



ANNUAL REPORT
2021/2022

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PUB's Mission & Vision

Our Mission

Supply Good Water.
Reclaim Used Water.
Tame Storm Water.
Resist Rising Seas.

Our Vision

Water for Every One.
Everyone for Water.

Singapore's National Water Agency

PUB is a statutory board under the Ministry of Sustainability and the Environment. We are responsible for the management of Singapore's water supply, water catchment, used water and coastal protection in an integrated way.

Subsidiary Companies

**PUB Consultants
Private Limited**

100%
OWNED BY PUB

**Singapore
International
Water Week
Private Limited**

100%
OWNED BY PUB CONSULTANTS
PRIVATE LIMITED

Board of Directors



MR CHIANG CHIE FOO
Chairman,
PUB



MR NG JOO HEE
Chief Executive,
PUB
(Tenure till 21 July 2022)



MR GOH SI HOU
Chief Executive,
PUB



MR ABU BAKAR BIN MOHD NOR
Group Chairman,
M Kapital Holdings Pte Ltd



MR TAN WAH YEOW
Non-Resident Ambassador (Norway),
Ministry of Foreign Affairs, Singapore



MR JOHN NG
Chief Executive Officer,
YTL PowerSeraya Pte Ltd



MS AURILL KAM
Director,
Legal Clinic LLC



MR S THIAGARAJAN
Director, Administration,
NTUC



MR TAN SIONG LENG
Deputy Chief Executive,
URA (Retired)

