration Committee

Scope of authorized and duties of the Nomination and Remuneration Committee

At the Board of Directors Meeting, a resolution was made to designate the scope of authorized and a duty of Nomination and Remuneration Committee as follows:

- (1) Considering the criteria and procedures for recruiting persons qualified to take office as directors of the Company, including selecting persons in accordance with the specified nomination procedures for submission to the Board of Directors for consideration and appointment, or for submission to the shareholders' meeting for consideration and appointment, as the case may be, provided that such procedures for consideration and selection of qualified persons as aforementioned shall also allow minority shareholders to nominate persons for such consideration and selection.
- (2) Considering the criteria and procedures for recruiting persons qualified to take office as the Managing Director, including nominating and selecting such persons in accordance with the specified nomination procedures for submission to the Board of Directors for consideration and appointment
- (3) Arranging for Succession Plan for key positions in management or persons eligible to take office of high-leveled executives, with regular reviews of such Plan, the criteria were as follow
 - 3.1 Determine the succession planning method in the organization
 - 3.2 Determine the main position for the successor
 - 3.3 Determine the appropriate qualification for the main position.
 - 3.4 Evaluate and select those with high capabilities and potential or who have accumulated experience to develop to be the successor
 - 3.5 Create a leadership development plan for people who were expected to be successors.
- (4) Determining the criteria for consideration of remuneration for directors and the Managing Director
- (5) Considering proposing remuneration of directors to the Board of Directors for approval and submission to the shareholders' meetings for further consideration and approval
- (6) Considering proposing salary and adjustment of salary rates, including other remuneration of the Managing Director to the Board of Directors for consideration and approval
- (7) Performing other duties as delegated by the Board of Directors

5. Corporate Governance Committee

As at December 31, 2019, the Corporate Governance Committee comprises three independent directors and one executive director, totaling four persons, per names and number of their meeting attendances listed below:

Name	Position	Number of Meetings in 2019
1. Mr. Somnuk Chaidejsuriya	Chairman of the Corporate Governance Committee	2/2
2. Mr. Phairuch Mekarporn	Corporate Governance Committee	2/2
3. Dr. Patarut Dardarananda	Corporate Governance Committee	2/2
4. Ms. Walainut Trivisvavet	Corporate Governance Committee and Secretary to the Corporate Governance Committee	2/2

Scope of authorized and duties of the Corporate Governance Committee

At the Board of Directors Meeting, a resolution was made to designate the scope of authorized and duties of Corporate Governance Committee as follows:

- (1) Proposing practical guidelines for good corporate governance to Board of Directors
- (2) Supervising the operations of the Board of Directors, the Executive Committee, various subcommittees and the management to ensure compliance with the good corporate governance principles.
- (3) Reviewing the practical guidelines for good corporate governance, by comparing with the good corporate governance principles based on international standards and of the Stock Exchange of Thailand, for submission to the Board of Directors for consideration and regular update.
- (4) Delegating policies on good corporate governance to the Company's good corporate governance workgroup and reporting the results to the good corporate governance to the Board of Directors
- (5) Having authority to invite/employ any external persons having knowledge and expertise to act as advisors and attend meetings at the Company's expenses.
- (6) Performing other duties as designated by the Board of Directors

Contacting the Board of Directors

Stakeholders may communicate and express opinions, including material evidence regarding whistleblower reports, or acts of unfair treatment or actions that violate the law or the Company's code of conduct, or for any complaints regarding matters that may cause damage to the Company. Any such matters may be communicated in writing and sent to the Audit Committee or the Board of Directors via the following channels:

By post	By email	By Phone
Corporate Affairs Division TTW Public Company Limited 30/130 Moo 12, Buddha Monthon 5 Road, Raikhing, Sampran, Nakhon Pathom 73210	cg@ttwplc.com	(+622) 019-9490-3 (+622) 019-9484-9 Ext. 1103, 1106

In this regard, any such questions, complaints, or suggestions shall be forwarded to the relevant department for action, and any amendments, improvements or summaries of such are reported to the Audit Committee and the Board of Directors.

Nomination and appointment of Directors and Top Management

1. Nomination and Appointment of Directors

The Company recognizes the importance of the appropriate recruitment and appointment of directors to oversee business operations and set policies and operational plans for the maximum benefit of the Company and its shareholders and thus takes great care to consider the qualifications and experience of any candidate according to the following principles:

- Qualifications in accordance with legal requirements, SET and SEC regulations, and Company regulations. Qualifications of all Directors must be consistent with the strategies and policies of the Company and must adhere to the principles of good corporate governance for the benefit of the business development and success of the Company.
- Gender diversity, age, knowledge, ability, experience and expertise in various fields as needed by using Director Qualifications and Skills Matrix for consideration.
- Educational and work background that are beneficial to corporate governance, transparency, morality, responsibility, maturity and professionalism

The Nomination and Remuneration Committee is responsible for screening all candidates for director positions, whether for positions as representatives of shareholders or for positions as independent directors. The Committee shall consider the suitability of said candidates based on the appropriateness of their skills and experience according to the above criteria. As the Company gives the right to its shareholders to nominate directors of the Company, the Committee shall consider candidates from the list of names proposed by shareholders and from the Director Pool of the Thai Institute of Directors (IOD) and shall present these to the Board of Directors for consideration. However, the appointment of new directors to replace directors whose tenures are expired must be approved by individual shareholders and voting must be carried out according to the Company's regulations as follows:

- Each shareholder holds a number of votes equal to the number of shares held in the Company
- Shareholders may exercise the right to select one or more person to be a director, but it must not exceed the number of directors to be elected at that time.
- In case a shareholder exercises his or her votes to elect more than one person as director, the shareholder may exercise all his or her votes to each such person and may not allot his or her votes to any person in any number.
- The persons receiving the highest numbers of votes in descending order shall be elected as directors according to the number of directors being elected at that time. In the case of equal votes between persons voted on in descending order whereby the number of directors to be elected at that time is exceeded, the chairman of the meeting shall have the casting vote so that the correct number of directors shall be achieved.
- The selected persons must be elected by a vote of no less than four-fifths of the total number of votes of the shareholders who attended the meeting and who have the right to vote.

Along with the meeting invitation letter sent to the shareholders, the Company shall include pertinent information about directorship candidates for consideration by the shareholders. Said information shall consist of educational background, work experience, any directorship positions held in other companies, and legal disputes (if any). In the case of directors whose tenures have expired and who are being nominated again for another term in a directorship position, additional information shall also be included for consideration by the shareholders, such as the number of meetings attended by the candidate and work performance throughout the previous year.

In the event that a directorship position becomes vacant for reasons other than expiration of said director's term, the Nomination and Remuneration Committee shall nominate a candidate with the appropriate qualifications and without any characteristics that would be prohibited by law at the meeting of the Board of Directors of the Company for their consideration and approval by a vote of not less than 3 out of 4 votes of the remaining directors. Any newly appointed directors shall hold office for the remaining term of the outgoing director.

The Company recognizes the important rights and participation of its minor shareholders. In order to assure all shareholders that they will be treated with equality, the Board of Directors, therefore, provides shareholders with the opportunity to propose items for the agenda of the Annual General Meeting of Shareholders and to nominate candidates with appropriate qualifications for directorship positions from September 1 to December 31 each year. All steps and procedures for said proposals are set forth in a clear and transparent manner and details can be found on the Company website.

2. Nomination and Appointment of Independent Directors

The Company has specified the criteria for the selection and appointment of independent directors, in that they must meet both Company qualifications for recruitment of directors and also the qualifications of independent directors according to the definition of “independent director” of the SEC. Company policy requires at least 1/3 of the total number of board members and not less than 3 persons to be Independent Directors. The Company currently has 4 independent directors. Company policy also requires that the Chairman of the Board be an independent director and that the Chairman of the Board not also hold the position of Managing Director. This is to provide clear distinction of responsibilities between the establishment of regulatory policies and the daily management of the Company, thus resulting in an appropriate balance of power, transparency and verifiability according to the principles of good governance. Additionally, the Audit Committee is made up entirely of independent directors and is appointed by the Board of Directors or in the General Meeting of Shareholders of the Company. At least one Audit Committee member must have accounting and/or financial experience and knowledge in order to examine and supervise the Company’s operations properly, as well as to oversee financial reports, the internal control system, the selection of auditors, and consideration of any conflicts of interest.

All current independent directors possess all qualifications as specified by the Company and, for any persons serving in the position of independent director for several consecutive terms, this does not affect the performance of duties or independent opinion of said director.

3. Appointment of Senior Executives

The Board of Directors has appointed the Nomination and Remuneration Committee to consider and select candidates for positions as senior executives or for the position of Managing Director of the Company by evaluating the appropriate qualifications for senior executive positions according to the Succession Plan and screening suitable candidates who have the knowledge, abilities, skills, and experience beneficial to the Company’s operations, as well as those who understand the business of the Company and have the ability to manage tasks to achieve the Company’s objectives and goals. After said selection and screening process is complete, the Nomination and Remuneration Committee will then propose the names of suitable candidates to the Board of Directors for further evaluation and approval.

For the recruitment of senior executives at the level of department head or higher, the Managing Director shall present candidates for these positions to the Executive Committee for appointment and approval. For the recruitment of senior executives from the position of section manager or below, this is within the scope of authority of the Managing Director to consider and appoint said candidates.

Supervision of Business Operations of Subsidiaries and Associated Companies

The Company supervises its subsidiaries and associated companies to ensure that their business operations are in line with the policies and goals of the Company and that they have an appropriate return on investment. The Board of Directors, therefore, has established, in writing, the regulations governing subsidiaries and associated companies as a guideline as follows:

- (1) Supervise subsidiaries and associated companies by sending representatives of the Company to be directors and/or senior executives in subsidiaries and associated companies according to the proportion of shares held in that company. This is to facilitate comprehensive control and to determine the management direction of said subsidiaries and associated companies with transparency and verifiability. As such, the appointment of any representative to perform duties as director and/or senior executive in subsidiaries and associated companies must first be approved by the Nomination and Remuneration Committee and then presented to the Board of Directors for final authorization.
- (2) A report of the operating results of subsidiaries and associated companies must be presented at the Board of Directors’ meeting on a quarterly basis.

Insider Trading Control

The company has a written guideline to prevent the use of inside information strictly in the Corporate Governance and Business Ethics of the Company, in order to prevent the use of inside information for improper benefits for oneself and others. It is the duty and responsibility of the supervisor to control and ensure the maintenance of internal information according to principles. The use of inside information that has not been disclosed to the public or general shareholders for the benefit of trading securities by themselves or for others is considered an unethical act of the company.

In 2019, the Directors, executives, and employees of the Company strictly complied with the guidelines for the prevention of internal information usage and no trading was carried out utilizing internal data in any way.

Guideline for Prevention of Use of inside information of the company has been approved from the Board of Directors meeting No. 1/2016 held on July 28, 2016. TTW has distributed this guideline in a circulating letter for the Director, Executives and Staff to acknowledge, and to comply strictly with it.

Guideline for Prevention of Use of Inside Information

Rationale

TTW is a listed company in the Stock Exchange of Thailand and has run its business in compliance with Public Limited Companies Act B.E.2535 (on the part of share trading), and with the Securities and Exchange Act B.E. 2535 (on the part of securities and exchange), through the performance of duties by directors, executive management, employees of TTW, and the employees of subsidiary companies. There has been a prohibition for such persons from using the essential and unpublicized facts and information that can significantly impose an effect on the price of shares, which they have learned from performing their duties or from holding a position in the company; otherwise, they would be considered as committing a criminal offence and subject to punishments as provided by laws. There were some amendments made to Securities and Exchange Act B.E. 2535 (5th edition) as announced in Thai Royal Gazette on 11 December 2016. TTW has notified these changes in a circulating letter to directors, executive management, employees of TTW, and employees of subsidiary companies to acknowledge and comply with.

In order to prevent the directors, executive management, employees of TTW and employees of subsidiary companies, as well as TTW Company itself, from facing a charge on violating such laws, and in order to implement good corporate government approach of TTW; the company has defined the guideline for the prevention of internal information usage for all directors, executive management, employees of TTW and employees of subsidiary companies to compile with very strictly. All these persons shall comply with the provisions in Securities and Exchange Act (5th Version) B.E. 2535, coupled with the use of common sense and appropriate reasons for committing an action on a case by case basis. TTW has defined the guideline for the prevention of internal information usage as follows.

Directors

- (1) Directors shall not use the information acquired from holding the position as a director of the company in a wrongful manner or in a way that would cause damages to the company.
- (2) Directors shall not disclose to any third party the business confidential information or any information that may affect company's business.
- (3) Directors, their spouses and their minors shall not conduct share trading while having access to internal information of the company, which will affect the price of the shares if these information are disclosed to public.
- (4) Directors shall not reveal any unpublicized information to a third party, which may lead to a reservation of purchase or a sale of company's shares.

Employees

- (1) Employees shall strictly comply with the regulations defined by SET/SEC and applicable laws, which cover the equitable disclosure of information for shareholders and/or public.
- (2) For a disclosure of any information that may affect the business or the share price of the company, an approval must be sought from the Managing Director who may disclose the information himself or assign a responsible person to do so.
- (3) The work units in central administration that take function in providing information to public and investors include Investors Relation and Company Secretary Units (under the Corporate Affairs Division) and so on. The work units that own information have a duty to provide support of such information. The directors, executive management and employees who have access to information about financial statement are prohibited by the company from trading shares within a period of 45 days prior to the disclosure of information and within a period of 24 hours after such disclosure. For any other significant information, executive management and employees who have access to the information are prohibited from trading shares during the period from the date that they have known about the

information to 24 hours after the disclosure of such information to SET. In addition, TTW has adopted an internal control system to prevent the leakage of information thoroughly and cautiously. This is to prevent internal information from being revealed to outside prior to a formal disclosure. These measures and control system are considered as a part of significant risk control measures of the company. It is the duty and responsibility of supervisors to oversee the protection of internal information in line with such measures. If an employee uses unpublicized internal information, or the ones that have not been revealed to general shareholders, for personal or other people's benefits from share trading shall be considered as violating the code of conduct defined by the company.

Securities Trading Based on the Use of Internal Information

Prohibited Persons

The persons who shall not trade the securities as per the prohibition set in the guideline for the prevention of internal information usage include:

- (1) Executive directors or the persons with an authority to control the operation of the company.
- (2) Worker or employees in the chain companies or the persons holding a position, or working in a line of duty that holds responsibility for, or can have access to, internal information.
- (3) The persons holding a status in favor of acknowledging internal information from performing their duties as an auditor, financial consultant, legal advisor, property price appraisal expert, or any other person doing duties related to internal information.
- (4) Parents, descendants, adoptive parents, or adopted children of the persons mentioned in (1) (2) and (3).
- (5) Siblings from the same mother and father, or the siblings from either a same mother or a same father, of the persons mentioned in (1) (2) and (3).
- (6) The spouses of, or the persons cohabitated with, the persons mentioned in (1) (2) and (3).

Prohibited Securities

Securities mean the shares, share warrants, convertible debentures, and transferable subscription rights that are issued by the company.

General Practice Guideline

- (1) Prohibited persons shall not trade the securities at any given moment, as long as they know or should have known the essential and unpublicized information that may affect the price of TTW securities in the Stock Exchange.
- (2) Prohibited persons who have acknowledged such essential information from performing their duties and/or from holding a position in the company and its subsidiaries shall not reveal such information to other persons while it has not been publicized yet; except the revealing through the duties they perform in the company

Specific Practice Guideline

Apart from the general practice guideline for the prevention of internal information usage, there are some specific practice guidelines that the prohibited persons shall comply with, as detailed below.

- (1) The prohibited persons who have direct involvement in the preparation of TTW financial statements shall not trade TTW securities during the period from the commencement of such preparation to the end of the following day after the date of disclosing such statements.
- (2) Any directors, executive management and employees who have received a draft copy of TTW financial statements shall not trade TTW securities during the period from the day that they received the draft of financial statements to the end of the date of disclosing such statements.
- (3) Prohibited persons who know or should have known that the company will reveal essential information that may affect the prices of TTW securities in the Stock Exchange shall not trade TTW securities starting from the date that they know or should have known about the event to the end of the following day after the date of revealing and distributing such information.
- (4) The company requires to the directors and executive management report of changes in securities holding in TTW Public Company Limited.

- (5) The Company has set a policy for directors and executive management to report to the Board of Directors at least 1 day in advance before trading the company's shares.

Reporting Procedures of Prohibited Persons

The Required Duty to Prepare the Report

- (1) Managing Director or a person holding an executive management position in accordance with Securities and Exchange Act shall prepare a report on their initial possession of securities and any changes in the possession of such securities afterward, as required by applicable laws and regulations; and shall submit such report to TTW simultaneously.
- (2) Executive management holding a position as a department head or higher shall prepare a report on the acquisition and the selling of TTW securities in their possession in the case that the volume of such acquisition or sale is equal to or over 5% of the total securities that have been sold.

Reporting Method

- (1) Managing Director or a person holding an executive management position that have a duty as required by laws shall prepare and submit a report on the possession of TTW securities of their own, and that of their spouses and minor descendants. They are required to submit a copy of such report to the company on the same day that they have sent it to a respective government authority or a regulatory agency.
- (2) Executive management holding a position as a department head or higher shall prepare a report on the possession and the changes in the possession of TTW securities of their own, and that of their spouses and minor descendants; and submit to the company within 7 working days from the date of ownership transfer of such securities

Auditor Remuneration

The Board of Directors has appointed the auditor of the Company who was selected by the Audit Committee based on performance, experience, preparedness in terms of personnel, and acceptable auditing service standards. Said auditor is certified by the Office of the Securities and Exchange Commission (SEC). The Company has hired EY Office Co., Ltd., comprising Ms. Manee Rattanabynnakij, Certified Public Accountant No. 5313; Ms. Sumalee Rivarabandit, Certified Public Accountant No. 3970; and Mrs. Poonnart Paocharoen, Certified Public Accountant No. 5238, Mrs. Kunlapee Piyawannasuth, Certified Public Accountant No. 6137 as the Company's auditors.

In this regard, the auditor appointed by the Board of Directors is also the auditor of the subsidiary companies, namely PTW and TWO, which have no relationship and interest with the company or subsidiaries, executives, major shareholders or those related to such persons in a manner that will affect their duty independently, also the company not receiving any services other than auditing

Comparative information of the auditor's remuneration in the past 3 years as follows

Description	2019	2018	2017
Examination of annual financial statement	660,000	655,000	625,000
Review of financial statements for the first 3 quarters	600,000	600,000	600,000
Review of BOI compliance	80,000	75,000	75,000
Total	1,340,000	1,330,000	1,300,000
Review Annual Report (Form 56-2)	80,000	70,000	-
Grand Total	1,420,000	1,400,000	1,300,000

Definition of “Related Party Disclosure According to Accounting Standards”

A related party is a person or entity that is related to the entity that is preparing its financial statements.

1. A person or a close member of that person’s family is related to a reporting entity if that person:
 - 1.1 had control or joint control over the reporting entity;
 - 1.2 has significant influence over the reporting entity; or
 - 1.3 is a member of the key management personnel of the reporting entity or the parent of the reporting entity.
2. An entity is related to a reporting entity if any of the following conditions applies:
 - 2.1 The entity and reporting entity are members of the same group (which means that each parent, subsidiary and fellow subsidiary is related to the others).
 - 2.2 One entity is an associate or joint venture of the other entity (or an associate or joint venture of a member of a group of which the other entity is a member).
 - 2.3 Both entities are joint ventures of the same third party.
 - 2.4 One entity is a joint venture of a third entity and the other entity is an associate of the third entity.
 - 2.5 The entity is a post-employment defined benefit plan for the benefit of employees of either the reporting entity or an entity related to the reporting entity. If the reporting entity is itself such a plan, the sponsoring employers are also related to the reporting entity.
 - 2.6 The entity has control by a person item 1.
 - 2.7 The person on item 1 (1.1) has significant influence over the entity or members of entity management (or headquarter)
 - 2.8 The entity member or members of the group to service of the key management personnel of the reporting entity or the parent of the reporting entity.