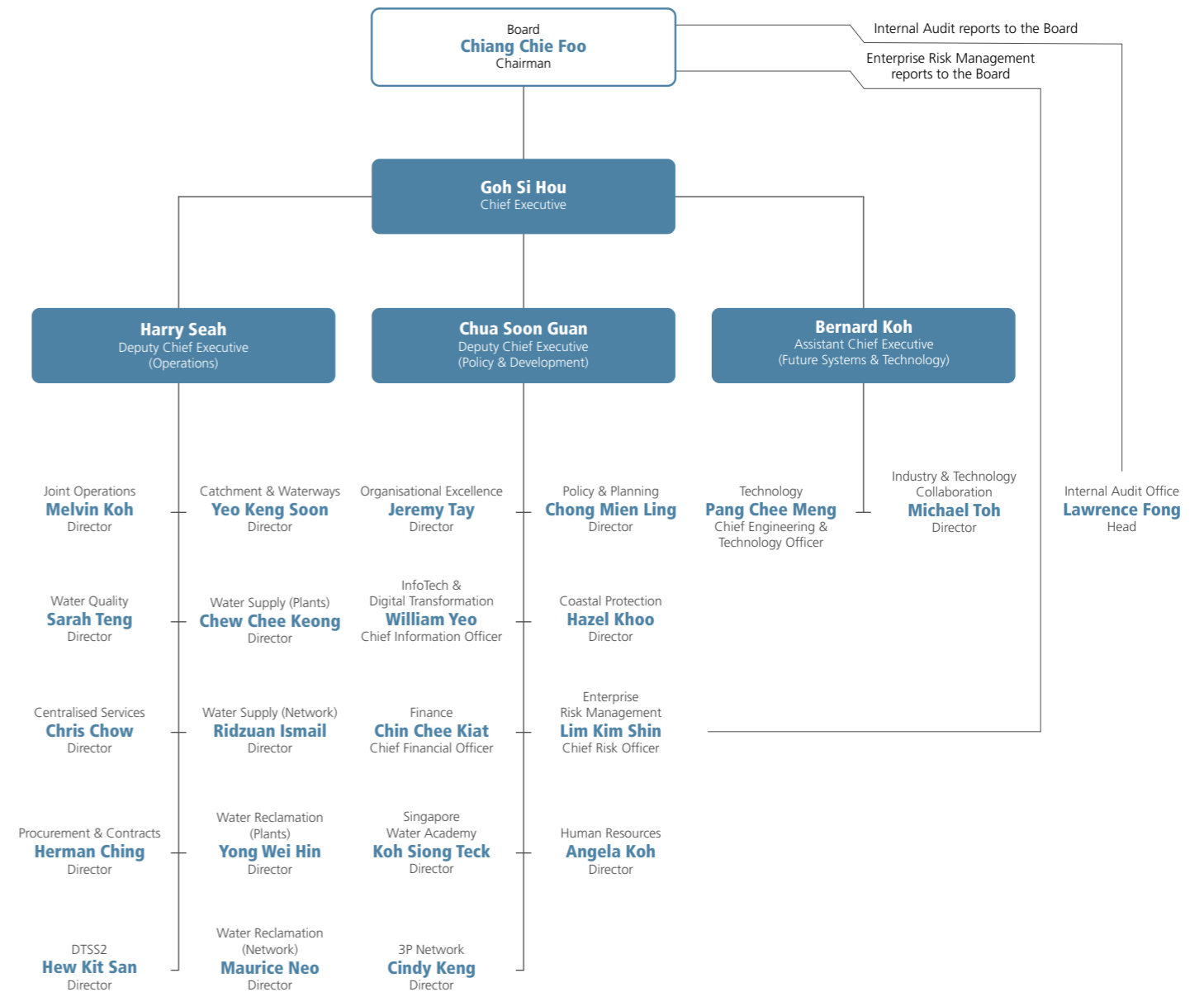


MS SUSAN HWEE
Head of Group Technology
and Operations, UOB



PROF LOW TECK SENG
Senior Vice President,
NUS

Organisational Structure



The key management personnel are listed in the organisation structure above.

Riding the Wave to a New Normal

Over the past few years, PUB's timely and decisive response to the pandemic and the commitment of our people to PUB's mission ensured that our essential water services continued without interruption. From the pandemic, we gleaned valuable lessons as we navigated through the pandemic.

Lessons from the Pandemic

Long-Term Sustainability of Operations and Maintenance (O&M)

The shortage of foreign workers due to dormitory lockdowns and border closures affected some of PUB's O&M and construction projects. While we have mitigated some of the effects by re-prioritising work and tapping on local workers and staff, PUB has, since 1 April 2021, introduced new measures to enhance workforce resilience for key O&M services. These measures were enhanced in January 2022 to progressively re-balance the workforce composition to improve the long-term sustainability of O&M contracts.

Protecting our Staff and Workers

Our staff and workers are critical to the uninterrupted delivery of essential water services, and we make it our priority to ensure they are well-protected and able to perform their duties. Safe Management Measures and the use of Personal Protective Equipment are implemented at all PUB installations and worksites. With PUB's Senior Management taking the lead, more than 99% of staff and workers eligible for the vaccine took up the vaccination. PUB also supported the weekly Antigen Rapid Test (ART) for all essential staff and contractors until March 2022. The extended weekly ART allowed PUB to detect infections early and promptly take measures to contain any further infection within our workplaces.

Supply Chain and Stockpile Diversification

As COVID-19 continued to ravage the world, we maintained our twin levers of diversification and stockpiling of essential chemicals, spares and materials. This strategy held up well and allowed PUB to ensure that our water supply is not disrupted despite subsequent COVID-19 lockdowns and global events such as the Suez Canal blockage in March 2021 and the conflicts between Russia and Ukraine in early 2022.

New Future-Ready Plants

Workplace segregation was implemented to stem widespread infections that could disrupt our operations. To facilitate segregation and maintain the integrity of our work teams in the event of future infections, we designed new plants with two dedicated control rooms and separate common facilities.

Chapter 1

Water for Every One

As the national water agency, PUB ensures that Singapore has an adequate and safe water supply. Our PUB officers make everyday life possible through their efforts in supplying good water, reclaiming used water, and taming stormwater. At PUB, our vision is for Singapore to always have enough water, and for Singaporeans to cherish every drop of water.



Expanding and Refreshing our Infrastructure

Although it rains often in Singapore, there is not enough room in Singapore to collect and store all the water that we need. We expect the current total water demand of 430mgd to almost double by 2061, which is also when our remaining water agreement with Malaysia expires. Over the years, Singapore's water policies have evolved as the focus shifted from survival to sustainability and our holistic approach to water management can be distilled into three key strategies. Firstly, as a city-state with scarce land, we have to make every drop of rain count and capture every drop of water. Secondly, we have to think of water as an endless reusable resource – always reclaiming and retreating water so that it can be used again. Thirdly, as an island surrounded by the sea, desalination is a viable and attractive option for Singapore. The future of Singapore's water security and sustainability lies with PUB's continued investment in expanding our infrastructure while maintaining existing and refreshing aged ones to meet increasing demand.

Supply Good Water

Water Adequacy for Everyone

After taking over the operations of Tuas South Desalination Plant (TSDP) in 2019, we have restored TSDP to its full production capacity in 2021. Opened on 17 April 2022, Jurong Island Desalination Plant, the nation's fifth desalination plant, will further augment Singapore's water supply. In addition, Changi NEWater Factory 3 will also commence construction in 2023.

Clean & Accessible Water for Everyone



Chestnut Avenue Waterworks commissioned 26 new trains of Reverse Osmosis Membrane



Enhanced water treatment with 14 new trains of Disc Filters at Chestnut Avenue Waterworks



3D snapshot of the new Choa Chu Kang Waterworks

PUB is committed to provide clean and accessible water for our nation. To do that, we need to ensure that our infrastructure is constantly upgraded and available at all times. In 2021, we have successfully expanded our water supply network by 71km to improve the accessibility of our water supply. Several upgrades of our infrastructure are also underway. Chestnut Avenue Waterworks was successfully upgraded in March 2021 with an ozone-biological activated carbon system to enhance our water treatment capability. Choa Chu Kang Waterworks will also undergo a major reconstruction into a fully integrated and automated plant which adopts advanced water treatment technology and smart plant capabilities such as process digital twin to enhance operational effectiveness.

Reclaim Used Water

Reusing Every Drop of Used Water

To have enough water, PUB has to "close the water loop" by constantly recycling and reusing used water. In 2021, PUB successfully laid 38km of new sewers and renewed 20km of existing sewers. This allows more used water to flow into our water reclamation plants (WRPs) for used water treatment. The treated used water can then be sent to our NEWater Factories for further treatment to become potable water again, thereby cushioning our water supply against dry weather and moving Singapore towards water sustainability.

To cope with the increase in used water, Changi Water Reclamation Plant (CWRP) is currently undergoing expansion of its treatment capacity. This will allow CWRP to treat about 60% of used water generated on mainland when it is completed in 2023. At the new Tuas WRP, one of the two liquid treatment modules will utilise ceramic membranes which will be the largest of its kind in the world when completed.



Tunnel Boring Machine Teban Breakthrough in South Tunnel

Singapore's Deep Tunnel Sewerage System (DTSS) allows the efficient collection of Singapore's used water for large scale recycling. Phase 1 of the DTSS was completed in 2008 while Phase 2 (DTSS2) is slated for completion in 2025. The tunnelling works for one of the tunnels (Industrial Tunnel) for DTSS2 has been completed. Once commissioned in the future, the Industrial Tunnel will convey the existing industrial flow currently going to Jurong Water Reclamation Plant (JWRP) to the new Tuas WRP. This will allow JWRP to be phased out. The other tunnel (South Tunnel) is targeted for completion by FY2023. Detailed design for the Tuas WRP is substantially completed. Construction has commenced and more than 80% of Tuas WRP's total project value has been awarded (i.e. more than \$2 billion).

Tame Storm Water

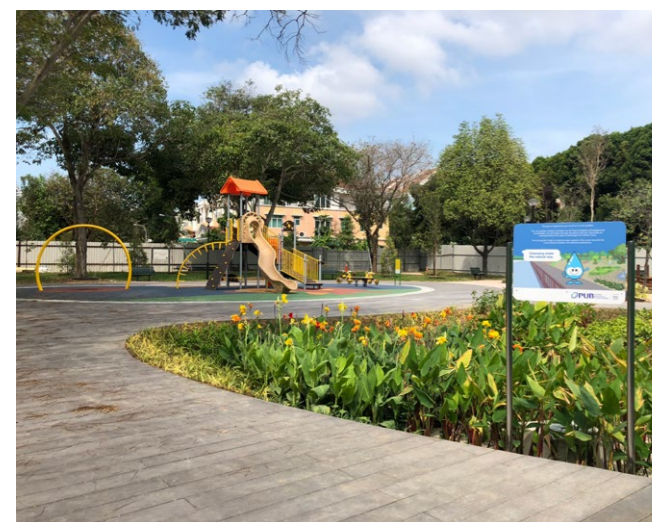
Future-proofing Singapore's Drainage System