Application of Good Corporate Governance Principles for Listed Companies

The Board of Directors has reviewed and implemented the principles for good corporate governance for listed companies in an appropriate manner per the business context of the Company. In 2019, the Board of Directors reviewed and gave feedback regarding the development and improvement of practices in accordance with the principles of good corporate governance of the Company, such as the reporting of securities holdings of directors and executives, consideration of meetings between non-executive directors without management present, etc.

Compliance with the Principles of Good Corporate Governance in Other Matters

The board of directors, executives and employees of the company and its subsidiaries has complied with the corporate governance policy and follow up on the implementation of the operation plan strictly and consistently. In the year 2019, there are no situations in which the operations do not comply with the policy.



Compensation Paid to the Board of Directors, Management and Employees

The Company has the criteria for determination of remuneration for its directors and subcommittee member for submission to the shareholders' meeting for consideration and approval, and the policy on determination of appropriate remuneration for its executive in line with their duties and responsibilities, as follows:

(1) Compensation of the Board of Directors

The remuneration of the Board of Directors was consider from the duties and responsibilities of the Board of Directors approved by the shareholders. The Nomination and Remuneration Committee shall consider the type of remuneration guidelines and payment methods compensation and other benefits for the Board of Directors, subcommittee and executive managements to be appropriate with the responsibilities consistent with the company's performance including market conditions and propose to the shareholders meeting for approval the remuneration, both monetary and non-monetary of the Board of Directors by individual basis each year, The Nomination and Remuneration Committee must consider the responsibilities, the intention of the directors, type and size of the business of the company, markets and competitors, the remuneration must be at the appropriate with the responsibilities.

Compensation Criteria

The company has criteria for consideration of remuneration by taking into account the appropriateness of the assigned responsibilities and can be compared to listed companies in the Stock Exchange of Thailand that were in similar industries. The remuneration of directors is sufficient to motivate the directors to have quality and able to perform their duties to achieve the goal according to the business direction of the company. Which defines the composition of compensation in two parts as follows

a. Monetary remuneration

Part 1 Annual Fee consist of

- Retainer fee is the remuneration paid to directors on a monthly basis Whether or not there are meetings by considering the operating results and the ability to operate according to goals
- Attendance Fee is the remuneration paid to each director attending the meeting which is paid only to directors who attend the meeting.

Part 2 Incentive Fee / Bonus is a special remuneration paid to directors once a year by linking with the value created for shareholders such as the company's profits or dividends paid to shareholders.

In 2019, the company paid the compensations to directors totally 25,981,466 Baht, which comprised 6,312,000 Baht as the Retainer Fee, 1,554,450 Baht as the Attendance Fee and 18,115,016 as the Bonus for year 2018

Compensation paid to each directors in 2019

(Unit : Baht)

Director Name	Position	Retainer Fee	Attendance Fee	Total	Bonus (2018)	Total
1. Dr. Thanong Bidaya	Independent Director and Chairman of the Board of Directors	785,600	196,400	982,000	2,292,000	3,274,000
2. Mr. Plew Trivisvavet	Director and Vice Chairman of the Board of Directors	643,200	160,800	804,000	1,873,000	2,677,000
3. Mr. Phongsarit Tantisuvanitchkul	Director and Chairman of the Executive Committee	520,800	113,100	633,900	1,518,000	2,151,900
4. Mr. Techapit Sangsingkeo ⁽¹⁾	Former Independent Director, Chairman of the Audit Committee, Chairman of the Risk Management Committee and Corporate Governance Committee	-	-	-	1,466,038	1,466,038

Director Name	Position	Retainer Fee	Attendance Fee	Total	Bonus (2018)	Total
5. Mr. Phairuch Mekarporn ⁽²⁾	Independent Director, Chairman of the Audit Committee, Chairman of the Nomination and Remuneration Committee and Corporate Governance Committee	636,000	159,000	795,000	1,687,000	2,482,000
6. Mr. Somnuk Chaidejsuriya	Independent Director, Chairman of the Corporate Governance Committee, Audit Committee, Nomination and Remuneration Committee	572,800	136,750	709,550	1,672,000	2,381,550
7. Dr. Sombat Kitjalaksana	Director and Executive Committee	401,600	100,400	502,000	1,171,000	1,673,000
8. Mr. Suvich Pungchareon	Director and Executive Committee	401,600	100,400	502,000	1,171,000	1,673,000
9. Mrs. Payao Marittanaporn ⁽³⁾	Director, Chairman of the Risk Management Committee, Nomination and Remuneration Committee	469,600	117,400	587,000	1,215,000	1,802,000
10. Mr. Yasutaka Suzuki ⁽⁴⁾	Former Director, Nomination and Remuneration Committee	-	-	-	146,222	146,222
11. Mr. Shunsuke Murai ⁽⁵⁾	Director, Nomination and Remuneration Committee	344,800	86,200	431,000	849,742	1,280,742
12. Mr. Hideo Matsumoto	Director, Executive Committee and Risk Management Committee	472,800	118,200	591,000	1,381,000	1,972,000
13. Mr. Chaiwat Utaiwan ⁽⁶⁾	Former Director, Executive Committee, Risk Management Committee, Corporate Governance Committee and Managing Director	-	-	-	257,014	257,014
14. Dr. Patarut Dardarananda ⁽⁷⁾	Independent Director, Audit Committee, Risk Management Committee and Corporate Governance Committee	519,200	129,800	649,000	83,014	732,014
15. Ms. Walainut Trivisvavet ⁽⁸⁾	Director, Executive Committee, Risk Management Committee, Corporate Governance Committee and Managing Director	544,000	136,000	680,000	1,332,986	2,012,986
Total		6,312,000	1,554,450	7,866,450	18,115,016	25,981,466

- Remark**
1. Mr. Techapit Sangsingkeo has passed away on October 15, 2018.
 2. Mr. Phairuch Mekarporn was appointed as the Chairman of the Audit Committee on December 12, 2018
 3. Mrs. Payao Marittanaporn was appointed as the Chairman of the Risk Management Committee on February 26, 2019
 4. Mr. Yasutaka Suzuki resigned on February 22, 2018
 5. Mr. Shunsuke Murai was appointed as the director on February 27, 2018
 6. Mr. Chaiwat Utaiwan resigned on February 28, 2018
 7. Dr. Patarut Dardarananda was appointed as the independent director on December 12, 2018
 8. Ms. Walainut Trivisvavet was appointed as the Director on March 1, 2018

Comparison of Compensations paid to Directors in 2019, 2018 and 2017

Description	2019		2018		2017	
	No. of Directors	Amount (Baht)	No. of Directors	Amount (Baht)	No. of Directors	Amount (Baht)
Retainer Fee	12	6,312,000	15	5,427,687	13	6,312,000
Attendance Fee	12	1,554,450	14	2,348,625	12	1,443,400
Incentive Fee / Bonus	15	18,115,016	13	18,420,000	13	18,241,167
Total	-	25,981,466	-	26,196,312	-	25,996,567

b. Other remuneration and benefits

- None -

(2) Compensation for Executives

The Company has the criteria and policy on remuneration for executives of the company as reasonable and in line with the company's operational results, duties and responsibilities of executives according to performance. The Nomination and Remuneration Committee shall consider determining remuneration for the Managing Director for submission to the Board of Directors meeting for consideration and approval. For the positions of Assistant Managing Director downward, their remuneration shall be considered by the Managing Director propose the company's annual salary increment to the Executive Committee for consideration and approval. In this regard, such remuneration increment shall be in accordance with the criteria specified by the Company. The company has policy on consideration of remuneration as follows:

- a. **Monetary remuneration** : consisting of salary and bonus, of which the Company's policy on consideration is as follow;
 - **Managing Director's remuneration** shall be considered every year based on remuneration policy specified by the Nomination and Remuneration Committee both short term and long term such as salary, bonus and long-term incentive compensation which must be consistent with the financial performance, long-term strategic and executive development including the business growth and profits of the company
 - **Executives's remuneration at all level** shall be based on Key Performance Indicator (KPIs), consisting of performance appraisal and management competency, as jointly specified by the Executive Committee and the Managing Director, whereby there are performance indicators for executives in each position in line with his/her roles.
- b. **Other remuneration and benefits** : the Company provides for a provident fund for saving of all executives and staff, whereby executives and staff can choose to contribute savings at a rate from 5 to 15 percent of their respective salaries and the company will then make the contribution at the rate of 5 to 10 percent to the fund.

Comparison of Compensations paid to Executives in 2019, 2018 and 2017

Description	2019		2018		2017	
	No. of Executives	Amount (Baht)	No. of Executives	Amount (Baht)	No. of Executives	Amount (Baht)
Compensation	8	18,623,664	9	18,624,088	8	24,322,552
Bonus	8	6,337,352	8	5,912,360	8	7,140,015
Provident Fund	8	1,608,360	9	1,561,753	8	1,563,024
Total		26,569,376	-	26,098,201	-	33,025,591

(3) Remuneration for directors and Executives of subsidiaries

In 2019, the subsidiaries paid remuneration to its directors and executives as follows;

1. Pathum Thani Water Company Limited

a. Directors's remuneration

1) Monetary remuneration

(Unit : Baht)

Director Name	Position	Retainer Fee	Attendance Fee	Total	Bonus (2018)	Total
1. Mr. Phairuch Mekarporn	Chairman of the Board of Directors	285,600	71,400	357,000	892,500	1,249,500
2. Mr. Chayodom Kanchanomai	Honorary Chairman	285,600	71,400	357,000	892,500	1,249,500
3. Mr. Techapit Sangsingkeo	Former Director	-	-	-	469,479	469,479
4. Mr. Hideo Matsumoto	Director	190,400	47,600	238,000	595,000	833,000

Director Name	Position	Retainer Fee	Attendance Fee	Total	Bonus (2018)	Total
5. Dr. Patarut Dardarananda	Director	162,898	40,724	203,622	-	203,622
6. Mr. Chaiwat Utaiwan	Director	190,400	11,900	202,300	595,000	797,300
7. Ms. Walainut Trivisvavet	Director and Managing Director	190,400	47,600	238,000	595,000	833,000
Total		1,305,298	290,624	1,595,922	4,039,479	5,635,401

Remark 1. Mr.Techapit Sangsingkeo has passed away on October 15, 2018.
2. Dr. Patarut Dardarananda was appointed as the director on February 22, 2019.

Comparison of Compensations paid to PTW's Directors in 2019, 2018 and 2017

Description	2019		2018		2017	
	No. of Directors	Amount (Baht)	No. of Directors	Amount (Baht)	No. of Directors	Amount (Baht)
Retainer Fee	6	1,305,298	6	1,207,850	7	1,250,455
Attendance Fee	6	290,624	6	458,150	7	299,000
Incentive Fee / Bonus	6	4,039,479	8	4,076,973	6	4,148,699
Total	-	5,635,401	-	5,742,973	-	5,698,154

2) Other remuneration and benefits

- None -

b. Executive's remuneration and other benefits

- None -

2. Thai Water Operations Company Limited

a. Directors's remuneration

1) Monetary remuneration

(Unit : Baht)

Director Name	Position	Retainer Fee	Attendance Fee	Total	Bonus (2018)	Total
1. Mr. Ratn Santaannop	Chairman of the Board of Directors	180,000	-	180,000	270,000	450,000
2. Mr. Chaiwat Utaiwan	Director	120,000	-	120,000	100,000	220,000
3. Ms. Walainut Trivisvavet	Director	120,000	-	120,000	100,000	220,000
4. Mr. Tanat Sirichaoen	Director and Managing Director	120,000	-	120,000	100,000	220,000
Total		540,000	-	540,000	570,000	1,110,000

Comparison of Compensations paid to TWO's Directors in 2019, 2018 and 2017

Description	2019		2018		2017	
	No. of Directors	Amount (Baht)	No. of Directors	Amount (Baht)	No. of Directors	Amount (Baht)
Retainer Fee	4	540,000	4	540,000	4	540,000
Attendance Fee	-	-	-	-	-	-
Incentive Fee / Bonus	4	570,000	4	570,000	4	570,000
Total	-	1,110,000	-	1,110,000	-	1,110,000

2) Other remuneration and benefits

- None -

b. Executive's remuneration and other benefits

- None -

Personnel

(1) Number of Personnel of the Company and its Subsidiaries

As at December 31, 2019, the company and its subsidiaries had a total of Executives and Employee as follows :

TTW Public Company Limited	136	persons
Pathum Thani Water Company Limited	30	persons
Thai Water Operations Company Limited	158	persons
Total	324	persons

Number of Executives and Employees of the company and its subsidiaries divided by company's structure as follows :

Company's Structure	TTW	PTW	TWO	รวม
Managing Director	1	-	-	1
Internal Audit Division	2	-	-	2
Corporate Affairs Division	8	-	-	8
Administration Group	-	-	-	-
Human Resources and Administrative Division	25	2	-	27
Account and Finance Division	13	-	-	13
Business Development Group	-	-	-	-
Customer Relationship Management Division	15	-	-	15
Business Development Division	3	-	-	3
Operations Group	-	-	1	1
Operations Division	66	28	105	199
Engineering Division	3	-	52	55
Total	136	30	158	324

In 2019, the company and its subsidiaries had no significant changes in the number of personnel and the company had no labor dispute throughout the period from which the company was incorporated. In this regard, the company has set out the work rules for acknowledgment and compliance by the staff of the company and its subsidiaries which contain significant details comprising employment, recruitment, appointment, staff transfer, salary and wage, welfare and fringe benefits, discipline, disciplinary actions, submission of a appeal and grievance, etc.

(2) Personnel Development Policy

The company and its subsidiaries is committed to developing all staff continuously by developing knowledge, skills, competencies and cultivating corporate culture to increase knowledges, skills and expertise including the work efficiency of employees for corporate growth and progress sustainably. Every new employee will receive an orientation to acknowledge the practices, corporate policies, business knowledge, Good corporate governance principles, and development of environmental potential, anti-Corruption including learning an overview of company's business through a visit water treatment plant. While working with the company all employees will be developed and promoted by learning in different ways according to job characteristics and job levels by

training both internal and external courses, etc. The company also encourages employees to learn by themselves by providing an Edutainment room consisting of books, magazines and entertainment media. In addition, the company has a policy to send employees to study abroad and supporting personnel in various fields as follows:

- Knowledge Development
- Skill Development
- Ability Development

Knowledge and Skill Development

1. Activities that provide knowledge, experience and improve attitudes, Training, Job Instruction & Coaching
2. Transferring, Job Rotation, Under study, Acting, Study Tour/ Visit, Job Enrichment and Job Enlargement, Special Assignment
3. Knowledge seeking activities on duty

Ability Development to be in accordance with the strategic management plan through the process as follows

1. Review various events that occurred in the past as a lesson
2. Analyze the organization's environment both inside and outside
3. Create a new vision and be ready to make changes to new working styles.
4. Executives have to change the attitude that people have seen as personnel assets as Human Capitals
5. Adjust the strategy of human resource management in accordance with the organization's strategy
6. Change the new role from the previous order Hold strict regulations to become a change agent. Focus on building flexibility, working systematically.
7. Bring the above 6 approaches to integrate and create new models to occur within the organization. From 7 strategic management tasks

Competency Development

The Company and its subsidiaries encourage their staff to attend the internal and external seminar and training courses to enhance staff's knowledge and skills in work performance. The Human Resources and Administrative Division together with the executives in each line of command shall select the internal training course in fields which personnel intend to develop, and invited speakers from outside to train and give knowledge and skills to employees to become proficient in their job. In addition, the company has opened up an opportunity for its staff to propose training courses that they want to train with outside institute for the competency development. The following is the training courses and seminars which staff attended in 2019:

Staff

- **Internal Courses** such as, KAIZEN, Safety in Maintenance Work, Suppressing Chlorine Leak with KIT-B Equipment and Basic Maintenance, Safety at work related to hazardous chemicals and the use of personal protective equipment and Techniques for maintaining motor and pump, etc., for a total of 3,072 average hours of training and seminars.
- **External Courses** such as, Update TFRS 15 and TFRS 16 with the effect of accounting and net profit calculation, Fundamentals for Corporate Secretary, Safety at work, technical level, CGR Workshop 2019 Enhancing Good Corporate Governance based on CGR Scorecard, Planning long-term and short-term training programs to meet organizational and job goals, Sustainable Supply Chain and Engaging Your Stakeholder through Effective Communicate, etc., for a total of 1,426 average hours of training and seminars.

Executives

- **Internal Courses** such as, Professional Development Risk Management and Internal Audit, Leadership in water management, Factory manager, Become a Professional CFO (Modern CFO), Risk Management in Advance COSO ERM 2017, etc.

In addition, the company also supports its own employees to attend any training courses relating to environment issues such as Waste Water Recycling for Industry, Study tour in water and environmental management in Singapore, Water Footprint Assessment, Water Pollution Control System Controller, Recognition of preventive measures on safety, occupational health and the working environment in order to reduce the danger of employees, Managing Ignitable Hazards and visit the National Occupational Safety and Health Exhibition, etc.

The Company adopts a policy to support and encourage the directors, the executives and the Company Secretary to attend training courses, seminars, and make site visits to enhance their knowledge and capability in work operations. In 2019, the directors and executives attended the following training and seminars:

Director

- Director Certification Program (DCP271/2019) by Thai Institute of Directors, for Dr. Patarut Dardarananda
- Independent Directors Forum 1/2019 “Tips and Tricks for Dealing with Question in AGM” by Thai Institute of Directors, for Mr. Phairuch Mekarporn
- Advanced Audit Committee Program (AACP34/2019) by Thai Institute of Directors, for Dr. Patarut Dardarananda
- Risk Management Program for Corporate Leader (RCL18/2019) by Thai Institute of Directors, for Dr. Patarut Dardarananda
- Seminar on Digital Business Sustainability by EY Office Limited for Mr. Phairuch Mekarporn and Dr. Patarut Dardarananda.

Company Secretary

- Company Secretary Forum 2019 : Role of the Company Secretary in Shaping Corporate Culture by Thai Institute of Directors
- Seminar on Audit Adjustment by Thai Institute of Directors

(3) Staff Remuneration and Benefits

Policy on Consideration of Staff Remuneration

The company and its subsidiaries has the criteria and policy on remuneration for staff by considering the appropriateness, fairness according to knowledge and ability including each employee’s performance and correspond to the average of the same industry. The company has determined to increase the salary rate for executives and employees once a year using Key Performance Indicator: KPI, which includes current performance (short-term) and long-term strategic performance, such assessment results in the compensation of executives and employees in line with the company’s performance. In addition, the company has set a special bonus payment that is linked to the operating results for each year, and linked to the performance of employees to motivate employees to work according to the organization’s goals in that year

Staff Remuneration

For Monetary remuneration such as, salary including other incomes and professional fees. In addition, the company has stipulated a special bonus linked to the operating results of each year and the performance of employees in order to motivate employees to perform according to the organization’s goals.

Comparison of Compensations paid to Employees in 2019, 2018 and 2017

Unit : million Baht

Company	2019	2018	2017
TTW	79.62	74.46	86.87
PTW	11.55	10.42	11.50
TWO	58.25	55.15	58.76
Total	149.42	140.03	157.13

Staff Benefits

The company provides welfare higher than what is required by laws, in order to reduce the expense burden for the employees, promoting the well-being which will benefit the operations and the living of the employees. These benefits have been communicated to all employees to be informed of their rights through company regulations on employee benefits since the orientation on the first day of joining the company. The welfare can be divided into following categories:

Health insurance and Life insurance such as, medical expense, annual physical examinations by providing an inspection program for employees of each age and gender appropriately, health insurance, life insurance and accident insurance programs in addition to the government's social security program.

Financial aid such as, scholarships for children, Financial support for employee's wedding, Maternity expense, Spouse or children of lawful employees or the parents of the employee died and grants in the event of an employee experiencing a fire, flood, or windstorm

Provident Fund for its employees, to provide benefits to members in the event of retirement, resignation, termination, disability or death by accumulating money from part of member's income and the company contributed to other parts in accordance with the conditions specified in the provident fund regulations by appointed Kasikom Asset Management Company as the fund manager.

Other benefits such as, uniform, first aid room, fitness room and vaccination against 4 strains of influenza in accordance with the standards of the World Health Organization (WHO).

(4) Evaluation of work performance and career advancement opportunities

Employees in all levels who receive remuneration on a monthly basis are subject to a work performance evaluation at the end of each year. The goals and key performance indicators (KPIs) will be developed individually for each employee based on expected achievement of works, competency and development. The results of the evaluation in three areas (including core competency, managerial competency and functional competency in accordance with the regular development scheme of the company) will be used to set up a priority and the goals of the development. Individual development plan for each employee emphasizes the learning and development from hand-on experience, interpersonal relationship and formal training.

(5) Determination of Succession Plan

The Board of Directors realizes the significance of the succession of senior management, especially the position of managing director by assigning the Nomination and Remuneration Committee to conduct the managing director succession plan details appear in the Nomination and Remuneration Committee Charter.

For the Executives positions, the company has established a succession plan by specifying the person to act on its behalf. In the case that there is no person can support immediately, there is a secondary development system to prepare including external selection, in order to maintain trust with shareholders, as well as employees that the company's operations will be carried on in a timely manner.

(6) Work Safety

The company has formulated policies and managerial structure for occupational safety, health and environment in accordance with the standards, stipulated in the Occupational Safety, Health and Environment Act B.E. 2554 and other work safety-related laws. We use these as basic practical guidelines to help our employees to ensure safety standard in their works ISO 9001 and ISO 14001 and a work safety management system by focusing on the participation of personnel. In addition, there are rules for working safety, Committee for Safety, Occupational Health and Working Environment in order to consider the policy Operation plan and work safety training plans.



Report on the Board of Directors' Responsibility towards Financial Report

The Board of Directors is responsible for the financial statement of TTW Public Company Limited (TTW) and subsidiaries to ensure that the financial statements, incomes, expenses and cash flow statement are accurate, reasonable and in line with the generally accepted accounting standard and policy as well as consistent practice and careful assumption.

The Board of Directors had delegated this responsibility to the Audit Committee which comprises qualified and experienced independent director with qualifications that fully meet the requirement of the Securities and Exchange Commission and related rules and regulations. The Audit Committee oversaw the internal control process to ensure its effectiveness and efficiency. They had also reviewed the financial statement for its accuracy, reliability and adequately disclosed of related information. The Audit Committee had presented the performance report to the company's Board of Directors.

The Board of Directors has the opinion that the 2019 financial statement of TTW Public Company Limited (TTW) and its subsidiaries showed financial standing, incomes, expenses and total cash flow that are accurate and reasonable, the record of accounting information is accurate and complete, the choice of accounting policy is appropriate and consistent, and the compliance is in accordance with the generally accepted accounting standard. The disclosure of information in the note to financial statement is adequate and the company's auditor has provided opinions on the financial statement of TTW Public Company Limited (TTW) and its subsidiaries without condition in the auditor's report.

(Dr. Thanong Bidaya)
Chairman of the Board of Directors

(Ms. Walainut Trivisvavet)
Managing Director



Audit Committee Report

To The Shareholders

The Audit Committee of TTW Public Company Limited consists of a number of experts in various fields, three of which are Independent Directors, with Mr. Phairuch Mekarporn as the Chairman of the Audit Committee, and Mr. Somnuk Chaidejsuriya and Dr. Patarut Dardarananda as members of the Audit Committee.

Ms. Nisaraluk Sichapakornrat Internal Audit Manager of the Company is the Audit Committee Secretary.

In 2019, the Audit Committee, in the performance of its duties in accordance with the scope of responsibilities specified in the Audit Committee Charter as approved by the Board of Directors, convened four meetings and reported said meeting results to the Board of Directors each quarter, with assessment of key matters summarized as follows:

1. Carried out examination of the annual audit plan and quarterly audit results in order to assess the work systems and internal control system of the Company, as well as to provide advice and propose solutions for the internal audit and supervision of operations to ensure that the internal audit system is satisfactory and is standardized in accordance with the regulations of the Office of the Securities and Exchange Commission (SEC).
2. Carried out reviews of legal compliance with rules and regulations of relevant external agencies, as well as rules and regulations within the Company itself.
3. Reviewed all connected transactions to ensure they were normal business operations and did not provide special benefits to those involved.
4. Carried out reviews of quarterly and annual financial statements prior to proposal to the Board of Directors for consideration, with special emphasis on the implementation of accounting standards, related party transactions, and connected transactions, and provided assessment opinions to the Company's management regarding the performance of asset management for the full benefit of the Company.
- 5.. Assessed the selection, nomination for appointment, and termination of independent persons to act as the Company's auditors and proposed the remuneration for said persons. Convened meetings with the auditor without Company management in attendance.

The Audit Committee performed its duties with prudence and provided independent opinions in the best interests of the Organization without any restriction in the obtaining of Company data, resources, and the full cooperation of the Company. The Audit Committee carries out an evaluation of the performance of its duties annually for the continued improvement and development of its duties in an effective and efficient manner, in order to achieve the objectives assigned by the Board of Directors.

For the year 2020, the Audit Committee has proposed to the Board of Directors the appointment of Ms. Manee Rattanabynnakij, Certified Public Accountant No. 5313, and/or Ms. Sumalee Rivarabandit, Certified Public Accountant No. 3970, and/or Ms. Poonnart Paocharoen, Certified Public Accountant No. 5238, and/or Mrs. Kunlapee Piyawannasuth, Certified Public Accountant No. 6137, of EY Office as the Company's auditor for another year, with the Audit fees not exceeding 1,470,000 Baht. This shall be proposed for approval at the Annual General Meeting of Shareholders in 2020.

(Mr. Phairuch Mekarporn)

Chairman of the Audit Committee

February 20, 2020



Independent Auditor's Report

To the Shareholders of TTW Public Company Limited

Opinion

I have audited the accompanying consolidated financial statements of TTW Public Company Limited and its subsidiaries (the Group), which comprise the consolidated statement of financial position as at 31 December 2019, the related consolidated statements of comprehensive income, changes in shareholders' equity and cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies, and have also audited the separate financial statements of TTW Public Company Limited for the same period.

In my opinion, the financial statements referred to above present fairly, in all material respects, the financial position of TTW Public Company Limited and its subsidiaries and of TTW Public Company Limited as at 31 December 2019, their financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards.

Basis for Opinion

I conducted my audit in accordance with Thai Standards on Auditing. My responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of my report. I am independent of the Group in accordance with the Code of Ethics for Professional Accountants as issued by the Federation of Accounting Professions as relevant to my audit of the financial statements, and I have fulfilled my other ethical responsibilities in accordance with the Code. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Key Audit Matter

Key audit matter is the matter that, in my professional judgement, was of most significance in my audit of the financial statements of the current period. This matter was addressed in the context of my audit of the financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on this matter.

I have fulfilled the responsibilities described in the Auditor's Responsibilities for the Audit of the Financial Statements section of my report, including in relation to this matter. Accordingly, my audit included the performance of procedures designed to respond to my assessment of the risks of material misstatement of the financial statements. The results of my audit procedures, including the procedures performed to address the matter below, provide the basis for my audit opinion on the accompanying financial statements as a whole.

Key audit matter and how audit procedures respond for each matter is described below.

Assets for production of treated water and rights to produce and sell treated water and treat waste water

The Group recognised the amortisation expenses of the assets for the production of treated water, the rights to produce, sell treated water and treat waste water of the Company and the assets that must be transferred at the end of concession of the subsidiary in the financial statements amounting to Baht 902 million (Separate financial statements: Baht 534 million), of which the expenses during this year accounted for 39% of total expenses in the consolidated financial statements (35% of total expenses in the separate financial statements). In calculating the amortisation expenses, the Group used the units of production method which required an estimate of the number of units of treated water to be produced in the future, until the end of the concession period or the end of the operation contract or the end of useful live of the assets for the production of treated water of the Company or the end of the concession period of the subsidiary. The management must use judgement to estimate the amount of future production, based on present production volumes, production capacity, demand from customers, economic and industry conditions. This affect the amount of the amortisation expenses.

I assessed the assumptions applied by management in estimating the number of units to be produced in the future by inquiring with the responsible management and gaining an understanding of the method applied to estimate units of production. I also checked the duration of the concession and the duration of the rights to produce and sell treated water and treat waste water to the relevant documents. In addition, I compared the number of units of production estimated by the Group with actual past and current production volumes and tested the Group's calculation of amortisation expenses for the year.

Other Information

Management is responsible for the other information. The other information comprise the information included in annual report of the Group, but does not include the financial statements and my auditor's report thereon.

My opinion on the financial statements does not cover the other information and I do not express any form of assurance conclusion thereon.

In connection with my audit of the financial statements, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or my knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work I have performed, I conclude that there is a material misstatement of this other information, I am required to report that fact. I have nothing to report in this regard.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Thai Financial Reporting Standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Thai Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Thai Standards on Auditing, I exercise professional judgement and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide those charged with governance with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, I determine the matter that was of most significance in the audit of the financial statements of the current period and is therefore the key audit matter. I describe this matter in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

I am responsible for the audit resulting in this independent auditor's report.



Kunlapee Piyawannasuth

Certified Public Accountant (Thailand) No. 6137

EY Office Limited

Bangkok: 25 February 2020



Operation Result Analysis and Report

Revenue Analysis

Revenue from Tap Water Sales

The majority of tap water sales revenue was generated from the sale of tap water by the Company and Pathum Thani Water Co., Ltd. (PTW) to the Provincial Waterworks Authority in accordance with the contract, as well as from sales by the Company to business operators in the Bang Pa-In Industrial Estate under the contract granting rights for the production and distribution of tap water. In 2017, 2018, and 2019, the tap water sales revenue of the Company and its subsidiaries equaled THB 5,474.5 million, THB 5,807.4 million and THB 5,993.4 million respectively, with an increase in 2018 and 2019 of 6.1% and 3.2% respectively compared to the same period of the previous year. Increased revenue from tap water sales in 2018 and 2019 can be explained as follows:

In 2018, revenue from tap water sales increased by THB 332.9 million, or 6.1%, due to the following reasons:

- 1) Revenue from tap water sales of the Company increased by THB 203.0 million, or 5.4%, as a result of a 12.4 million cubic meter increase in the volume of tap water sold, as well as an increase in tap water prices compared to the previous year, representing an increase in tap water sales revenue of THB 197.8 million. Tap water sales in Bang Pa-In Industrial Estate also increased by 0.1 million cubic meters, along with an increase in water bill rates, representing an increase in tap water sales revenue within Bang Pa-In Industrial Estate of THB 5.2 million or 2.5%.
- 2) Revenue from tap water sales of PTW increased by THB 129.9 million, or 7.6%, as a result of a 10.1 million cubic meter increase in the amount of tap water sold by PTW.

In 2019, revenue from tap water sales increased by THB 186.0 million or 3.2% due to the following reasons:

- 1) Revenue from tap water sales of the Company increased by THB 121.5 million, or 3.1%, as a result of a 7.8 million cubic meter increase in the volume of tap water sold, as well as an increase in tap water prices compared to the previous year, representing an increase in tap water sales revenue of THB 112.8 million. Tap water sales in Bang Pa-In Industrial Estate also increased by 0.3 million cubic meters, representing an increase in tap water sales revenue within Bang Pa-In Industrial Estate of THB 8.7 million, or 4.1%
- 2) Revenue from tap water sales of PTW increased by THB 64.5 million, or 3.5%, as a result of a 3.0 million cubic meter, or 2.1%, increase in the volume of water sold by PTW.

Revenue from Services

Revenue from services comprises revenue from tap water production services, wastewater treatment services, water pipe system maintenance at Amata Industrial Estate, and wastewater treatment services at Bang Pa-In Industrial Estate. In the years 2017, 2018, and 2019, the services revenue of the Company and its subsidiaries equaled THB 120.7 million, THB 118.3 million, and THB 119.5 million respectively, with a decrease of 2.0% in 2018 and an increase of 1.0% in 2019 compared to the same period of the previous year. For revenue from services, the decrease in 2018 and increase in 2019 can be explained as follows:

In 2018, revenue from services decreased by THB 2.4 million, or 2.0%, as a result of a decrease in management fee income by subsidiaries.

In 2019, revenue from services increased by THB 1.2 million, or 1.0%, as a result of an increase in revenue from wastewater treatment services within the Bang Pa-In Industrial Estate.

Other Revenues

Other revenues of the Company and its subsidiaries consist mainly of interest income from bank deposits, remuneration from cash flow management of the Company, and others.

In 2017, 2018, and 2019, other revenues of the Company and its subsidiaries equaled THB 152.2 million, THB 22.8 million, and THB 52.7 million respectively, with a decrease of 85.0% in 2018 and an increase of 131.1% in 2019 compared to the same period of the previous year. The decrease in 2018 and the increase in 2019 of other revenues can be described as follows:

In 2018, other revenues decreased by THB 129.4 million, or 85.0%, due to an early repayment on a loan made by the Company in December of 2017, resulting in a reduction of both cash balance and return on cash flow management.

In 2019, other revenues increased by THB 52.7 million, or 131.1%, due to increased return on cash flow management.

Expense Analysis

(Unit: MB)

Description	2019	2018	2017
Cost of sales of treated water and services	1,794.7	1,722.2	1,564.4
Administrative expenses	251.6	280.3	257.3
Finance cost	304.5	371.7	407.0
Income tax expenses	697.0	616.1	632.2
Total	3,047.8	2,990.3	2,860.9

Cost of sales of treated water and services

The tap water sales and service expenses of the Company and its subsidiaries consist mainly of depreciation of assets for tap water production, amortization of assets for tap water production, electrical costs, chemical fees, land rental fees for pipeline installation, expenses related to production personnel, maintenance costs, other production expenses, etc.

In 2017, 2018, and 2019, the tap water sales and service expenses of the Company and its subsidiaries equaled THB 1,564.4 million, THB 1,722.2 million, and THB 1,794.7 million respectively, accounting for 27.2%, 28.9%, and 29.1% of total revenue respectively. The rate of increase in 2018 and 2019 compared to the same period of the previous year was 10.1% and 4.2% respectively, which can be explained as follows:

In 2018, the principle cost of tap water sales and services increased by THB 157.8 million due to an increase of 22.50 million cubic meters in the volume of tap water sold, resulting in a depreciation increase of THB 82.2 million, as well as an increase of THB 38.1 million in electricity costs, THB 23.1 million in maintenance and spare parts costs, THB 11.4 million in other production expenses, and THB 3.0 million in chemical costs relative to the increased sales volume.

In 2019, the principle cost of tap water sales and services increased by THB 72.5 million due to an increase of 10.8 million cubic meters in the volume of tap water sold, resulting in a depreciation increase of THB 53.6 million, as well as an increase of THB 12.6 million in electricity costs, THB 11.8 million in maintenance and spare parts costs, THB 4.6 million in other production expenses, and a decrease of THB 10.1 million in chemical costs relative to the increased sales volume.

Administrative Expenses

In 2017, 2018, and 2019, the administrative expenses of the company equaled THB 257.3 million, THB 280.3 million, and THB 251.6 million respectively. The rate of increase in 2018 and decrease in 2019 compared to the same period of the previous year was 8.9% and 10.2% respectively, which can be explained as follows:

In 2018, the administrative expenses of the Company increased by THB 23.0 million compared to the same period of the previous year due to amortization of development costs for water supply projects in Myanmar.

In 2019, administrative expenses of the Company decreased by THB 28.7 million compared to the same period of the previous year due to amortization of development costs for water supply projects in Myanmar.

Share of Profits from Investment in Associate Companies

The share of profits from investment in associate companies in 2017, 2018, and 2019 was THB 40.2 million, THB 151.6 million, and THB 280.3 million respectively, with an increase of 277.1% in 2018 and 84.9% in 2019 compared to the same period of the previous year, which can be explained as follows:

In 2018, the share of profits from investment in associate companies increased by THB 111.4 million, or 277.1%, due to an increase in the electricity sales of the subsidiaries of said associate companies compared to the same period of the previous year.

In 2019, the share of profits from investment in associate companies increased by THB 128.7 million, or 84.9%, due to an increase in the profit sharing recognition of CKP associate companies and profit recognition resulting from a change in the proportion of investment in shares in associate companies from 25.31% to 24.98%.

Financial Costs

Financial costs in 2017, 2018, and 2019 were THB 407.0 million, THB 371.7 million, and THB 304.5 million respectively. The decrease in financial costs compared to the same period of the previous year can be explained as follows:

In 2018, financial costs decreased by THB 35.3 million, or 8.7%, due to the early repayment of loans in December of 2017.

In 2019, financial costs of the Company decreased by THB 67.2 million, or 18.1%, due to repayments of loans and debentures for a total of THB 1,500 million in February, 2019.

Income Tax Expenses

Income tax expenses in 2017, 2018, and 2019 were THB 632.2 million, THB 616.1 million, and THB 697.0 million respectively. Corporate income tax decreased in 2018 and increased in 2019 compared to the same period of the previous year, which can be explained as follows:

In 2018, income tax expenses decreased by THB 16.1 million, or 2.5%, due to deferred tax liabilities.

In 2019, income tax expenses increased by THB 80.9 million, or 13.1%, due to increased profit before income tax expenses and corporate income tax exemption privileges for water sales volume of 320,001 - 440,000 cubic meters / day ending in September of 2018.

Net Profit

In 2017, 2018, and 2019, the Company and its subsidiaries recorded a net profit of THB 2,680.8 million, THB 2,860.9 million, and THB 3,147.3 million respectively, accounting for 46.64%, 48.09%, and 51.06% respectively of the total revenue of the Company and its subsidiaries. The rate of net profit to total revenue in 2019 increased from the previous year, for the reasons mentioned in each of the previous topics.

Financial Status Analysis

(Unit : MB)

Description	31 Dec 2019	31 Dec 2018	31 Dec 2017
Total assets	23,158.1	23,330.4	23,277.0
Total liabilities	10,033.3	10,965.5	11,399.1
Total shareholders' equity	13,124.8	12,364.9	11,877.9

Assets Analysis

The majority of the assets of the Company and its subsidiaries are non-current assets, which represent approximately 82-86% of total assets. As of December 31, 2019, the Company and its subsidiaries had total assets of THB 23,158.1 million, a decrease of THB 172.3 million compared to December 31, 2018. This decrease in assets is mainly due to the use of temporary investments for repayment of debentures due, as well as to decreases and increases in other assets, which can be explained as follows:

Cash and Cash Equivalents

As of December 31, 2019, the Company and its subsidiaries held cash and cash equivalents totaling THB 76.6 million, a decrease of THB 22.7 million compared to December 31, 2018.

Current Investments

As of December 31, 2019, the current investments of the Company and its subsidiaries were valued at THB 3,035.1 million, a decrease of THB 464.8 million compared to December 31, 2018, due to the use of current investments for repayment of debentures due in February of 2019.

Trade and Other Receivables

As of December 31, 2019, the trade and other receivables of the Company totaled THB 564.9 million, an increase of THB 0.4 million compared to December 31, 2018, due to a sales volume increase from the same period of the previous year. The majority of trade receivables in the amount of THB 521.9 million were from the Provincial Waterworks Authority, which has a collection period of no more than 30 days from the date of invoice.