In 2021, PUB completed drainage improvement works across the island, such as Alexandra Canal Subsidiary Drain 'A' and at seven roadside drains along Hill Street and Stamford Road.



Completed Alexandra Canal subsidiary drainage work

The expansion of Bedok Canal is slated for completion by the end of 2022. Aside from increasing the conveyance capacity by 50%, the project will also enhance the liveability of residents in the area by creating new community spaces that integrate seamlessly with the rejuvenated Bedok Ria Crescent and Eastwood playground park.



Eastwood Rain Garden and Playground



Before Activation: Automated Flood Barrier (AFB) at Fortune Park



Fully Activated: Automatic Flood Barrier (AFB) at Fortune Park

PUB is looking to implement a new solution called "Automatic Flood Barrier" (AFB) to help boost community resilience against flash floods. It utilises approaching floodwaters to buoy itself up and block flood water from entering the premises. When the water level subsides, it retracts underground automatically without the need for any human or mechanical activation. The AFB was successfully trialled at Fortune Park condominium in July 2021 as a viable and cost-efficient solution for flood protection. PUB will be encouraging building owners to consider the use of AFB as a flood protection measure for their premises if it is feasible for their buildings.

Improving Flood Notification

In addition, PUB launched a new Telegram channel for flood alerts on 10 November 2021 to provide an additional platform for the public to receive real-time updates on heavy rain, potential flood risk locations and flash floods areas on-the-go, so that they can take the necessary precautions to avoid the flooded locations and keep safe. As of August 2022, the channel has over 14,000 subscribers.

Driving Climate Adaption

By 2100, mean sea levels around Singapore are expected to rise by up to 1 metre due to climate change. Combined with coastal surges, high tides and land subsidence, sea levels could transiently rise by 4 to 5 m above the mean sea level. Singapore is especially vulnerable to rising sea levels as we are a low-lying, densely populated city state with about 30 percent of our island being less than 5 metres above mean sea level. Hence, we must adapt well and protect our coastlines to prevent the rising seas from impacting our homes and livelihoods. As the national Coastal Protection Agency, PUB has embarked on a series of action plans to enhance the protection of Singapore's coasts as well as build up our knowledge and capabilities in this field.

Development of our Coastal-Inland Flood Model

The development of the Coastal-Inland Flood Model is underway and expected to complete in March 2025. When completed, the model will be capable of simulating intense rainfall and coastal extreme events holistically.

Research Efforts

Global Innovation Challenge (GIC)

Under PUB's GIC 2021, one of the categories was to seek innovative coastal protection solutions from the industry. PUB commenced a proof-of-concept project in June 2022 to assess the feasibility of implementing an innovative modular armour unit system along Singapore's coastlines that is potentially scalable and minimise landtake.

Coastal Protection and Flood Management Research Programme

PUB is developing a coastal protection and flood management research programme to coordinate and lead national research in these areas. The research aims to support our development of planning principles, establish engineering guidelines, and explore innovative coastal protection solutions suitable for Singapore.

Planning and Framework to Guide Coastal Protection Works

Coastal Protection Master Plan

PUB is currently developing the Coastal Protection Master Plan (CPMP) that will guide our planning and implementation of coastal protection measures. Under CPMP, we will develop planning strategies, principles, and parameters to address the impact of sea level rise.

Regulatory Framework for Coastal Protection

We are on track to formulating key policies to manage the full life cycle of coastal protection, covering the extent of coastal protection required, roles and responsibilities, funding mechanisms, as well as policies governing construction, operation, and maintenance of coastal protection measures.