Raw Materials and Supplies

As of December 31, 2019, the raw materials and supplies of the Company were valued at a total of THB 27.2 million, most of which consisted of chemicals used for tap water production at THB 7.5 million and spare parts for maintenance of the production system and water supply system at THB 19.7 million. The main chemicals used have an average turnover rate of no more than 3 months, while the spare parts for maintenance and repairs are kept in stock in accordance with established projections.

Investments in Associate Companies

As of December 31, 2019, the Company and its subsidiaries had investments in associate companies totaling THB 5,898.6 million, an increase of THB 1,242.1 million compared to December 31, 2018, due to the use of rights to purchase 165 million newly issued ordinary shares of CKP, with a value of THB 990.7 million from the warrants.

Other Long-term Investments

As of December 31, 2019, the Company and its subsidiaries held other long-term investments valued at a total of THB 18.5 million, a decrease of THB 10.2 million compared to December 31, 2018.

Property, Plant and Equipment

As of December 31, 2019, the Company and its subsidiaries held property, plant and equipment assets in the amount of THB 794.7 million, an increase of THB 6.2 million compared to December 31, 2018, due to an increase in plant and building improvements, furniture and office equipment, tools and other equipment.

Assets that are owned by the Company Assets that must be transferred at end of concession of subsidiary.

As of December 31, 2019, the Company and its subsidiaries had assets that are owned by the Company assets that must be transferred at end of concession of subsidiary. Said assets totaled THB 10,770.8 million, a decrease of THB 723.8 million compared to December 31, 2018, due to depreciation recorded for that period.

Rights to produce and sell treated water and treat waste water from private sector agency

As of December 31, 2019, the Company and its subsidiaries held rights to produce and sell treated water and treat waste water from private sector agency, totaling THB 1,132.4 million, a decrease of THB 55.7 million due to amortization recorded for that period.

Rights to produce and sell treated water from business acquisition

As of December 31, 2019, the value of rights to produce and sell treated water from business acquisition totaling THB 738.2 million, a decrease of THB 194.9 million due to amortization recorded for that period.

Liability Analysis

The majority of the liabilities of the Company and its subsidiaries consist of bank loans and the issuance of debentures, accounting for 93-94% of total liabilities. As of December 31, 2019, the Company and its subsidiaries had total liabilities equaling THB 10,033.3 million, most of which were loans and debentures. The loans, amounting to THB 3,360 million, have floating interest rates and fixed interest rates with a quarterly principal payment. Debentures, totaling THB 5,900 million, have fixed interest rates.

As of December 31, 2019, the Company and its subsidiaries had total liabilities amounting to THB 10,033.3 million, a decrease of THB 932.2 million compared to December 31, 2018, due to the Company's repayment of long-term loans and debentures due.

Shareholder Equity Analysis

As of December 31, 2019, the Company and its subsidiaries had shareholder equity of THB 13,124.8 million, an increase of THB 759.9 million compared to December 31, 2018. This is due to the Company's annual net profit of THB 3,147.3 million and dividend payment of THB 2,394.0 million.

Net Cash Flow

(Unit : MB)

Description	2019	2018	2017
Net cash from operating activities	3,977.8	3,844.1	3,417.2
Net cash from (used in) investing activities	(647.1)	(1,168.3)	1,734.4
Net cash used in financing activities	(3,353.5)	(2,893.3)	(5,081.1)
Net increase (decrease) in cash and cash equivalents	(22.8)	(217.5)	70.5

Cash Flow from Operating Activities

In 2018, the Company and its subsidiaries had a net cash flow from operating activities totaling THB 3,844.1 million, an increase of THB 426.9 million, or 12.5%, from the same period of the previous year due to an increase of THB 208.8 million in trade and other payables of the Company and an increase of THB 111.4 million in share of profits from investment in associate companies, while interest payments decreased by THB 33.4 million.

In 2019, the Company and its subsidiaries had a net cash flow from operating activities totaling THB 3,977.8 million, an increase of THB 133.7 million, or 3.5%, from the same period of the previous year due to an increase of THB 128.7 million in the Company's share of profits from investment in associate companies.

Cash Flow from (used in) Investment Activities

In 2018, the Company and its subsidiaries had cash flow used in investment activities totaling THB 1,168.3 million, an increase of THB 2,902.7 million, or 167.4%, from the same period of the previous year. This is because in 2018, there was an increase of THB 3,272.3 million in the temporary investments of the Company and its subsidiaries, a decrease of THB 383.9 million in public tap water production assets under ownership of the company, and a decrease of THB 69.9 million in dividend income.

In 2019, the Company and its subsidiaries had cash flow used in investment activities totaling THB 647.1 million, a decrease of THB 521.2 million, or 44.6%, from the same period of the previous year. This is because in 2019, the Company and its subsidiaries withdrew temporary investments totaling THB 1,640.9 million and increased its investments in associate companies by THB 990.7 million. Public tap water production assets under ownership of the Company increased by THB 106.2 million and dividend income increased by THB 10.2 million.

Cash Flow Used in Financing Activities

In 2018, the Company and its subsidiaries had cash flow used in financing activities totaling THB 2,893.3 million, a decrease from the same period of the previous year, due to the Company's use of deposits in the amount of THB 1,580 million to repay long-term loans ahead of schedule in 2017.

In 2019, the Company and its subsidiaries had cash flow used in financing activities totaling THB 3,353.5 million, an increase of THB 460.2 million from the same period of the previous year. Due to the Company repaid THB 1,500 million in debentures and issued debentures of THB 1,000 million.

Key Financial Ratios

Liquidity Ratio

The liquidity ratios for 2017, 2018, and 2019 were 1.60%, 1.66%, and 0.90% respectively. The Company and its subsidiaries have a good liquidity ratio overall and the majority of the current assets of the Company and its subsidiaries are cash and cash equivalents, current investments, and trade and other receivables. The liquidity in 2019 decreased due to long-term loans that are due for payment in May of 2020.

Profitability Ratio

The gross profit margin of the Company and its subsidiaries in 2017, 2018, and 2019 was 72.0%, 70.9%, and 70.6% respectively, with a slight decrease in the gross profit margin for 2019 compared to the same period of the previous year.

The net profit ratio of the Company and its subsidiaries in 2017, 2018, and 2019 was 46.6%, 48.1%, and 51.1% respectively. The net profit ratio increased in 2019 due to increased sales volume and reduced financial costs.

Efficiency Ratio

The return on total assets ratio of the Company and its subsidiaries in 2017, 2018, and 2019 was 11.5%, 12.3%, and 13.6% respectively, while the return on fixed assets of company and its subsidiaries in 2017, 2018 and 2019 was 17.4%, 19.9% and 23.4% respectively, which the return on fixed assets increased due to an increase in 2019 of the total net profits of the Company and its subsidiaries compared to the same period of the previous year.

Financial Policy Analysis Ratio

The debt to equity ratio of the Company and its subsidiaries in 2017, 2018, and 2019 was 1.0%, 0.9%, and 0.8% respectively, with a decrease in the debt to equity ratio at the end of 2019 compared to the end of 2018 due to the Company's gradual repayment of loans under contracts and debentures due.

Dividend payout ratios in 2017, 2018, and 2019 were 89.3%, 83.7%, and 76.1% respectively.

Contingent Liabilities

The Company has commitments as detailed in Notes to Financial Statements: Article 33.1 Capital Expenditure Commitments; Article 33.2 Service Commitments and Other Commitments; and Article 33.3 Operating Lease Commitments. The Company has prepared funding sources from borrowing and/or issuing debentures and/or cash from the Company's operations.

Financial Statements





Statement of financial position

TTW Public Company Limited and its subsidiaries

As at 31 December 2019

(Unit: Baht)

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
Assets					
Current assets					
Cash and cash equivalents	7	76,570,736	99,342,067	71,361,403	92,437,221
Current investments	8	3,035,146,734	3,499,881,399	2,252,002,603	2,826,763,704
Trade and other receivables	6, 9	564,935,313	564,547,712	385,761,884	394,436,339
Current portion of long-term loans to related party and interest receivable	6	-	-	57,177,576	289,856,969
Raw materials and supplies	10	27,203,379	28,007,231	15,505,281	16,761,155
Other current assets		26,834,644	24,546,799	19,819,391	20,517,180
Total current assets		3,730,690,806	4,216,325,208	2,801,628,138	3,640,772,568
Non-current assets					
Long-term loans to related party, net of current portion	6	-	-	114,300,000	171,440,000
Investments in subsidiaries	11	-	-	1,915,686,718	2,137,180,866
Investment in associate	12	5,898,575,219	4,656,517,530	5,218,706,282	4,228,013,282
Other long-term investments	13	18,525,000	28,725,000	-	-
Property, plant and equipment	14	794,731,564	788,502,280	729,443,114	725,203,269
Assets for production of treated water with public sector agency:					
Assets that are owned by the Company	15	9,209,922,045	9,560,793,199	9,209,922,045	9,560,793,199
Assets that must be transferred at end of concession of subsidiary	16	1,560,957,228	1,933,837,449	-	-
Rights to produce and sell treated water and treat waste water from private sector agency	17	1,132,361,681	1,188,114,421	1,132,361,681	1,188,114,421
Rights to produce and sell treated water from business acquisition	18	738,173,529	933,119,920	-	-
Intangible assets	19	13,723,623	2,884,132	-	-
Deferred tax assets	27	5,333,758	5,312,714	-	-
Advance payment to subcontractor - related party	6	46,693,920	1,325,300	46,693,920	1,325,300
Other non-current assets		8,425,283	14,917,078	6,393,371	11,605,799
Total non-current assets		19,427,422,850	19,114,049,023	18,373,507,131	18,023,676,136
Total assets		23,158,113,656	23,330,374,231	21,175,135,269	21,664,448,704

The accompanying notes are an integral part of the financial statements.



Statement of financial position (continued)

TTW Public Company Limited and its subsidiaries

As at 31 December 2019

(Unit: Baht)

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
Liabilities and shareholders' equity					
Current liabilities					
Trade and other payables	6, 20	159,504,289	134,318,672	104,406,998	95,095,991
Current portion of long-term loans	21	3,060,000,000	435,000,000	3,060,000,000	435,000,000
Current portion of debentures	22	500,000,000	1,500,000,000	500,000,000	1,500,000,000
Income tax payable		300,517,164	308,594,603	218,939,316	229,374,885
Accrued interest		74,172,239	97,438,155	74,172,239	97,438,155
Other current liabilities		70,396,726	69,368,930	47,705,673	47,105,342
Total current liabilities		4,164,590,418	2,544,720,360	4,005,224,226	2,404,014,373
Non-current liabilities					
Retention payable - subsidiary	6	-	-	5,000,000	5,000,000
Long-term loans, net of current portion	21	300,000,000	3,360,000,000	300,000,000	3,360,000,000
Debentures, net of current portion	22	5,395,839,598	4,895,795,356	5,395,839,598	4,895,795,356
Provision for long-term employee benefits	23	58,691,879	54,360,458	32,017,532	28,715,854
Deferred tax liabilities	27	114,176,349	110,644,485	87,917,010	82,980,854
Total non-current liabilities		5,868,707,826	8,420,800,299	5,820,774,140	8,372,492,064
Total liabilities		10,033,298,244	10,965,520,659	9,825,998,366	10,776,506,437

The accompanying notes are an integral part of the financial statements.



Statement of financial position (continued)

TTW Public Company Limited and its subsidiaries

As at 31 December 2019

(Unit: Baht)

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
Shareholders' equity					
Share capital					
Registered					
3,990,000,000 ordinary shares of Baht 1 each		<u>3,990,000,000</u>	<u>3,990,000,000</u>	<u>3,990,000,000</u>	<u>3,990,000,000</u>
Issued and fully paid-up					
3,990,000,000 ordinary shares of Baht 1 each		3,990,000,000	3,990,000,000	3,990,000,000	3,990,000,000
Share premium		2,637,769,601	2,637,769,601	2,637,769,601	2,637,769,601
Retained earnings					
Appropriated - statutory reserve	24	399,000,000	399,000,000	399,000,000	399,000,000
Appropriated - other reserve	25	1,691,230,767	1,691,230,767	1,691,230,767	1,691,230,767
Unappropriated		4,883,932,137	4,147,556,393	2,631,136,535	2,169,941,899
Other components of shareholders' equity		<u>(520,795,516)</u>	<u>(543,983,701)</u>	-	-
Equity attributable to owners of the Company		13,081,136,989	12,321,573,060	11,349,136,903	10,887,942,267
Non-controlling interests of the subsidiaries		<u>43,678,423</u>	<u>43,280,512</u>	-	-
Total shareholders' equity		<u>13,124,815,412</u>	<u>12,364,853,572</u>	<u>11,349,136,903</u>	<u>10,887,942,267</u>
Total liabilities and shareholders' equity		<u>23,158,113,656</u>	<u>23,330,374,231</u>	<u>21,175,135,269</u>	<u>21,664,448,704</u>
		-	-	-	-

The accompanying notes are an integral part of the financial statements.

Directors



Statement of comprehensive income

TTW Public Company Limited and its subsidiaries

For the year ended 31 December 2019

(Unit: Baht)

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
Profit or loss:					
Revenues					
Sales of treated water to public sector agency:					
Sales of treated water - minimum offtake quantities		5,085,877,040	5,049,710,504	3,421,141,241	3,408,495,304
Sales of treated water - above minimum offtake quantities		687,426,954	546,250,873	454,726,038	354,594,781
Sales of treated water to private sector agencies					
		220,114,991	211,444,728	220,114,991	211,444,728
Total sales of treated water	28	5,993,418,985	5,807,406,105	4,095,982,270	3,974,534,813
Service income		119,466,124	118,303,585	43,716,616	42,131,496
Interest income		14,176,972	11,257,842	22,015,680	37,057,042
Dividend income	11, 12	-	-	984,631,994	929,013,660
Other income		38,528,951	11,568,722	46,362,760	21,605,098
Total revenues		6,165,591,032	5,948,536,254	5,192,709,320	5,004,342,109
Expenses					
Cost of sales of treated water and services		1,794,674,181	1,722,234,676	1,025,454,878	1,011,001,001
Administrative expenses		251,618,218	280,326,180	207,837,206	229,721,740
Amortisation of investments in subsidiaries	11	-	-	221,494,148	221,494,148
Amortisation of rights to produce and sell treated water and treat waste water from private sector agency	17	55,752,740	53,494,667	55,752,740	53,494,667
Amortisation of rights to produce and sell treated water from business acquisition	18	194,946,391	195,432,749	-	-
Total expenses		2,296,991,530	2,251,488,272	1,510,538,972	1,515,711,556
Profit before share of profit from investment in associate, finance cost and income tax expenses					
Share of profit from investment in associate	12	280,254,547	151,624,962	-	-
Profit before finance cost and income tax expenses		4,148,854,049	3,848,672,944	3,682,170,348	3,488,630,553
Finance cost		(304,542,661)	(371,677,534)	(304,542,661)	(371,677,534)
Profit before income tax expenses		3,844,311,388	3,476,995,410	3,377,627,687	3,116,953,019
Income tax expenses	27	(696,977,417)	(616,091,619)	(522,724,742)	(450,321,097)
Profit for the year		3,147,333,971	2,860,903,791	2,854,902,945	2,666,631,922

The accompanying notes are an integral part of the financial statements.



Statement of comprehensive income (continued)

TTW Public Company Limited and its subsidiaries

For the year ended 31 December 2019

(Unit: Baht)

	<u>Consolidated financial statements</u>		<u>Separate financial statements</u>		
	<u>Note</u>	<u>2019</u>	<u>2018</u>	<u>2019</u>	<u>2018</u>
Other comprehensive income:					
<i>Other comprehensive income to be reclassified to profit or loss in subsequent periods:</i>					
Loss on change in value of available-for-sale investments					
- net of income tax		(160,000)	(220,000)	-	-
Share of other comprehensive income from associate		23,348,185	38,367,269	-	-
<i>Other comprehensive income not to be reclassified to profit or loss in subsequent periods</i>					
Actuarial gain - net of income tax		2,467,757	-	290,884	-
Other comprehensive income for the year		<u>25,655,942</u>	<u>38,147,269</u>	<u>290,884</u>	<u>-</u>
Total comprehensive income for the year		<u>3,172,989,913</u>	<u>2,899,051,060</u>	<u>2,855,193,829</u>	<u>2,666,631,922</u>
Profit attributable to:					
Equity holders of the Company		3,127,907,180	2,841,927,314	<u>2,854,902,945</u>	<u>2,666,631,922</u>
Non-controlling interests of the subsidiaries		19,426,791	18,976,477		
		<u>3,147,333,971</u>	<u>2,860,903,791</u>		
Total comprehensive income attributable to:					
Equity holders of the Company		3,153,563,122	2,880,074,583	<u>2,855,193,829</u>	<u>2,666,631,922</u>
Non-controlling interests of the subsidiaries		19,426,791	18,976,477		
		<u>3,172,989,913</u>	<u>2,899,051,060</u>		
Basic earnings per share	29				
Profit attributable to equity holders of the Company		<u>0.78</u>	<u>0.71</u>	<u>0.72</u>	<u>0.67</u>

The accompanying notes are an integral part of the financial statements.



Cash flows statement

TTW Public Company Limited and its subsidiaries

For the year ended 31 December 2019

(Unit: Baht)

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Cash flows from operating activities				
Profit before tax	3,844,311,388	3,476,995,410	3,377,627,687	3,116,953,019
Adjustments to reconcile profit before tax to net cash provided by (paid from) operating activities:				
Depreciation and amortisation	870,199,246	812,925,018	493,956,355	471,995,460
Amortisation of investments in subsidiaries	-	-	221,494,148	221,494,148
Amortisation of rights to produce and sell treated water from business acquisition	194,946,391	195,432,749	-	-
Amortisation of rights to produce and sell treated water and treat waste water from private sector agency	55,752,740	53,494,667	55,752,740	53,494,667
Gain on sales/written off of equipment	(644,727)	(788,010)	(262,823)	(795,577)
Share of profit from investment in associate	(280,254,547)	(151,624,962)	-	-
Dividend income	-	-	(984,631,994)	(929,013,660)
Withholding tax deducted at source written off	1,279,405	2,093,608	-	-
Allowance for doubtful accounts (reversal)	(230,840)	10,063,547	-	5,610,428
Provision for long-term employee benefits	8,416,317	14,463,821	4,338,882	7,397,230
Interest expenses	304,542,661	371,677,534	304,542,661	371,677,534
Profit from operating activities before changes in operating assets and liabilities	4,998,318,034	4,784,733,382	3,472,817,656	3,318,813,249
Operating assets (increase) decrease				
Trade and other receivables	(18,548,139)	(12,452,481)	(9,537,530)	(10,837,880)
Raw materials and supplies	803,852	(4,952,519)	1,255,874	(4,064,842)
Other current assets	799,378	2,864,719	697,789	2,381,599
Other non-current assets	5,212,431	31,436,687	5,212,428	31,436,689
Operating liabilities increase (decrease)				
Trade and other payables	17,427,693	7,318,071	9,321,283	9,300,881
Other current liabilities	1,027,796	688,711	600,331	598,439
Cash paid for long-term employee benefits	(1,000,200)	(356,330)	(673,600)	-
Cash from operating activities	5,004,040,845	4,809,280,240	3,479,694,231	3,347,628,135
Cash paid for interest expenses	(322,319,705)	(372,477,781)	(322,319,705)	(372,477,781)
Cash paid for income tax	(704,700,037)	(592,663,313)	(528,296,875)	(436,852,609)
Net cash from operating activities	3,977,021,103	3,844,139,146	2,629,077,651	2,538,297,745

The accompanying notes are an integral part of the financial statements.