Embark on Studies to Develop Coastal Protection Concept Plan and Solutions

The Two Sections of the North-West Coast

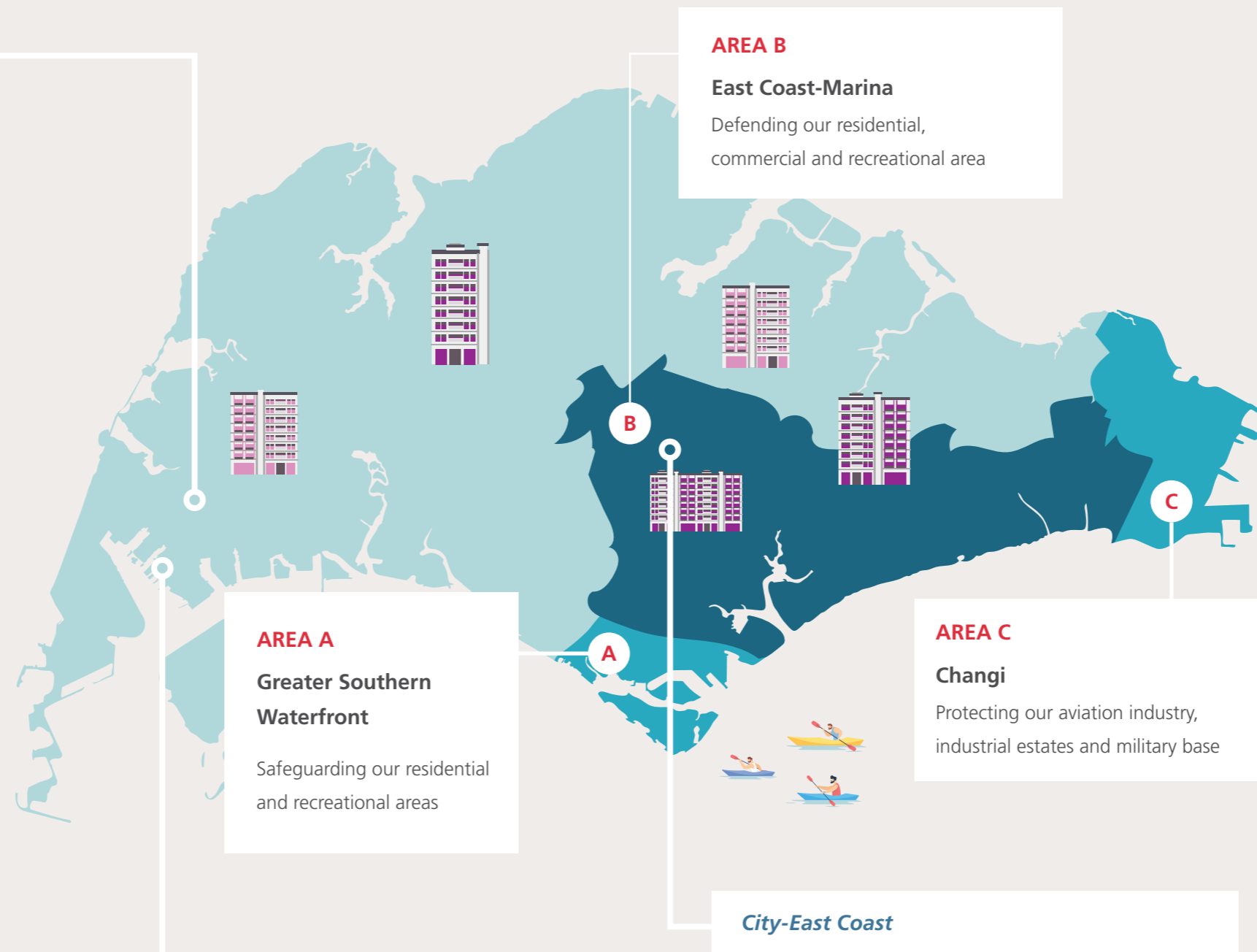
The north-west coast of Singapore comprises two key sections: The first section, from Tuas Immigration Checkpoint up to Lim Chu Kang, includes coastal reservoirs as well as military camps and training areas. The site-specific study for this section, which commenced in April 2022 will develop protection measures to safeguard our water resources from seawater intrusion, as well as ways to ensure the integrity of the reservoir structures. The second section extends from Lim Chu Kang to Woodlands. For this section, PUB will study how best to reshape the coastline by creating new recreational spaces while conserving nature landmarks including Sungei Buloh Wetland Reserve and Mandai Mangrove & Mudflat, and to dovetail coastal protection measures with the upcoming developments such as the future Sungei Kadut Eco-District and Lim Chu Kang high-tech agri-food cluster. The tender for the site-specific study of this section was called in May 2022.