Cash flows statement (continued)

TTW Public Company Limited and its subsidiaries

For the year ended 31 December 2019

(Unit: Baht)

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Cash flows from investing activities				
Decrease (increase) in current investments	483,126,043	(1,157,791,935)	593,152,479	(1,099,432,543)
Decrease in other long-term investments	10,000,000	-	-	-
Decrease in long-term loans to related party	-	-	289,640,000	367,140,000
Increase in investment in associate	(990,693,000)	-	(990,693,000)	-
Increase in property, plant and equipment	(23,316,992)	(21,319,576)	(20,383,723)	(18,493,919)
Increase in assets for production of treated water				
with public sector agency - assets that are owned by the Company	(125,617,480)	(19,431,879)	(125,617,480)	(19,431,879)
Increase in assets for production of treated water that must be transferred at the end of concession of subsidiary	-	(1,370,000)	-	-
Increase in rights to produce and sell treated water and treat waste water from private sector agency	-	(3,601,400)	-	(3,601,400)
Proceeds from sales of equipment	647,850	816,603	264,280	811,324
Increase in intangible assets	(6,000,000)	-	-	-
Dividend received	52,238,044	41,977,000	984,631,994	929,013,660
Increase in advance payment to subcontractor - related party	(46,693,920)	(7,605,850)	(46,693,920)	(7,605,850)
Net cash from (used in) investing activities	(646,309,455)	(1,168,327,037)	684,300,630	148,399,393
Cash flows from financing activities				
Cash received from bill of exchange	995,705,370	-	995,705,370	-
Repayment of bill of exchange	(1,000,000,000)	-	(1,000,000,000)	-
Repayment of long-term loans	(435,000,000)	(480,000,000)	(435,000,000)	(480,000,000)
Cash received from debentures	998,850,000	998,897,153	998,850,000	998,897,153
Repayment of debentures	(1,500,000,000)	(1,000,000,000)	(1,500,000,000)	(1,000,000,000)
Dividend paid	(2,394,009,469)	(2,394,072,370)	(2,394,009,469)	(2,394,072,370)
Dividend paid for non-controlling interests of the subsidiary	(19,028,880)	(18,103,200)	-	-
Net cash used in financing activities	(3,353,482,979)	(2,893,278,417)	(3,334,454,099)	(2,875,175,217)
Net decrease in cash and cash equivalents	(22,771,331)	(217,466,308)	(21,075,818)	(188,478,079)
Cash and cash equivalents at beginning of year	99,342,067	316,808,375	92,437,221	280,915,300
Cash and cash equivalents at end of year	76,570,736	99,342,067	71,361,403	92,437,221
	-	-	-	-

The accompanying notes are an integral part of the financial statements.



Cash flows statement (continued)

TTW Public Company Limited and its subsidiaries

For the year ended 31 December 2019

(Unit: Baht)

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Supplemental cash flows information				
Non-cash transactions				
Decrease in dividend payable	(10,276)	(72,462)	(10,276)	(72,462)
Decrease (increase) in accounts receivable from securities trading	18,391,378	(8,844,605)	18,391,378	(8,844,605)
Decrease in accounts payable from securities trading	-	-8,536,086	-	-8,536,086
Portion of advance payment to subcontractor deducted from payment for assets for production of treated water with public sector agency	1,325,300	6,280,550	1,325,300	6,280,550
Transfer property, plant and equipment from assets for production of treated water with public sector agency	-	(4,396,025)	-	(4,396,025)
Increase in acquisition of equipment payable	1,260,000	1,570,093	-	-
Increase in assets for production of treated water from construction payable	-	5,690,320	-	5,690,320
Increase in acquisition of intangible assets payable	6,000,000	-	-	-

The accompanying notes are an integral part of the financial statements.



Statement of changes in shareholders' equity (continued)

TTW Public Company Limited and its subsidiaries

For the year ended 31 December 2019

(Unit: Baht)

	Note	Separate financial statements						Total shareholders' equity
		Issued and paid-up share capital	Share premium	Retained earnings		Unappropriated	Total	
				Appropriated - statutory reserve	Appropriated - other reserve			
Balance as at 1 January 2018		3,990,000,000	2,637,769,601	399,000,000	1,691,230,767	1,897,309,885	10,615,310,253	
Profit for the year		-	-	-	-	2,666,631,922	2,666,631,922	
Other comprehensive income for the year		-	-	-	-	-	-	
Total comprehensive income for the year		-	-	-	-	2,666,631,922	2,666,631,922	
Dividend paid	32	-	-	-	-	(2,393,999,908)	(2,393,999,908)	
Balance as at 31 December 2018		<u>3,990,000,000</u>	<u>2,637,769,601</u>	<u>399,000,000</u>	<u>1,691,230,767</u>	<u>2,169,941,899</u>	<u>10,887,942,267</u>	
Balance as at 1 January 2019		3,990,000,000	2,637,769,601	399,000,000	1,691,230,767	2,169,941,899	10,887,942,267	
Profit for the year		-	-	-	-	2,854,902,945	2,854,902,945	
Other comprehensive income for the year		-	-	-	-	290,884	290,884	
Total comprehensive income for the year		-	-	-	-	2,855,193,829	2,855,193,829	
Dividend paid	32	-	-	-	-	(2,393,999,193)	(2,393,999,193)	
Balance as at 31 December 2019		<u>3,990,000,000</u>	<u>2,637,769,601</u>	<u>399,000,000</u>	<u>1,691,230,767</u>	<u>2,631,136,535</u>	<u>11,349,136,903</u>	

The accompanying notes are an integral part of the financial statements.



Notes to consolidated financial statements

TTW Public Company Limited and its subsidiaries

For the year ended 31 December 2019

1. General information

TTW Public Company Limited (“the Company”) is a public company incorporated and domiciled in Thailand. Its major shareholder is Mitsui Water Holdings (Thailand) Company Limited, which was incorporated in Thailand. The Company is principally engaged in the production and sale of treated water to the Provincial Waterworks Authority (“PWA”) in the Amphur Nakorn Chaisri, Amphur Sam Pran, and Amphur Budha Monthon areas of Nakhon Pathom and the Amphur Muang and Amphur Kratumban areas of Samut Sakhon, under the “Water Purchase Agreement” made with the PWA dated 21 September 2000 (An amendment agreement dated 29 December 2008), which covers a period of 30 years as from the Actual Commencement Date (21 July 2004), and under the Concession to operate treated water granted by the Ministry of Natural Resources and Environment (“the Concessionaire”) for a period of 25 years commencing on 11 March 2005. The Company has to comply with certain conditions as stipulated in the Water Purchase Agreement and the Concession.

The terms of the Concession include certain significant conditions, such as that when the Company has completed half of the concession period, if the government or the local government agency wish to purchase the water production business of the Company, the Concessionaire is entitled to cancel the concession in order to purchase it, or permit the relevant local government agency to purchase it, at market price. However, it must provide the Company with advance notice of six months of such action.

The Company’s registered office is at 30/130 Moo 12, Budha Monthon 5 Road, RaiKhing, Sam Pran, Nakhon Pathom.

On 3 July 2018, a meeting of the Company’s Board of Directors resolved to give the rectification to establishment of Myanmar Tap Water Company Limited (“MTW”) by Thai Water Operations Company Limited (“TWO”), a subsidiary of the Company, and Z Corporation Company Limited (“Z Corp”), which was a legal entity established in the Republic of the Union of Myanmar and which was not a related party of the Company. The registered share capital of MTW was USD 12 million in which TWO, holds a 70 percent interest and Z Corp holds a 30 percent interest. MTW invested in the Tap Water Project in Mawlamyine, the Republic of the Union of Myanmar. The value of investment in the Project was approximately USD 15 million (equivalent to approximately Baht 486 million). The government agency that oversaw the project has notified MTW to terminate the project. On 14 February 2019, the Executive Committee’s meeting of the Company passed a resolution ordering the subsidiary to dissolve MTW for that reason.

2. Basis of preparation

2.1 The financial statements have been prepared in accordance with Thai Financial Reporting Standards enunciated under the Accounting Profession Act B.E. 2547 and their presentation has been made in compliance with the stipulations of the Notification of the Department of Business Development dated 11 October 2016, issued under the Accounting Act B.E. 2543.

The financial statements in Thai language are the official statutory financial statements of the Company. The financial statements in English language have been translated from the Thai language financial statements.

The financial statements have been prepared on a historical cost basis except where otherwise disclosed in the accounting policies.

2.2 Basis of consolidation

a) The consolidated financial statements include the financial statements of TTW Public Company Limited (“the Company”) and the following subsidiary companies (“the subsidiaries”):

Company's name	Nature of business	Country of incorporation	Percentage of shareholding	
			2019	2018
			(%)	(%)
Pathum Thani Water Company Limited	Production and sale of treated water in Pathumthani	Thailand	98.0	98.0
Thai Water Operations Company Limited (31.5% held by Pathum Thani Water Company Limited)	Operating and maintenance of water supply project	Thailand	68.5	68.5

b) The Company is deemed to have control over an investee or subsidiaries if it has rights, or is exposed, to variable returns from its involvement with the investee, and it has the ability to direct the activities that affect the amount of its returns.

c) Subsidiaries are fully consolidated, being the date on which the Company obtains control, and continue to be consolidated until the date when such control ceases.

d) The financial statements of the subsidiaries are prepared using the same significant accounting policies as the Company.

e) Material balances and transactions between the Group have been eliminated from the consolidated financial statements.

f) Non-controlling interests represent the portion of profit or loss and net assets of the subsidiaries that are not held by the Company and are presented separately in the consolidated profit or loss and within equity in the consolidated statement of financial position.

2.3 The separate financial statements present investments in subsidiaries and associate under the cost method.

3. New financial reporting standards

(a) Financial reporting standards that became effective in the current period

During the year, the Group has adopted the revised (revised 2018) and new financial reporting standards and interpretations which are effective for fiscal years beginning on or after 1 January 2019. These financial reporting standards were aimed at alignment with the corresponding International Financial Reporting Standards with most of the changes directed towards clarifying accounting treatment and providing accounting guidance for users of the standards. The adoption of these financial reporting standards does not have any significant impact on the Company's and its subsidiaries' financial statements. However, the new standard involves changes to key principles, which are summarised below:

IFRS 15 Revenue from Contracts with Customers

IFRS 15 supersedes the following accounting standards together with related interpretations.

TAS 11 (revised 2017)	Construction Contracts
TAS 18 (revised 2017)	Revenue
TSIC 31 (revised 2017)	Revenue - Barter Transactions Involving Advertising Services
TFRIC 13 (revised 2017)	Customer Loyalty Programmes
TFRIC 15 (revised 2017)	Agreements for the Construction of Real Estate
TFRIC 18 (revised 2017)	Transfers of Assets from Customers

Entities are to apply this standard to all contracts with customers unless those contracts fall within the scope of other standards. The standard establishes a five-step model to account for revenue arising from contracts with customers, with revenue being recognised at an amount that reflects the consideration to which an entity expects to be entitled in exchange for transferring goods or services to a customer. The standard requires entities to exercise judgement, taking into consideration all of the relevant facts and circumstances when applying each step of the model.

This standard does not have any impact on the Group's financial statements.

(b) Financial reporting standards that became effective for fiscal years beginning on or after 1 January 2020

The Federation of Accounting Professions issued a number of new and revised financial reporting standards and interpretations, which are effective for fiscal years beginning on or after 1 January 2020. These financial reporting standards were aimed at alignment with the corresponding International Financial Reporting Standards with most of the changes directed towards clarifying accounting treatment and providing accounting guidance for users of the standards except the following new standards which involve changes to key principles, which are summarised below.

Financial reporting standards related to financial instruments

A set of TFRSs related to financial instruments consists of five accounting standards and interpretations, as follows:

Financial reporting standards:

TFRS 7	Financial Instruments: Disclosures
TFRS 9	Financial Instruments

Accounting standard:

TAS 32	Financial Instruments: Presentation
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Financial Reporting Standard Interpretations:

TFRIC 16	Hedges of a Net Investment in a Foreign Operation
TFRIC 19	Extinguishing Financial Liabilities with Equity Instruments

These TFRSs related to financial instruments make stipulations relating to the classification of financial instruments and their measurement at fair value or amortised cost (taking into account the type of instrument, the characteristics of the contractual cash flows and the Company's business model), calculation of impairment using the expected credit loss method, and hedge accounting. These include stipulations regarding the presentation and disclosure of financial instruments. When the TFRSs related to financial instruments are effective, some accounting standards, interpretations and guidance which are currently effective will be cancelled.

The management of the Group believes that adoption of these standards will not have any significant impact on the Group's financial statements.

TFRS 16 Leases

TFRS 16 supersedes TAS 17 Leases together with related Interpretations. The standard sets out the principles for the recognition, measurement, presentation and disclosure of leases, and requires a lessee to recognise assets and liabilities for all leases with a term of more than 12 months, unless the underlying asset is low value.

Accounting by lessors under TFRS 16 is substantially unchanged from TAS 17. Lessors will continue to classify leases as either operating or finance leases using similar principles to those used under TAS 17.

The Group plans to adopt TFRS 16 using the modified retrospective method of adoption of which the cumulative effect is recognised as an adjustment to the retained earnings as at 1 January 2020, and the comparative information was not restated.

The management of the Group expects the effect of the adoption of this accounting standard to the statement of financial position as at 1 January 2020 to be to increase the Group's assets by approximately Baht 40.8 million (the Company only: approximately Baht 38.9 million) and the Group's liabilities by approximately Baht 40.8 million (the Company only: approximately Baht 38.9 million).

4. Significant accounting policies

4.1 Revenues recognition

Sales of treated water

Sales of treated water are recognised when the Group supplies the water to the Provincial Waterworks Authority, and comprise the invoiced value, excluding value added tax, of the treated water supplied, after deducting discounts and allowances.

Service income

Service income presents the invoiced value, excluding value added tax, of services rendered.

Interest income

Interest income is recognised on an accrual basis based on the effective interest rate.

Dividends

Dividends are recognised when the right to receive the dividends is established.

Other income and expenses

Other income and expenses are recognised on an accrual basis.

4.2 Cash and cash equivalents

Cash and cash equivalents consist of cash in hand and at banks, and all highly liquid investments with an original maturity of three months or less and not subject to withdrawal restrictions.

4.3 Trade accounts receivable

Trade accounts receivable are stated at the net realisable value. Allowance for doubtful accounts is provided for the estimated losses that may be incurred in collection of receivables. The allowance is generally based on collection experience and analysis of debt aging.

4.4 Raw materials and supplies

Raw materials and supplies are valued at the lower of cost (under the first-in, first-out method) and net realisable value and are charged to treated water production costs whenever consumed.

4.5 Investments

- a) Investments in securities held for trading are stated at fair value. Changes in the fair value of these securities are recorded in profit or loss.
- b) Investment in available-for-sale securities are stated at fair value. Changes in the fair value of these securities are recorded in other comprehensive income, and will be recorded in profit or loss when the securities are sold.
- c) Investments in debt securities, both due within one year and expected to be held to maturity, are recorded at amortised cost. The premium/discount on debt securities is amortised/accreted by the effective rate method with the amortised/accreted amount presented as an adjustment to the interest income.
- d) Investment in associate is accounted for in the consolidated financial statements using the equity method.
- e) Investment in subsidiaries and associate are accounted for in the separate financial statements using the cost method.

The fair value of marketable securities is based on the latest bid price of the last working day of the year. The fair value of debt instruments is determined based on yield rates quoted by the Thai Bond Market Association. The fair value of unit trusts is determined from their net asset value.

The weighted average method is used for computation of the cost of investments.

On disposal of an investment, the difference between net disposal proceeds and the carrying amount of the investments is recognised in profit or loss.

4.6 Investments in subsidiaries

Investments in subsidiaries are accounted for in the separate financial statements using the cost method.

Investment costs of subsidiaries are the values paid for their acquisition. The subsidiary is engaged in business under the agreement for the production and sale of treated water with the Provincial Waterworks Authority and concessions granted by state enterprises or government agencies, which have defined fixed periods of operation, as stipulated in the agreement and concessions; and the subsidiary has committed to transfer most of its assets used in the operation to the Provincial Waterworks Authority. Hence, parts of the investment cost are deemed to be investments in the acquisition of rights to operate business under the agreement and concessions, and are amortised on a straight-line basis over the remaining periods of the agreements, commencing from the date of investment in the subsidiary. This amortised amount is presented as amortisation of investments in subsidiary, and recognised as an expense in profit or loss.

In addition, parts of the investment cost in the subsidiary to which the subsidiary transferred most of its operations after investment, in order to reduce future operating costs, was amounts paid for acquisition of such operations. These are amortised on a straight-line basis over the remaining period of the Water Purchase Agreement made between the Company and the Provincial Waterworks Authority, commencing from the date of investing in the subsidiary, and presented as amortisation of investments in subsidiary. The amortised amount is recognised as expense in profit or loss.

4.7 Property, plant and equipment/Depreciation

Land is stated at cost. Building and equipment are stated at cost less accumulated depreciation and allowance for loss on impairment of assets (if any).

Depreciation for assets is generally calculated by reference to their costs on the straight-line basis over estimated useful lives of 3, 5 and 10 years. However depreciation of the Company's assets used for production of treated water is calculated using the units of production method, based on the following formula:

$$\text{Depreciation for the period} = \text{Net assets for production of treated water at the beginning of the period} \times \text{Percentage of treated water produced in the period}$$
$$\text{Percentage of treated water produced in the period} = \frac{\text{Current period's actual production of treated water}}{\text{(Actual production of treated water for the period + Projected total production of treated water over the remaining term of the Water Purchase Agreement or the end of useful live of the assets for production of treated water)}}$$
$$\text{Net assets for production of treated water at the beginning of the period} = \text{Total assets for production of treated water as at the beginning of the period} - \text{Accumulated depreciation}$$

Assets for production of treated water consist of costs of construction of a water treatment plant and distribution system, and related interest expenses and financial costs.

Depreciation is included in determining income.

No depreciation is provided on land and assets under installation.

An item of property, plant and equipment is derecognised upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on disposal of an asset is included in profit or loss when the asset is derecognised.

4.8 Assets for production of treated water that must be transferred at end of concession and amortisation

Assets for production of treated water of Pathum Thani Water Company Limited that must be transferred to the Provincial Waterworks Authority at the end of the concession to produce and sell treated water (land, water treatment plant and distribution system) are stated at cost less accumulated amortisation and any impairment losses. Amortisation of assets for production of treated water is calculated using the units of production method, based on the following formula:

Amortisation for the period = Net assets for production of treated water that must be transferred at end of concession at the beginning of the period x Percentage of treated water produced in the period

Percentage of treated water produced in the period =
$$\frac{\text{Current period's actual production of treated water}}{(\text{Actual production of treated water for the period} + \text{Projected total production of treated water over the remaining term of concession for production and sale of treated water})}$$

Net assets for production of treated water that must be transferred at end of concession at the beginning of the period = Total assets for production of treated water that must be transferred at end of concession - Accumulated amortisation as at the beginning of the period

Amortisation is included in determining income.

No amortisation is provided on assets under installation.

4.9 Rights to produce and sell treated water and treat waste water and amortisation

The Company recorded cost of rights to produce and sell treated water and treat waste water (“Operation rights”) at cost as at the acquisition date, and allocated such cost in line with forecasted revenues calculated as at the acquisition date.

a) Rights to produce and sell treated water

Rights to produce and sell treated water are stated at cost less accumulated amortisation and any impairment losses. Amortisation of the rights is calculated using the units of production method, based on the following formula:

Amortisation for the period = Net rights to produce and sell treated water as at the beginning of the period x Percentage of treated water produced in the period

Percentage of treated water produced in the period =
$$\frac{\text{Current period's actual production of treatment water}}{\text{(Actual production of treated water for the period + Projected total production of treated water over the remaining term of operation rights)}}$$

Net rights to produce and sell treated water at the beginning of the period = Total rights to treated water - Accumulated amortisation as at the beginning of the period

Amortisation is included in determining income.