Outlined in yellow are the study areas of the barriers under the Coastal Barrier Feasibility Study.

Coastal Barrier Feasibility Study

PUB will also be commencing a Coastal Barrier Feasibility Study in 2H 2022 to assess the feasibility of implementing coastal barriers as a form of regional coastal protection measure for the southwest coast of Singapore.



This stretch of coastline includes Changi, the East Coast-Marina, and part of the Greater Southern Waterfront district. The site-specific study for the City-East Coast has commenced in May 2022, and will focus on flood modelling and risk assessment to guide our conceptual planning and design of adaptation measures in 2022. The development of adaptation measures will then be carried out in consultation with relevant stakeholders.

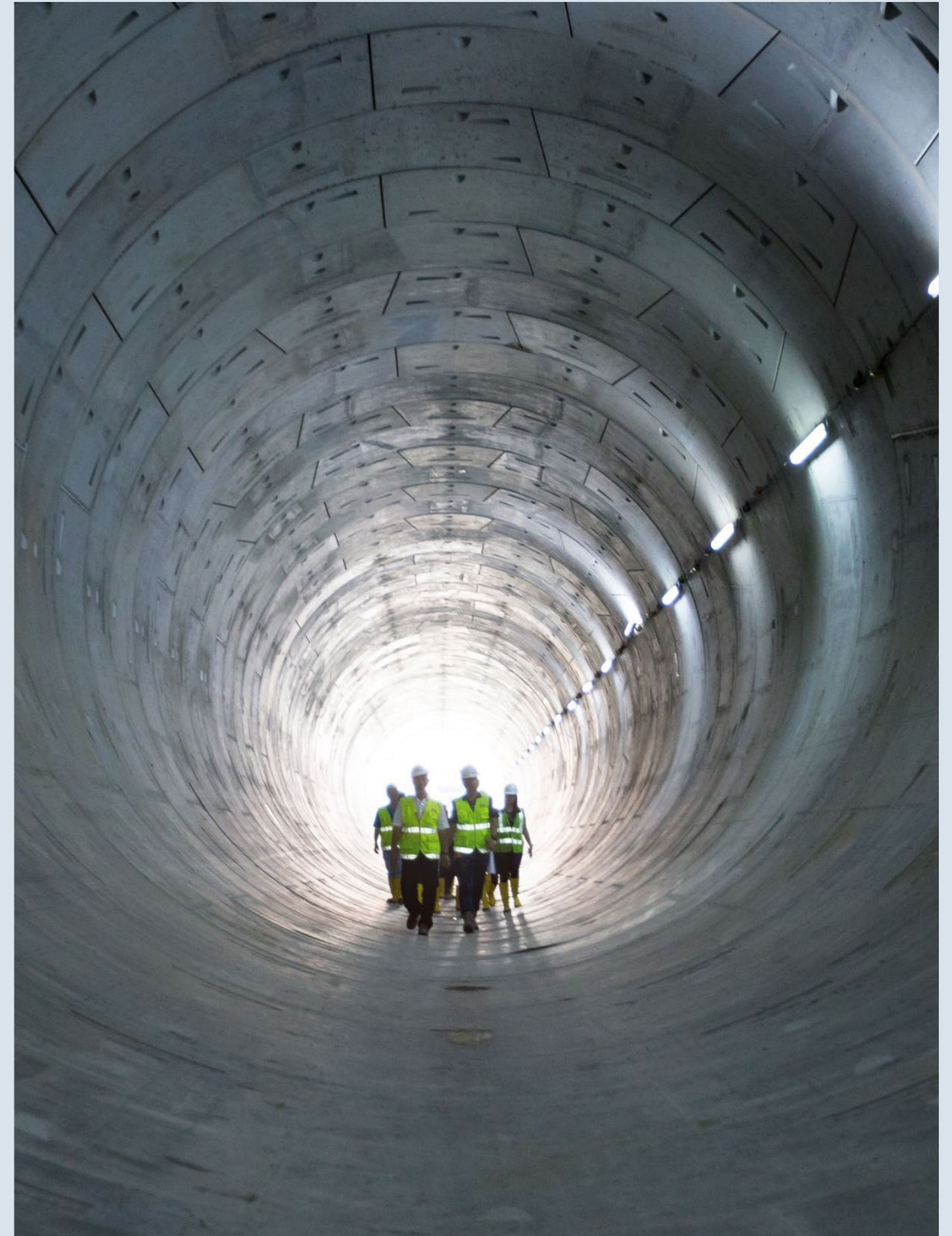
Develop PUB's Capabilities and Competencies in Coastal Protection

In 2020, PUB established a Coastal Protection Expert Panel comprising international experts. It serves as an independent advisory body and helps keep PUB up to date with the latest international best practices and planning considerations. Professor Yong Kwet Yew, a Professor of Civil and Environmental Engineering at the National University of Singapore, and formerly chairperson of the Land Transport Authority's International Panel of Advisors, has been appointed as the new chairman of the Expert Panel. He took over from Professor Chan Eng Soon. To strengthen our officers' knowledge in various related disciplines such as coastal processes and climate science, PUB has worked with the National University of Singapore (NUS) and conducted a core competency course on relevant coastal engineering in 2020-2021 for our officers.

Chapter 2

Accelerating our Transformation to be Future-Ready

PUB's operating environment is expected to become more complex and increasingly challenging to manage. Not only do we have to cope with the increasing demand for water and climate change, we will also have to deal with constraints in manpower and resources. For PUB to meet these challenges and continue to successfully execute its mission far into the future, PUB is making transformational changes in the way we work. This concerted, whole-of-organisation effort will leverage new technologies and skills to redesign our business and operations, reinvent how we serve our customers and ensure that our people are well prepared with the right tools and competencies to meet the needs of the future.



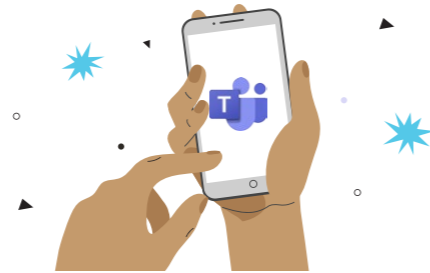
Reshaping the Future of PUB's Work

As we reimagine our future workplace, we have armed our officers with improved tools for better productivity and efficiency by enhancing our operational capabilities through process re-engineering and digitalisation. Additionally, we looked into designing a more streamlined and efficient user experience and service delivery for our businesses and customers.

Digitalised Workplace

Digital advances in the workplace are changing the way we work at PUB. Our officers benefit from the increased availability of tools to digitalise work processes to improve their productivity and effectiveness. Examples of these tools include data processing and visualisation, knowledge management, virtual collaboration, and robotic process automation, among others. In recent years, PUB has steadily digitalised more of our corporate functions and onboarded new enterprise digital tools to support our officers in their work and ease the execution of corporate functions and business management activities. Some notable examples include:

Employee Productivity Solutions



PUB constantly identifies and employs useful digital tools to support our officers in their work.

- PUB completed the technical upgrade of PUB Intranet, SharOn, in 2021 which improves the system performance.
- PUB successfully onboarded Microsoft Teams in 2021. This is a collaborative workspace within Microsoft 365/Office 365 that acts as a central hub for workplace conversations, collaborative teamwork, video chats and document sharing, all designed to improve officers' productivity on a unified platform.



Knowledge Management Solutions

PUBWiki was fully implemented in August 2021 to ensure better compliance for records management and more efficient knowledge management. It saves our officers' time to file and retrieve documents for work, which they can receive scanned copies of documents sent to them via email, and digitally search and borrow PUB library materials for learning purposes. PUB is in the process of digitising our hardcopy records and strives to complete this over the next few years.