No amortisation is provided on construction in progress.

b) Rights to treat waste water

Rights to treat waste water are stated at cost less accumulated amortisation and any impairment losses. Amortisation of the rights is calculated using the units of production method, based on the following formula:

Amortisation for the period = Net rights to treat waste water at the beginning of the period x Percentage of waste water treatment in the period

Percentage of waste water treated in the period =
$$\frac{\text{Current period's actual treatment of waste water}}{\text{(Actual treatment of waste water for the period + Projected total treatment of waste water over the remaining term of operation rights)}}$$

Net rights to treat waste water at the beginning of the period = Total rights to treat waste water - Accumulated amortisation as at the beginning of the period

Amortisation is included in determining income.

No amortisation is provided on construction in progress.

4.10 Rights to produce and sell treated water from business acquisition and amortisation

Rights to produce and sell treated water, which arose as a result of the acquisition of ordinary shares in Pathum Thani Water Company Limited being made at a cost higher than the fair value of this subsidiary, is regarded as an intangible asset with a definite life. It is carried at cost less accumulated amortisation and any impairment losses.

The Company amortises it on a straight-line basis over the remaining period of the subsidiary's agreement for the production and sale of treated water, starting from the acquisition date, (approximately 16 years) and tested for impairment whenever there is an indication that it may be impaired. The amortisation period and the amortisation method for rights to produce and sell treated water are reviewed at least at each financial year end. The amortisation expense is charged to profit or loss.

4.11 Intangible assets

The intangible assets are assets for maintenance, management project, waste water treatment and sludge management system of the subsidiary are carried at cost less accumulated amortisation and any accumulated impairment losses.

Intangible assets with finite lives are amortised on a systematic basis over the economic useful life (5 years and 10 years) and tested for impairment whenever there is an indication that the intangible asset may be impaired. The amortisation period and the amortisation method of such intangible assets are reviewed at least at each financial year end. The amortisation expense is charged to profit or loss.

No amortisation is provided on intangible assets under installation.

4.12 Related party transactions

Related parties comprise individuals or enterprises that control, or are controlled by, the Company, whether directly or indirectly, or which are under common control with the Company.

They also include associated companies, and individuals or enterprises which directly or indirectly own a voting interest in the Company that gives them significant influence over the Company, key management personnel, directors and officers with authority in the planning and direction of the Company's operations.

4.13 Long-term leases

Leases of property, plant or equipment which transfer substantially all the risks and rewards of ownership are classified as finance leases. Finance leases are capitalised at the lower of the fair value of the leased assets and the present value of the minimum lease payments. The outstanding rental obligations, net of finance charges, are included in long-term payables, while the interest element is charged to profit or loss over the lease period. The assets acquired under finance leases are depreciated over the shorter of the useful life of the asset and the lease period.

Leases of property, plant or equipment which do not transfer substantially all the risks and rewards of ownership are classified as operating leases. Operating lease payments are recognised as an expense in profit or loss on a straight line basis over the lease term.

4.14 Impairment of assets

At the end of each reporting period, the Group performs impairment reviews in respect of the property, plant and equipment and other intangible assets whenever events or changes in circumstances indicate that an asset may be impaired. The Company and its subsidiaries also carry out annual impairment reviews in respect of rights to produce and sell treated water. An impairment loss is recognised when the recoverable amount of an asset, which is the higher of the asset's fair value less costs to sell and its value in use, is less than the carrying amount.

An impairment loss is recognised in profit or loss.

4.15 Employee benefits

Short-term employee benefits

Salaries, wages, bonuses and contributions to the social security fund are recognised as expenses when incurred.

Post-employment benefits

Defined contribution plans

The Group and its employees have jointly established a provident fund. The fund is monthly contributed by employees and by the Group. The fund's assets are held in a separate trust fund and the Group's contribution is recognised as expenses when incurred.

Defined benefit plans

The Group has obligations in respect of the severance payments it must make to employees upon retirement under labor law. The Group treats these severance payment obligations as a defined benefit plan.

The obligation under the defined benefit plan is determined by a professionally qualified independent actuary based on actuarial techniques, using the projected unit credit method.

Actuarial gains and losses arising from defined benefit plans are recognised immediately in other comprehensive income.

4.16 Provisions

Provisions are recognised when the Group has a present obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

4.17 Income tax

Income tax expense represents the sum of corporate income tax currently payable and deferred tax.

Current tax

Current income tax is provided in the accounts at the amount expected to be paid to the taxation authorities, based on taxable profits determined in accordance with tax legislation.

Deferred tax

Deferred income tax is provided on temporary differences between the tax bases of assets and liabilities and their carrying amounts at the end of each reporting period, using the tax rates enacted at the end of the reporting period.

The Group recognises deferred tax liabilities for all taxable temporary differences while they recognise deferred tax assets for all deductible temporary differences and tax losses carried forward to the extent that it is probable that future taxable profit will be available against which such deductible temporary differences and tax losses carried forward can be utilised.

At each reporting date, the Group reviews and reduces the carrying amount of deferred tax assets to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilised.

The Group records deferred tax directly to shareholders' equity if the tax relates to items that are recorded directly to shareholders' equity.

4.18 Hedge accounting - Cash flow hedges

Associate applies hedge accounting when the risk that has been hedged can be clearly identified and the effectiveness of the hedge can be measured.

Gains or losses arising from changes in the fair value of hedging instruments that effectively hedge exposure to fluctuations in cash flows that are either attributable to a particular risk associated with financial asset, financial liability, or highly probable forecast transactions, are recognised directly in other comprehensive income and transferred to be recognised in profit or loss when the hedged cash flow transactions occur. However, if the hedging instruments are not effective, any gains or losses from changes in the fair value of the hedging instruments are recognised immediately to profit or loss.

4.19 Fair value measurement

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between buyer and seller (market participants) at the measurement date. The Group applies a quoted market price in an active market to measure their assets and liabilities that are required to be measured at fair value by relevant financial reporting standards. Except in case of no active market of an identical asset or liability or when a quoted market price is not available, the Group measures fair value using valuation technique that are appropriate in the circumstances and maximises the use of relevant observable inputs related to assets and liabilities that are required to be measured at fair value.

All assets and liabilities for which fair value is measured or disclosed in the financial statements are categorised within the fair value hierarchy into three levels based on categorise of input to be used in fair value measurement as follows:

- Level 1 - Use of quoted market prices in an active market for such assets or liabilities
- Level 2 - Use of other observable inputs for such assets or liabilities, whether directly or indirectly
- Level 3 - Use of unobservable inputs such as estimates of future cash flows

At the end of each reporting period, the Group determines whether transfers have occurred between levels within the fair value hierarchy for assets and liabilities held at the end of the reporting period that are measured at fair value on a recurring basis.

5. Significant accounting judgements and estimates

The preparation of financial statements in conformity with financial reporting standards at times requires management to make subjective judgements and estimates regarding matters that are inherently uncertain. These judgements and estimates affect reported amounts and disclosures, and actual results could differ from these estimates. Significant judgements and estimates are as follows:

Assets for production of treated water and rights to produce and sell treated water and treat waste water

In determining recognised the amortisation expenses of the assets for the production of treated water, the rights to produce, sell treated water and treat waste water of the Company and the assets that must be transferred at the end of concession of the subsidiary. The Group used the units of production method which required an estimate of the number of units of treated water to be produced in the future, until the end of the concession period or the end of the operation contract or the end of useful live of the assets for the production of treated water of the Company or the end of the concession period of the subsidiary. The management must use judgement to estimate the amount of future production, based on present production volumes, production capacity, demand from customers, economic and industry conditions. This affect the amount of the amortisation expenses.

6. Related party transactions

During the years, the Group had significant business transactions with related parties. Such transactions, which are summarised below, arose in the ordinary course of business and were concluded on commercial terms and bases agreed upon between the Company and those related parties.

(Unit: Thousand Baht)

	Consolidated		Separate		Transfer pricing policy
	financial statements		financial statements		
	2019	2018	2019	2018	
<u>Transactions with subsidiary companies</u>					
(eliminated from the consolidated financial statements)					
Interest income	-	-	13,664	29,562	Minimum Loan Rate minus stipulated margin per annum
Management income	-	-	15,600	15,600	Based on contract
Dividend income	-	-	932,394	887,037	As declared
Cost of sales and services	-	-	36,897	36,444	Based on contract
<u>Transaction with associate</u>					
Dividend income	-	-	52,238	41,977	As declared

(Unit: Thousand Baht)

	Consolidated		Separate		Transfer pricing policy
	financial statements		financial statements		
	2019	2018	2019	2018	
<u>Transactions with related parties</u>					
Sales of treated water	51,779	46,904	51,779	46,904	Based on contract
Service income	3,680	3,232	3,680	3,232	Based on contract
Improvement of water supply pumping system expenses	6,627	31,403	6,627	31,403	Based on contract
Improvement of water supply and distribution system	117,466	-	117,466	-	Based on contract
Cost of sales and services	5,368	3,713	5,346	3,713	Based on contract
Electricity expenses	7,161	-	7,161	-	Based on contract
Purchase of raw materials	8,344	1,769	8,344	1,769	Selling prices as specified

As at 31 December 2019 and 2018, the balances of the accounts between the Company and those related companies are as follows:

	(Unit: Thousand Baht)			
	Consolidated		Separate	
	financial statements	financial statements	financial statements	financial statements
	2019	2018	2019	2018
<u>Trade and other receivables - related parties (Note 9)</u>				
Subsidiaries	-	-	1,391	1,391
Related companies (related by shareholders or committees)	4,177	4,515	4,177	4,515
Related companies (entities under the group of Companies of the shareholders)	-	3,954	-	3,954
Total trade and other receivables - related parties	4,177	8,469	5,568	9,860
<u>Advance payment to subcontractor - related party</u>				
Related company (related by committees)	46,694	1,325	46,694	1,325
Total advance payment to subcontractor - related party	46,694	1,325	46,694	1,325
<u>Trade and other payables - related parties (Note 20)</u>				
Subsidiaries	-	-	3,279	3,262
Related companies (related by shareholders or committees)	20,366	9,039	20,366	9,039
Related companies (entities under the group of Companies of the shareholders)	1,954	583	1,954	583
Total trade and other payables - related parties	22,320	9,622	25,599	12,884
<u>Retention payable - subsidiary</u>				
	-	-	5,000	5,000
	-	-	5,000	5,000

Long-term loans to related party

As at 31 December 2019 and 2018, the balance of long-term loans between the Company and a related party and the movement are as follows:

(Unit: Thousand Baht)

Company's name	Related by	Separate financial statements			Balance as at 31 December 2019
		Balance as at 1 January 2019	Increase during the year	Decrease during the year	
Pathum Thani Water Company Limited	Subsidiary				
Loan		461,080	-	(289,640)	171,440
Interest receivable		217	13,664	(13,843)	38
Total		461,297			171,478

(Unit: Thousand Baht)

	Separate financial statements	
	2019	2018
<u>Long-term loans to related party and interest receivable</u>		
Pathum Thani Water Company Limited		
Loan	171,440	461,080
Interest receivable	38	217
Total	171,478	461,297
<u>Less: Current portion and interest receivable</u>	<u>(57,178)</u>	<u>(289,857)</u>
Long-term loans to related party, net of current portion	114,300	171,440

Long-term loans to subsidiary were subject to interest at the Minimum Loan Rate minus a stipulated margin (MLR - margin) per annum. Repayment is to be made in quarterly installments and due in full within December 2022.

Directors and management's benefits

During the years ended 31 December 2019 and 2018, the Group had employee benefit expenses payable to their directors and management as below.

(Unit: Thousand Baht)

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Short-term employee benefits	62,406	64,415	47,748	49,101
Post-employment benefits	2,371	2,299	1,245	2,002
Total	64,777	66,714	48,993	51,103

7. Cash and cash equivalents

	(Unit: Thousand Baht)			
	Consolidated		Separate	
	financial statements		financial statements	
	2019	2018	2019	2018
Cash	493	455	136	97
Bank deposits	76,078	98,887	71,225	92,340
Total	76,571	99,342	71,361	92,437

As at 31 December 2019 and 2018, bank deposits in saving accounts and fixed deposits carried interests between 0.125% and 0.750% per annum.

8. Current investments

The balances of current investments represent investments in trading securities and the 4 - 12 month fixed deposits, carrying interests and return on investments between 0.650% and 1.850% per annum (2018: between 0.650% and 1.853% per annum). The Company had maintained the fixed deposits according to the addition amendment of the agreement to the concession to operate treated water as described in Note 25.

	(Unit: Thousand Baht)			
	Consolidated		Separate	
	financial statements		financial statements	
	2019	2018	2019	2018
Fixed deposits over 3 month but less than 1 year	755,256	715,216	475,256	455,216
	755,256	715,216	475,256	455,216
Investments in trading securities at fair value				
Government and state enterprise bonds	-	819,392	-	819,392
Private sector debt securities	2,279,891	1,879,619	1,776,747	1,466,502
Marketable equity securities	-	85,654	-	85,654
	2,279,891	2,784,665	1,776,747	2,371,548
Total current investments	3,035,147	3,499,881	2,252,003	2,826,764

9. Trade and other receivables

(Unit: Thousand Baht)

	Consolidated		Separate	
	financial statements		financial statements	
	2019	2018	2019	2018
<u>Trade receivables - related parties</u>				
Aged on the basis of due dates				
Not yet due	4,171	4,491	4,171	4,491
Past due				
Up to 3 months	6	24	6	24
Total trade receivables - related parties	4,177	4,515	4,177	4,515
<u>Trade receivables - unrelated parties</u>				
Aged on the basis of due dates				
Not yet due	550,820	533,617	371,634	362,678
Past due				
Up to 3 months	7,770	2,225	7,770	2,225
Total trade receivables - unrelated parties	558,590	535,842	379,404	364,903
Total trade receivables	562,767	540,357	383,581	369,418
<u>Other receivables</u>				
Other receivables - related parties	-	3,954	1,391	5,345
Other receivables - unrelated parties	19,896	20,138	11,221	11,221
Interest receivables - unrelated parties	2,168	1,835	790	1,282
Other receivables from securities trading	-	18,391	-	18,391
Total other receivables	22,064	44,318	13,402	36,239
Less: Allowance for doubtful debts	(19,896)	(20,127)	(11,221)	(11,221)
Total other receivables - net	2,168	24,191	2,181	25,018
Total trade and other receivables - net	564,935	564,548	385,762	394,436

10. Raw materials and supplies

(Unit: Thousand Baht)

	Consolidated		Separate	
	financial statements		financial statements	
	2019	2018	2019	2018
Raw materials	7,539	7,581	5,377	5,381
Spare parts	19,664	20,426	10,128	11,380
Total	27,203	28,007	15,505	16,761

11. Investments in subsidiaries

Details of investments in subsidiaries as presented in separate financial statements are as follows:

Company's name	Paid-up capital		Shareholding percentage		Cost		(Unit: Thousand Baht) Dividend received during the year	
	2019	2018	2019	2018	2019	2018	2019	2018
			(%)	(%)				
Pathum Thani Water Company Limited	1,200,000	1,200,000	98.0	98.0	3,998,310	3,998,310	932,394	887,037
Thai Water Operations Company Limited	60,000	60,000	68.5	68.5	700,000	700,000	-	-
					4,698,310	4,698,310	932,394	887,037
<u>Less:</u> Accumulated amortisation of investments in subsidiaries					(2,762,623)	(2,541,129)	-	-
<u>Less:</u> Dividend received from income before purchase of shares					(20,000)	(20,000)	-	-
Total					1,915,687	2,137,181	932,394	887,037

12. Investment in associate

		(Unit: Thousand Baht)						
		Consolidated financial statements				Carrying amounts based on equity method		
Company's name	Nature of business	Country of incorporation	Shareholding percentage		Cost			
			2019 (%)	2018 (%)	2019	2018		
CK Power Public Company Limited	Making investment in other companies	Thailand	24.98	25.31	5,218,706	4,228,013	5,898,575	4,656,518
Total					5,218,706	4,228,013	5,898,575	4,656,518

		(Unit: Thousand Baht)						
		Separate financial statements				Carrying amounts based on cost method		
Company's name	Nature of business	Country of incorporation	Shareholding percentage		Cost			
			2019 (%)	2018 (%)	2019	2018		
CK Power Public Company Limited	Making investment in other companies	Thailand	24.98	25.31	5,218,706	4,228,013	5,218,706	4,228,013
Total					5,218,706	4,228,013	5,218,706	4,228,013

12.1 Share of comprehensive income and dividend received

During the years, the Company has recognised its share of profit from investment in associate company in the consolidated financial statements and dividend income in the separate financial statements as follows:

Associate	Consolidated financial statements				(Unit: Thousand Baht) Separate financial statements	
	Share of profit from investment in associate during the years		Share of profit from investment in associate as presented in other comprehensive income during the years		Dividend received during the years	
	2019	2018	2019	2018	2019	2018
CK Power Public Company Limited	280,254	151,625	23,348	38,367	52,238	41,977
Total	280,254	151,625	23,348	38,367	52,238	41,977

12.2 Fair value of investment in listed associate

In respect of investment in associate that is listed company on the Stock Exchange of Thailand, its fair value is as follows:

Associate	(Unit: Thousand Baht) Fair values as at 31 December	
	2019	2018
CK Power Public Company Limited	10,072,569 ⁽¹⁾	9,253,596
Total	10,072,569	9,253,596

⁽¹⁾ Excluding the fair value of warrants amounting to Baht 104 million (2018: Baht 250 million).

12.3 Summarised financial information about material associate

Summarised information about financial position

	(Unit: Thousand Baht) CK Power Public Company Limited	
	2019	2018
Current assets	6,606,236	6,272,655
Non-current assets	57,584,694	56,230,452
Current liabilities	(3,393,751)	(2,487,714)
Non-current liabilities	(25,250,474)	(28,493,389)
Net assets	35,546,705	31,522,004
Equity attributable to non-controlling interest of the associate	(11,998,021)	(13,188,572)
Net assets of the Company	23,548,684	18,333,432
Shareholding percentage	24.98%	25.31%
Share of net assets	5,882,461	4,640,191
Goodwill	16,114	16,327
Carrying amounts of associate based on equity method	5,898,575	4,656,518

Summarised information about comprehensive income

(Unit: Thousand Baht)

	CK Power Public Company Limited	
	For the years ended 31 December	
	2019	2018
Revenue	8,842,504	9,116,463
Profit	1,082,823	1,364,056
Other comprehensive income	(46,815)	243,706
Total comprehensive income	1,036,008	1,607,761

12.4 In May 2015, the Company received, at no cost, 490.64 million warrants to purchase newly issued ordinary shares at a ratio of 1 warrant to 1 ordinary share, and subsequently the associate adjusted the exercise ratio to 1 warrant to 1.0007 ordinary share with an exercise price of Baht 6 per share. The warrants have a term of 5 years from the date they were issued and offered and can be exercised every 3 months, beginning on 30 September 2015 and with the final exercise date on 28 May 2020.

In September 2019, the Company exercised 165 million warrants to purchase 165.12 million newly issued ordinary shares of CK Power Public Company Limited at the exercise price of Baht 6 per share, or for a total of Baht 990.7 million. However, there are the other shareholders of this associate company who also have warrants exercising their rights to purchase new ordinary shares. As a result, the Company's interest in the equity of this company decreased from 25.31 percent to 24.98 percent and the Company recorded gain on change in proportion of interest of Baht 87 million under the account "Share of profit from investment in associate" in the statement of comprehensive income.

13. Other long-term investment

The Board of Director's meeting of Thai Water Operations Company Limited ("subsidiary") approved investment in mutual funds, and/or government and/or state enterprise and/or private sector debt securities, the subsidiary has made investments in debentures that management intend to hold to maturity and investments in real estate investment trust that management intend to hold as available-for-sale securities, as follows:

Debentures	Life	Maturity date	Interest rate (% per annum)	(Unit: Thousand Baht) Consolidated financial statements	
				2019	2018
1	3 years	28 October 2019	4.20	-	10,000
2	5 years	2 December 2021	4.50	5,000	5,000
3	5 years	6 October 2022	4.10	9,000	9,000
Total investments in debentures				14,000	24,000
Investment in available-for-sale securities at fair value					
Real estate investment trust				5,000	5,000
Less: Unrealised loss on changes in value of investments				(475)	(275)
Real estate investment trust - net				4,525	4,725
Total other long-term investments				18,525	28,725

14. Property, plant and equipment

(Unit: Thousand Baht)

	Consolidated financial statements						Total
	Land	Construction in progress	Building and building improvement	Furniture and office equipment	Motor vehicles	Tools	
Cost:							
1 January 2018	707,161	773	61,703	143,882	24,909	26,085	964,513
Additions	-	2,707	7,941	11,069	41	1,130	22,888
Disposals/written off	-	-	-	(3,274)	(2,199)	-	(5,473)
Transfer in (out)	-	(1,153)	1,153	-	-	-	-
Reclassify	100	1,290	1,688	1,318	-	-	4,396
31 December 2018	707,261	3,617	72,485	152,995	22,751	27,215	986,324
Additions	-	4,149	2,960	15,634	1,130	1,478	25,351
Disposals/written off	-	-	-	(15,253)	(2,403)	-	(17,656)
Transfer in (out)	-	(2,844)	191	2,653	-	-	-
Adjustment	-	(773)	-	-	-	-	(773)
31 December 2019	707,261	4,149	75,636	156,029	21,478	28,693	993,246
Accumulated depreciation:							
1 January 2018	-	-	23,875	117,374	23,596	23,758	188,603
Depreciation for the year	-	-	4,724	8,456	563	920	14,663
Depreciation on disposals/written off	-	-	-	(3,245)	(2,199)	-	(5,444)
31 December 2018	-	-	28,599	122,585	21,960	24,678	197,822
Depreciation for the year	-	-	6,088	10,791	419	1,046	18,344
Depreciation on disposals/written off	-	-	-	(15,249)	(2,403)	-	(17,652)
31 December 2019	-	-	34,687	118,127	19,976	25,724	198,514
Net book value:							
31 December 2018	707,261	3,617	43,886	30,410	791	2,537	788,502
31 December 2019	707,261	4,149	40,949	37,902	1,502	2,969	794,732
Depreciation for the year							
2018 (Baht 6 million included in cost of sales of treated water and service, and the remaining balance in administrative expenses)							14,663
2019 (Baht 8 million included in cost of sales of treated water and service, and the remaining balance in administrative expenses)							18,344

Separate financial statements

	Land	Construction in progress	Building and building improvement	Furniture and office equipment	Motor vehicles	Tools	Total
Cost:							
1 January 2018	652,429	773	61,703	93,468	14,645	11,697	834,715
Additions	-	2,707	7,941	7,393	-	453	18,494
Disposals/written off	-	-	-	(2,681)	(2,158)	-	(4,839)
Transfer in (out)	-	(1,153)	1,153	-	-	-	-
Reclassify	100	1,290	1,688	1,318	-	-	4,396
31 December 2018	652,529	3,617	72,485	99,498	12,487	12,150	852,766
Additions	-	4,149	2,960	12,681	1,019	348	21,157
Disposals/written off	-	-	-	(7,502)	(734)	-	(8,236)
Transfer in (out)	-	(2,844)	191	2,653	-	-	-
Adjustment	-	(773)	-	-	-	-	(773)
31 December 2019	652,529	4,149	75,636	107,330	12,772	12,498	864,914
Accumulated depreciation:							
1 January 2018	-	-	23,875	71,376	13,631	10,968	119,850
Depreciation for the year	-	-	4,724	7,161	340	311	12,536
Depreciation on disposals/written off	-	-	-	(2,665)	(2,158)	-	(4,823)
31 December 2018	-	-	28,599	75,872	11,813	11,279	127,563
Depreciation for the year	-	-	6,088	9,344	374	336	16,142
Depreciation on disposals/written off	-	-	-	(7,500)	(734)	-	(8,234)
31 December 2019	-	-	34,687	77,716	11,453	11,615	135,471
Net book value:							
31 December 2018	652,529	3,617	43,886	23,626	674	871	725,203
31 December 2019	652,529	4,149	40,949	29,614	1,319	883	729,443
Depreciation for the year							
2018 (Baht 5 million included in cost of sales of treated water and service, and the remaining balance in administrative expenses)							12,536
2019 (Baht 7 million included in cost of sales of treated water and service, and the remaining balance in administrative expenses)							16,142

As at 31 December 2019, certain items of plant and equipment were fully depreciated but are still in use. The gross carrying amount before deducting accumulated depreciation of those assets amounted to approximately Baht 152 million (Separate financial statements: Baht 92 million) (2018: Baht 160 million, Separate financial statements: Baht 92 million).

15. Assets for production of treated water with public sector agency - assets that are owned by the Company

(Unit: Thousand Baht)

	Consolidated/Separate financial statements		
	Water treatment plant and distribution treated water system	Construction in progress	Total
Cost:			
1 January 2018	14,381,471	4,296	14,385,767
Additions	-	31,403	31,403
Reclassify	(100)	(4,296)	(4,396)
31 December 2018	14,381,371	31,403	14,412,774
Additions	9,477	117,466	126,943
Reclassify	31,403	(31,403)	-
31 December 2019	14,422,251	117,466	14,539,717
Accumulated amortisation:			
1 January 2018	4,392,521	-	4,392,521
Amortisation for the year	459,460	-	459,460
31 December 2018	4,851,981	-	4,851,981
Amortisation for the year	477,814	-	477,814
31 December 2019	5,329,795	-	5,329,795
Net book value:			
31 December 2018	9,529,390	31,403	9,560,793
31 December 2019	9,092,456	117,466	9,209,922
Amortisation for the year			
2018			459,460
2019			477,814

Amortisation of such assets for production of treated water has been included as part of cost of sales of treated water.

16. Assets for production of treated water with public sector agency - assets that must be transferred at end of concession of subsidiary

(Unit: Thousand Baht)

	Consolidated financial statements		
	Land	Water treatment plant and distribution treated water system	Total
Cost:			
1 January 2018	413,401	6,546,979	6,960,380
Additions	-	1,370	1,370
31 December 2018	413,401	6,548,349	6,961,750
31 December 2019	413,401	6,548,349	6,961,750
Accumulated amortisation:			
1 January 2018	314,602	4,375,670	4,690,272
Amortisation for the year	17,067	320,574	337,641
31 December 2018	331,669	4,696,244	5,027,913
Amortisation for the year	17,067	355,813	372,880
31 December 2019	348,736	5,052,057	5,400,793
Net book value:			
31 December 2018	81,732	1,852,105	1,933,837
31 December 2019	64,665	1,496,292	1,560,957
Amortisation for the year			
2018			337,641
2019			372,880

Amortisation of such assets for production of treated water has been included as part of cost of sales of treated water.

Assets for production of treated water of Pathum Thani Water Company Limited will be transferred to the Provincial Waterworks Authority after the end of the 25-year concession to produce and sell treated water. The concession will be expired in 2023.

17. Rights to produce and sell treated water and treat waste water from private sector agency

The net book value of rights to produce and sell treated water and treat waste water from private sector agency as at 31 December 2019 and 2018 is presented below.

(Unit: Thousand Baht)

	Consolidated / Separate financial statements			
	Rights	Machinery and equipment	Construction in progress	Total
As at 31 December 2019:				
Cost	1,410,075	154,350	-	1,564,425
Less: Accumulated amortisation/depreciation	(414,789)	(17,274)	-	(432,063)
Net book value	995,286	137,076	-	1,132,362
As at 31 December 2018:				
Cost	1,410,075	154,350	-	1,564,425
Less: Accumulated amortization/depreciation	(365,914)	(10,397)	-	(376,311)
Net book value	1,044,161	143,953	-	1,188,114

A reconciliation of the net book of right to produce and sell treated water and treat waste water from private sector agency for the years 2019 and 2018 is presented below.

(Unit: Thousand Baht)

	Consolidated / Separate financial statements			
	Rights	Machinery and equipment	Construction in progress	Total
Net book value as at 1 January 2018	1,091,138	143,042	3,828	1,238,008
Acquisitions at cost	-	3,601	-	3,601
Transfer in (out)	-	3,828	(3,828)	-
Amortisation/depreciation for the year	(46,977)	(6,518)	-	(53,495)
Net book value as at 31 December 2018	1,044,161	143,953	-	1,188,114
Amortisation/depreciation for the year	(48,875)	(6,877)	-	(55,752)
Net book value as at 31 December 2019	995,286	137,076	-	1,132,362

During the year 2018, the Company had construction in progress to produce, sell treated water and treat waste water from private sector. These assets must be transferred to the owner of the rights after the end of the 30-year concession. The concession will be expired in 2039.

18. Rights to produce and sell treated water from business acquisition

(Unit: Thousand Baht)

	Consolidated financial statements	
	2019	2018
Rights to produce and sell treated water from business acquisition	3,169,109	3,169,109
Less: Accumulated amortisation of rights to produce and sell treated water from business acquisition	(2,430,935)	(2,235,989)
Rights to produce and sell treated water from business acquisition, net	<u>738,174</u>	<u>933,120</u>

19. Intangible assets

The net book value of intangible assets as at 31 December 2019 and 2018 is presented below.

(Unit: Thousand Baht)

	Consolidated financial statements		
	Waste water treatment system	Sludge management system under installation	Total
As at 31 December 2019			
Cost	14,104	12,000	26,104
Less: Accumulated amortisation	(12,380)	-	(12,380)
Net book value	<u>1,724</u>	<u>12,000</u>	<u>13,724</u>
As at 31 December 2018			
Cost	14,104	-	14,104
Less: Accumulated amortisation	(11,220)	-	(11,220)
Net book value	<u>2,884</u>	<u>-</u>	<u>2,884</u>

A reconciliation of the net book value of intangible assets for the years 2019 and 2018 is presented below.

(Unit: Thousand Baht)

	Consolidated financial statements		
	Waste water treatment system	Sludge management system under installation	Total
Net book value as at 1 January 2018	4,045	-	4,045
Amortisation	(1,161)	-	(1,161)
Net book value as at 31 December 2018	2,884	-	2,884
Acquisition at cost	-	12,000	12,000
Amortisation	(1,160)	-	(1,160)
Net book value as at 31 December 2019	<u>1,724</u>	<u>12,000</u>	<u>13,724</u>

20. Trade and other payables

	(Unit: Thousand Baht)			
	Consolidated		Separate	
	financial statements		financial statements	
	2019	2018	2019	2018
Trade payables - related party	1,954	583	5,233	3,845
Trade payables - unrelated parties	19,461	21,054	4,128	11,992
Amounts due to related parties	526	521	526	521
Amounts due to unrelated parties	27,014	19,450	21,509	14,895
Construction payable - related party	7,994	6,089	7,994	6,089
Construction payable - unrelated parties	7,768	143	-	143
Retention payable for contract work - related party	10,688	2,429	10,688	2,429
Retention payable for contract work - unrelated parties	4,314	5,550	3,491	4,841
Accrued expenses - related party	1,158	-	1,158	-
Accrued expenses - unrelated parties	78,627	78,500	49,680	50,341
Total trade and other payables	159,504	134,139	104,407	95,096

21. Long-term loans

Loan	Interest rate (%)	Repayment schedule	(Unit: Thousand Baht)		
			Consolidated / Separate		
			financial statements		
			2019	2018	
1.	The 6-month and 12-month fixed deposit rate + a stipulated margin	Quarterly installments as from December 2009 to September 2019		-	135,000
2.	The 6-month fixed deposit rate + a stipulated margin	Repayment in full by 9 May 2020	2,760,000		2,760,000
3.	Fixed rate at 2.95% per annum	Quarterly installments as from March 2017 to December 2021	600,000		900,000
Total			3,360,000		3,795,000
Less: Current portion			(3,060,000)		(435,000)
Long-term loans, net of current portion			300,000		3,360,000

Movement of long-term loan account during the year ended 31 December 2019 are summarised below:

	(Unit: Thousand Baht)
	Consolidated/Separate
	Financial statements
Balance as at 1 January 2019	3,795,000
Less: Repayment	(435,000)
Balance as at 31 December 2019	3,360,000

The loan agreements contain several covenants which, among other things, require the Company to maintain certain debt to equity ratio, net debt to EBITDA and EBITDA to interest ratio at the rate prescribed in the agreements.

22. Debentures

Debentures	Life	Date of issue	Maturity date	Interest rate (% per annum)	(Unit: Thousand Baht) Consolidated / Separate financial statements	
					2019	2018
1	7 years	22 February 2012	22 February 2019	4.40	-	1,500,000
2	10 years	22 February 2012	22 February 2022	4.60	2,000,000	2,000,000
3	5 years	6 February 2015	6 February 2020	3.37	500,000	500,000
4	10 years	21 May 2015	21 May 2025	3.98	1,400,000	1,400,000
5	5 years	1 February 2018	1 February 2023	2.33	1,000,000	1,000,000
6	7 years 2 months	20 December 2020	20 February 2027	2.41	1,000,000	-
Total					5,900,000	6,400,000
<u>Less:</u> Current portion of debentures					(500,000)	(1,500,000)
<u>Less:</u> Deferred debenture issuing costs					(4,160)	(4,205)
Debentures, net of current portion					<u>5,395,840</u>	<u>4,895,795</u>

On 19 September 2019, a meeting of the Company's Board of Directors passed a resolution granting approval for the Company to issue Baht 1,000 million of unsecured senior debentures, with no trustees, in 1 series; to be offered for sale to investors in accordance with the Notification of the Securities and Exchange Commission. The Company issued this debenture on 20 December 2019 and matures on 20 February 2027.

All debentures of the Company are unsecured, senior debentures with no trustees and with a par value of Baht 1,000 each. The interest is payable every 6 months throughout the life of the debentures.

The Company is required to maintain certain financial ratios i.e. debt to equity ratio, net debt to EBITDA and EBITDA to interest ratio at the rate prescribed.

23. Provision for long-term employee benefits

Provision for long-term employee benefits, which represents compensation payable to employees after they retire, was as follows:

	(Unit: Thousand Baht)			
	Consolidated		Separate	
	financial statements	financial statements	financial statements	financial statements
	2019	2018	2019	2018
Provision for long-term employee benefits				
at beginning of year	54,360	40,253	28,716	21,319
Included in profit or loss:				
Current service cost	7,554	5,953	3,865	3,441
Interest cost	863	1,267	474	549
Past service costs and gains or losses on settlement	-	7,243	-	3,407
Included in other comprehensive income:				
Actuarial (gain) loss arising from				
Demographic assumptions changes	384	-	1,231	-
Financial assumptions changes	2,668	-	1,228	-
Experience adjustments	(6,137)	-	(2,822)	-
Benefits paid during the year	(1,000)	(356)	(674)	-
Provision for long-term employee benefits				
at end of year	58,692	54,360	32,018	28,716

On 13 December 2018, The National Legislative Assembly passed a resolution approving the draft of a new Labour Protection Act, which is in the process being published in the Royal Gazette. Then, on 5 April 2019, The Labor Protection Act (No. 7) B.E. 2562 was announced in the Royal Gazette. This stipulates additional legal severance pay rates for employees who have worked for an uninterrupted period of twenty years or more, with such employees entitled to receive not less than 400 days' compensation at the latest wage rate. The law was effective from 5 May 2019. This change is considered a post-employment benefits plan amendment and the Group has additional long-term employee benefit liabilities. The Group has recorded the effect of the change by recognising past services costs as expenses in the statement of comprehensive income in 2018.

As at 31 December 2018, the Group expect to pay Baht 7 million of long-term employee benefits during the next year (Separate financial statements: Baht 3 million) (2019: nil, Separate financial statements: nil).

As at 31 December 2019, the weighted average duration of the liabilities for long-term employee benefits is 13.19 - 14.60 years (Separate financial statements: 13.19 years) (2561: 8.17 - 10.05 years, Separate financial statements: 8.17 years).

Significant actuarial assumptions are summarised below:

	Consolidated		Separate	
	financial statements		financial statements	
	2019	2018	2019	2018
	(% per annum)	(% per annum)	(% per annum)	(% per annum)
Discount rate	1.67 - 1.74	2.22 - 2.38	1.67	2.22
Salary increase rate	5.0	5.0	5.0	5.0
Turnover rate	0 - 13.0	0 - 14.0	0 - 12.0	0 - 13.0

The result of sensitivity analysis for significant assumptions that affect the present value of the long-term employee benefit obligation as at 31 December 2019 and 2018 are summarised below:

(Unit: Thousand Baht)

As at 31 December 2019

	Consolidated financial		Separate financial	
	statements		statements	
	Increase 1%	Decrease 1%	Increase 1%	Decrease 1%
Discount rate	(4,443)	5,128	(2,327)	2,658
Salary increase rate	4,821	(4,276)	2,494	(2,234)
Turnover rate	(4,681)	3,122	(2,441)	1,535

(Unit: Thousand Baht)

As at 31 December 2018

	Consolidated financial		Separate financial	
	statements		statements	
	Increase 1%	Decrease 1%	Increase 1%	Decrease 1%
Discount rate	(3,980)	4,602	(1,864)	2,132
Salary increase rate	4,972	(4,382)	2,328	(2,072)
Turnover rate	(268)	2,897	(1,977)	1,299

24. Statutory reserve

Pursuant to Section 116 of the Public Limited Companies Act B.E. 2535, the Company is required to set aside to a statutory reserve at least 5% of its net profit after deducting accumulated deficit brought forward (if any), until the reserve reaches 10% of the registered capital. The statutory reserve is not available for dividend distribution. At present, the statutory reserve has fully been set aside.

25. Other reserve

According to the amendment of the concession to operate treated water dated 20 March 2008, prior to paying a dividend the Company is required to set aside 10% of its annual net profit to other reserve.

However, according to the additional amendment of the agreement to the concession to operate treated water dated 28 October 2016, amendment the articles above to prior to paying a dividend from net profit the Company is required to set aside 10% of its full registered share capital to the legal reserve.

Retained earnings set aside as the legal reserve are to be retained in cash and deposited at a bank or financial institution licensed by the Bank of Thailand.

26. Expenses by nature

Significant expenses classified by nature are as follows:

	(Unit: Thousand Baht)			
	Consolidated		Separate	
	financial statements		financial statements	
	2019	2018	2019	2018
Salaries, wages and other employee benefits	185,852	183,584	94,254	92,384
Depreciation and amortisation	497,318	475,284	493,956	471,995
Amortisation of assets for production of treated water that must be transferred at end of concession	372,880	337,641	-	-
Amortisation of investments in subsidiaries	-	-	221,494	221,494
Operating and maintenance expenses	-	-	36,897	36,444
Production and maintenance cost	760,116	750,061	433,260	441,784

27. Income tax

Income tax expenses for the years ended 31 December 2019 and 2018 are made up as follows:

	(Unit: Thousand Baht)			
	Consolidated		Separate	
	financial statements		financial statements	
	2019	2018	2019	2018
Current income tax:				
Current income tax charge	694,043	629,529	517,861	457,926
Deferred tax:				
Relating to origination and reversal of temporary differences	2,934	(13,437)	4,864	(7,605)
Income tax expenses reported in profit or loss	696,977	616,092	522,725	450,321

The amounts of income tax relating to each component of other comprehensive income for the years ended 31 December 2019 and 2018 are as follows:

(Unit: Thousand Baht)

	Consolidated		Separate	
	financial statements	financial statements	financial statements	financial statements
	2019	2018	2019	2018
Deferred tax on actuarial gain	617	-	73	-
Deferred tax on loss from the change in value of available-for-sale securities	(40)	(55)	-	-
Deferred tax on share of other comprehensive income from associate	4,696	9,591	-	-
	<u>5,273</u>	<u>9,536</u>	<u>73</u>	<u>-</u>

The reconciliation between accounting profit and income tax expenses is shown below.

(Unit: Thousand Baht)

	Consolidated		Separate	
	financial statements	financial statements	financial statements	financial statements
	2019	2018	2019	2018
Accounting profit before tax	<u>3,844,311</u>	<u>3,476,995</u>	<u>3,377,628</u>	<u>3,116,953</u>
Applicable tax rate	20%	20%	20%	20%
Accounting profit before tax multiplied by income tax rate	768,862	695,399	675,526	623,391
Effects of:				
Promotional privileges (Note 28)	(61,507)	(87,230)	-	(34,120)
Non-deductible expenses	48,689	54,112	45,566	50,780
Additional expense deductions allowed	(1,865)	(1,801)	(1,930)	(1,611)
Exemption of income	-	-	(196,926)	(185,803)
Effect of elimination entry on the consolidated financial statements	(64,214)	(38,459)	-	-
Others	7,012	(5,929)	489	(2,316)
Total	<u>(71,885)</u>	<u>(79,307)</u>	<u>(152,801)</u>	<u>(173,070)</u>
Income tax expenses reported in profit or loss	<u>696,977</u>	<u>616,092</u>	<u>522,725</u>	<u>450,321</u>

The components of deferred tax assets and deferred tax liabilities are as follows:

(Unit: Thousand Baht)

	Consolidated		Separate	
	financial statements		financial statements	
Statements of financial position as at 31 December				
	2019	2018	2019	2018
Deferred tax assets				
Provision for long-term employee benefits	11,739	10,872	6,404	5,743
Allowance for doubtful accounts	3,979	4,025	2,244	2,244
Unrealised loss from revaluation of on available-for-sale securities	95	55	-	-
Total	15,813	14,952	8,648	7,987
Deferred tax liabilities				
Accumulated amortisation - assets for production of treated water	(80,804)	(74,968)	(80,804)	(74,968)
Accumulated amortisation of rights to produce and sell treated water and treat waste water	(14,931)	(15,199)	(14,931)	(15,199)
Accumulated amortisation - assets for production of treated water that must be transferred at end of concession of subsidiary	(24,843)	(25,210)	-	-
Deferred debenture issuing costs	(830)	(801)	(830)	(801)
Fair value adjustment of assets for production of treated water that must be transferred at end of concession regarding business combination	(3,248)	(4,105)	-	-
Total	(124,656)	(120,283)	(96,565)	(90,968)
Net	(108,843)	(105,331)	(87,917)	(82,981)

28. Promotional privileges

The Company received promotional privileges from the Board of Investment for production of treated water, pursuant to the investment promotion certificate No. 2437(2)/2553 issued on 13 September 2010. Subject to certain imposed conditions, the main privileges include the following:

- Exemption from import duty on imported machinery under specified conditions.
- Exemption from corporate income tax on net profit from the promoted operations for a period of eight years from the date the promoted operations begin generating revenues (30 September 2010).

During the year 2013, the Company received promotional privileges from the Board of Investment to restore investment after the floods, pursuant to the promotion certificate No. 5177(2)/2556 issued on 27 May 2013 (replacing earlier promotion certificate No. 1382(2)/2545 which expired in 2012). Subject to certain imposed conditions, the main privileges include the following:

- Exemption from import duty on imported machinery under specified conditions.
- Exemption from corporate income tax on net profit from the promoted operations, with the amount of tax exempted capped at 150% of investment, excluding land and working capital, only the repair expenses of machinery and equipment damaged due to flooding, for a period of eight years from the date the promoted operations begin generating revenues (30 June 2013).

During the year 2016, the Company received promotional privileges from the Board of Investment for production of treated water, pursuant to the investment promotion certificate No. 59-0683-1-00-1-0 issued on 29 February 2016. Subject to certain imposed conditions, the main privileges include the following:

- Exemption from import duty on imported machinery under specified conditions.
- Exemption from corporate income tax on net profit from the promoted operations for a period of five years from the date the promoted operations begin generating revenues (31 March 2019).

The Company's operating revenues for the years ended 31 December 2019 and 2018, divided between promoted and non-promoted operations, are summarised below.

(Unit: Thousand Baht)

	Separate financial statement					
	Promoted operations		Non-promoted operations		Total	
	2019	2018	2019	2018	2019	2018
Sales of treated water	65,386	345,495	4,030,596	3,629,040	4,095,982	3,974,535

29. Basic earnings per share

Basic earnings per share is calculated by dividing profit for the year attributable to equity holders of the Company (excluding other comprehensive income) by the weighted average number of ordinary shares in issue during the year.

30. Segment information

Operating segment information is reported in a manner consistent with the internal reports that are regularly reviewed by the chief operating decision maker in order to make decisions about the allocation of resources to the segment and assess its performance.

The Group is principally engaged in the production and sell of treated water. Its operations are carried on only in Thailand. Segment performance is measured based on operating profit or loss, on a basis consistent with that used to measure operating profit or loss in the financial statements. As a result, all of the revenues, operating profits and assets as reflected in these financial statements pertain to the aforementioned reportable operating segment and geographic area.

Geographic information

The Group operates in Thailand only. As a result, all the revenues and assets as reflected in these financial statements pertain exclusively to this geographical reportable segment.

Major customer

For the year 2019, the Group has revenue from a major customer in amount of Baht 5,773 million (2018: Baht 5,596 million) accounted for 94% of total revenues of the Group.

31. Provident fund

The Group and its employees have established provident funds jointly with their employees in accordance with the Provident Fund Act B.E. 2530. The Company, the subsidiaries and their employees contribute to the funds monthly at the rates of 5.0 - 15.0% (2018: 5.0 - 15.0%) of basic salary. The funds, which are managed by Kasikorn Asset Management Company Limited, will be paid to employees upon termination in accordance with the fund rules. The contributions for the year 2019 amounting to approximately Baht 9 million (Separate financial statements: Baht 5 million) (2018: Baht 8 million, Separate financial statements: Baht 4 million) were recognised as expenses.

32. Dividend paid

Dividends	Approved by	Total dividends (Thousand Baht)	Dividend per share (Baht)
Dividends from the earnings of the promoted operations for July to December 2017	Annual General Meeting of the shareholders on 19 April 2018	91,770	0.023
Dividends from the earnings of the non-promoted operations for July to December 2017	Annual General Meeting of the shareholders on 19 April 2018	1,105,230	0.277
Interim dividends from the earnings of the promoted operations for January to June 2018	Board of Directors' meeting on 16 August 2018	107,730	0.027
Interim dividends from the earnings of the non-promoted operations for January to June 2018	Board of Directors' meeting on 16 August 2018	1,089,270	0.273
Total dividends for 2018		2,394,000	0.600
Dividends from the earnings of the promoted operations for July to December 2018	Annual General Meeting of the shareholders on 11 April 2019	59,850	0.015
Dividends from the earnings of the non-promoted operations for July to December 2018	Annual General Meeting of the shareholders on 11 April 2019	1,137,150	0.285
Interim dividends from the earnings of the non-promoted operations for January to June 2019	Board of Directors' Meeting on 12 August 2019	1,197,000	0.300
Total dividends for 2019		2,394,000	0.600

33. Commitments and contingent liabilities

33.1 Capital commitments

As at 31 December 2019, the Company had capital commitments of Baht 199 million relating to the improvement project on water supply and distribution systems at Bang Len water supply plant (phase 1) (2018: Baht 19 million relating to the improvement project on water supply systems at Bang Len water supply).

33.2 Service commitments and other commitments

- a) The Group has entered into operation and maintenance agreements with Thai Water Operations Company Limited (“the subsidiary”), whereby the subsidiary is to manage and maintenance of production and supply of treated water system and to manage the waste water treatment system. Under the conditions of the agreements, the Group is to pay service fees at a rate stipulated in the agreements, which have an initial term of 1 year from 8 January 2010 and thereafter automatically renews each year for a further period of 1 year.
- b) As at 31 December 2019, the Group had commitments totaling Baht 38 million (Separate financial statements: Baht 27 million) (2018: Baht 37 million (Separate financial statement: Baht 25 million)) under other service agreements.

33.3 Operating lease commitments

The Group has entered into vehicles and land lease agreements for office building. The term of the land lease agreement is between 1 March 2010 and 30 September 2048. Future minimum lease payments required under this non-cancellable operating lease contract were as follows:

	(Unit: Thousand Baht)			
	Consolidated		Separate	
	financial statements	financial statements	financial statements	financial statements
	2019	2018	2019	2018
Payable:				
In up to 1 year	8,482	8,605	7,714	8,605
In over 1 and up to 5 years	13,355	17,202	12,160	17,202
In over 5 years	30,037	31,955	30,037	31,955

33.4 Bank guarantees

As at 31 December 2019, there were outstanding bank guarantees of Baht 312 million (Separate financial statements: Baht 123 million) (2018: Baht 311 million (Separate financial statements: Baht 122 million)) issued by banks on behalf of the Group in respect of certain performance bonds as required in the normal course of business. These included letters of guarantee as follows:

	(Unit: Thousand Baht)			
	Consolidated		Separate	
	financial statements	financial statements	financial statements	financial statements
	2019	2018	2019	2018
Guarantee under the Water Purchase Agreement				
with the Provincial Waterworks Authority	230,500	230,400	63,000	62,900
Guarantee electricity use	68,521	67,733	46,836	46,048
Guarantee for others	13,101	13,101	13,101	13,101
Total	<u>312,122</u>	<u>311,234</u>	<u>122,937</u>	<u>122,049</u>

34. Fair value hierarchy

As of 31 December 2019 and 2018, the Group had the assets and liabilities that were measured or disclosed at fair value using different levels of inputs as follows:

	(Unit: Thousand Baht)			
	Consolidated financial statements			
	As at 31 December 2019			
	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value				
Investments in trading securities				
Unit trusts in fixed income fund	-	2,279,891	-	2,279,891
Investments in available-for-sale securities				
Real estate investment trust	4,525	-	-	4,525
Asset for which fair value are disclosed				
Investment in associate	10,072,569	-	-	10,072,569
Other long-term investment - debentures	-	14,193	-	14,193
Liability for which fair value are disclosed				
Debentures	-	6,094,102	-	6,094,102

(Unit: Thousand Baht)

Consolidated financial statements

As at 31 December 2018

	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value				
Investment in trading securities				
Equity instruments	85,654	-	-	85,654
Debt instruments	-	2,699,011	-	2,699,011
Investments in available-for-sale securities				
Real estate investment trust	4,725	-	-	4,725
Asset for which fair value are disclosed				
Investment in associate	9,253,596	-	-	9,253,596
Other long-term investment - debentures	-	24,009	-	24,009
Liability for which fair value are disclosed				
Debentures	-	6,547,931	-	6,547,931

(Unit: Thousand Baht)

Separate financial statements

As at 31 December 2019

	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value				
Investment in trading securities				
Unit trusts in fixed income fund	-	1,776,747	-	1,776,747
Asset for which fair value are disclosed				
Investment in associate	10,072,569	-	-	10,072,569
Liability for which fair value are disclosed				
Debentures	-	6,094,102	-	6,094,102

(Unit: Thousand Baht)

Separate financial statements

As at 31 December 2018

	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value				
Investment in trading securities				
Equity instruments	85,654	-	-	85,654
Debt instruments	-	2,285,894	-	2,285,894
Asset for which fair value are disclosed				
Investment in associate	9,253,596	-	-	9,253,596
Liability for which fair value are disclosed				
Debentures	-	6,547,931	-	6,547,931

35. Financial instruments

35.1 Financial risk management

The Group's financial instruments, as defined under Thai Accounting Standard No. 107 "Financial Instruments: Disclosure and Presentations", principally comprise cash and cash equivalents, current investments, trade and other receivables, other long-term investments, long-term loans to related party, trade and other payables, long-term loans and debentures. The financial risks associated with these financial instruments and how they are managed is described below.

Credit risk

The Group is exposed to credit risk primarily with respect to trade accounts receivable and other receivables and there is a high concentration of risk since the Group has only one major customer, the Provincial Waterworks Authority. However, because the Provincial Waterworks Authority is a government agency, the Group does not expect to incur material financial losses. The maximum exposure to credit risk is limited to the carrying amounts of receivables as stated in the statement of financial position.

Interest rate risk

The Group's exposures to interest rate risk relate primarily to their cash at banks, current investments, long-term loans to related party, long-term loans and debentures. However, since most of the Group's financial assets and liabilities bear floating interest rates or fixed interest rates which are close to the market rate, the interest rate risk is expected to be minimal.

Significant financial assets and liabilities classified by type of interest rates are summarised in the table below, with those financial assets and liabilities that carry fixed interest rates further classified based on the maturity date, or the repricing date if this occurs before the maturity date.

(Unit: Thousand Baht)

As at 31 December 2019

Consolidated financial statements							
Fixed interest rates			Floating				
Within 1 year	1-5 years	Over 5 years	interest rate	Non-interest bearing	Total	Effective interest rate (% per annum)	
Financial assets							
Cash and cash equivalents	2	-	-	44,948	31,621	76,571	0.125 - 0.750
Current investments	3,035,147	-	-	-	-	3,035,147	0.650 - 1.850
Trade and other receivables	-	-	-	-	564,935	564,935	-
Other long-term investments	-	14,000	-	-	4,525	18,525	4.10 - 4.50
	<u>3,035,149</u>	<u>14,000</u>	<u>-</u>	<u>44,948</u>	<u>601,081</u>	<u>3,695,178</u>	
Financial liabilities							
Trade and other payables	-	-	-	-	159,504	159,504	-
Long-term loans	-	-	-	3,360,000	-	3,360,000	2.75 - 3.10
Debentures	500,001	2,998,520	2,397,319	-	-	5,895,840	2.33 - 4.60
	<u>500,001</u>	<u>2,998,520</u>	<u>2,397,319</u>	<u>3,360,000</u>	<u>159,504</u>	<u>9,415,344</u>	

(Unit: Thousand Baht)

As at 31 December 2018

Consolidated financial statements							
Fixed interest rates			Floating				
Within 1 year	1-5 years	Over 5 years	interest rate	Non-interest bearing	Total	Effective interest rate (% per annum)	
Financial assets							
Cash and cash equivalents	2	-	-	67,514	31,826	99,342	0.05 - 0.50
Current investments	3,414,227	-	-	-	85,654	3,499,881	0.650 - 1.853
Trade and other receivables	-	-	-	-	564,548	564,548	-
Other long-term investments	10,000	14,000	-	-	4,725	28,725	4.10 - 4.50
	<u>3,424,229</u>	<u>14,000</u>	<u>-</u>	<u>67,514</u>	<u>686,753</u>	<u>4,192,496</u>	
Financial liabilities							
Trade and other payables	-	-	-	-	134,319	134,319	-
Long-term loans	-	-	-	3,795,000	-	3,795,000	2.75 - 3.10
Debentures	1,500,026	3,497,550	1,398,219	-	-	6,395,795	2.33 - 4.60
	<u>1,500,026</u>	<u>3,497,550</u>	<u>1,398,219</u>	<u>3,795,000</u>	<u>134,319</u>	<u>10,325,114</u>	

(Unit: Thousand Baht)

As at 31 December 2019

	Separate financial statements						
	Fixed interest rates			Floating		Total	Effective interest rate (% per annum)
	Within	1-5	Over	interest	Non-interest		
	1 year	years	5 years	rate	bearing		
Financial assets							
Cash and cash equivalents	2	-	-	40,194	31,165	71,361	0.125 - 0.750
Current investments	2,252,003	-	-	-	-	2,252,003	0.650 - 1.850
Trade and other receivables	-	-	-	-	385,762	385,762	-
Long-term loans to related party	-	-	-	171,478	-	171,478	4.25 - 4.40
	<u>2,252,005</u>	<u>-</u>	<u>-</u>	<u>211,672</u>	<u>416,927</u>	<u>2,880,604</u>	
Financial liabilities							
Trade and other payables	-	-	-	-	104,407	104,407	-
Long-term loans	-	-	-	3,360,000	-	3,360,000	2.75 - 3.10
Debentures	500,001	2,998,520	2,397,319	-	-	5,895,840	2.33 - 4.60
	<u>500,001</u>	<u>2,998,520</u>	<u>2,397,319</u>	<u>3,360,000</u>	<u>104,407</u>	<u>9,360,247</u>	

(Unit: Thousand Baht)

As at 31 December 2018

	Separate financial statements						
	Fixed interest rates			Floating		Total	Effective interest rate (% per annum)
	Within	1-5	Over	interest	Non-interest		
	1 year	years	5 years	rate	bearing		
Financial assets							
Cash and cash equivalents	2	-	-	61,064	31,371	92,437	0.05 - 0.50
Current investments	2,741,110	-	-	-	85,654	2,826,764	0.650 - 1.625
Trade and other receivables	-	-	-	-	394,436	394,436	-
Long-term loans to related party	-	-	-	461,297	-	461,297	4.25 - 4.40
	<u>2,741,112</u>	<u>-</u>	<u>-</u>	<u>522,361</u>	<u>511,461</u>	<u>3,774,934</u>	
Financial liabilities							
Trade and other payables	-	-	-	-	95,096	95,096	-
Long-term loans	-	-	-	3,795,000	-	3,795,000	2.75 - 3.10
Debentures	1,500,026	3,497,550	1,398,219	-	-	6,395,795	2.33 - 4.60
	<u>1,500,026</u>	<u>3,497,550</u>	<u>1,398,219</u>	<u>3,795,000</u>	<u>95,096</u>	<u>10,285,891</u>	

Foreign currency risk

The Group does not consider themselves exposed to foreign currency risk because they have no significant foreign currency transactions.

35.2 Fair values of financial instruments

Since the majority of the Group's financial instruments are short-term in nature or carrying interest at rates close to market interest rates, their fair value is not expected to be materially different from the amounts presented in the statement of financial position.

The estimated fair value of financial instruments, in comparison with the related amounts carried in the statement of financial position, is as follows:

	(Unit: Million Baht)			
	As at 31 December 2019		As at 31 December 2018	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial liabilities				
Debentures	5,896	6,094	6,396	6,548

The methods and assumptions used by the Company in estimating the fair value of financial instruments are as follows:

- For fixed rate debentures, their fair value is estimated by discounting expected future cash flow by the current market interest rate of the loans with similar terms and conditions.

During the year, there were no transfers within the fair value hierarchy.

36. Capital management

The primary objective of the Group's capital management is to ensure that it has appropriate capital structure in order to support its business and maximise shareholder value. As at 31 December 2019, the Group's debt-to-equity ratio was 0.76:1 (2018: 0.89:1) and the Company's was 0.87:1 (2018: 0.99:1).

37. Events after the reporting period

On 25 February 2020, a meeting of the Company's Board of Directors passed a resolutions to propose a dividend payment for the year 2019 of Baht 0.60 per share, of which Baht 0.30 per share was paid as an interim dividend and the remaining dividend payment will be Baht 0.30 per share. Dividend payment is subject to the approval of shareholders.

38. Approval of financial statements

These financial statements were authorised for issue by the Company's Board of Directors on 25 February 2020.



Every step in the business operations of TTW moves further along the path of mutual awareness and a comprehensive understanding of economic, social and environmental dimensions for sustainable growth together.



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