PUB Data Strategy

PUB's Data Strategy outlines our approach to exploit data to improve PUB's policy development, operational efficiency and service delivery. A Data Office was also set up in January 2021 to oversee the implementation of various initiatives under PUB's Data Strategy.



Data Governance and Management

The Data Office has established a new governance structure with clear roles and responsibilities for department data stewards, data owners and other data-related roles, as well as a set of Data Standards and Assessment metrics, which include requirements such as accuracy, consistency and completeness for PUB's data. Work has also begun on the compilation of PUB's Data Dictionary and Data Catalogue, which will serve as an authoritative source of metadata information and facilitate data access and exploitation for data analysts.



Data Competency

In 2021, PUB also implemented several initiatives to raise data competency across PUB and cultivate a data-driven culture. PUB has established a Data Science Unit and a Community of Data Analysts to drive data exploitation and analysis for policy decisions, service and operational delivery. Accompanying this initiative, we have rolled out a competency framework and training plan for both general and more specialised data competencies. PUB has also set up a Data Portal serving as a one-stop avenue to communicate data policies, provide training resources and showcase data use cases.

Enhanced and Resilient Operations

Digital and cyber-physical solutions can help us to manage our operations more effectively. For example, real-time information and assets can be provided to key decision makers and work teams in the field by leveraging data, modelling and simulations to provide decision support; while manual and laborious activities can be automated with digital solutions. Over the years, PUB has exploited operations technology for plant automation and control, as well as for monitoring and controlling our network operations. In recent years, riding on the digitalisation wave and emerging technologies such as the Internet of Things and Artificial Intelligence, PUB has accelerated and expanded our operations digitalisation efforts in order to improve our service outcomes and reduce our operating costs. Some notable recent projects include:



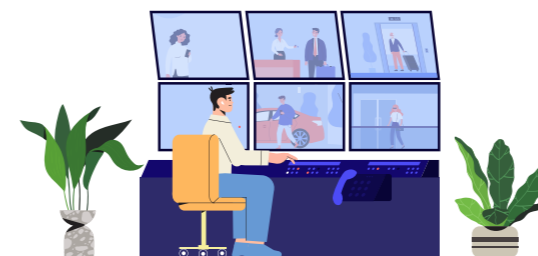
Enhanced Operations Command and Control

Updates to the Intelligent Water Management System (IWMS)

The IWMS was enhanced with new modules. In particular, a “Real-time Event Log” module was added in March 2021 to digitalise records of key operational data, which facilitates reporting and review of operations, while a “System Planning” module was introduced in September 2021 to allow PUB officers to plan and better optimise operations on our water systems. PUB will continue to enhance IWMS further by progressively rolling out an “Incident Management” module to integrate, process, and organise time-critical data. This improves PUB’s situational awareness and operations support, which in turn enables PUB to respond swiftly and effectively to incidents.

A Centralised Video Management System (CVMS)

Currently under development, the CVMS is a new enterprise system to provide an integrated digital workflow for managing incidents captured by PUB’s CCTV systems. Integrating with 32 PUB’s CCTV systems, CVMS serves as a single platform for officers to access relevant CCTV videos. In addition, CVMS will include intelligent capabilities such as video synopsis and viewing of video alerts snippets to support investigation and operations improvement.



Updates to the Waterwise Project

PUB deployed 450 sensor stations on our water supply network, transmitting data to our Smart Water Grid platform, WaterWiSe, for network monitoring and analysis. The data enables our officers to carry out simulations of the network operations. Such simulations supplements our officers’ institutional knowledge and experience, and allows them to holistically assess and anticipate pressure, flow and water quality issues before carrying out planned works on our water distribution network.



Real-time monitoring of operations via WaterWiSe

Operations Automation

The Automated Bacterial Culture Plate Counting System

Implemented in June 2021, the system schedules plate incubation for up to seven days and automatically monitors bacterial growth via accurate colony counting. It enhances our staff’s effectiveness and reduces the need for staff to return to the laboratory outside office hours to perform the procedures.



Operation Automation

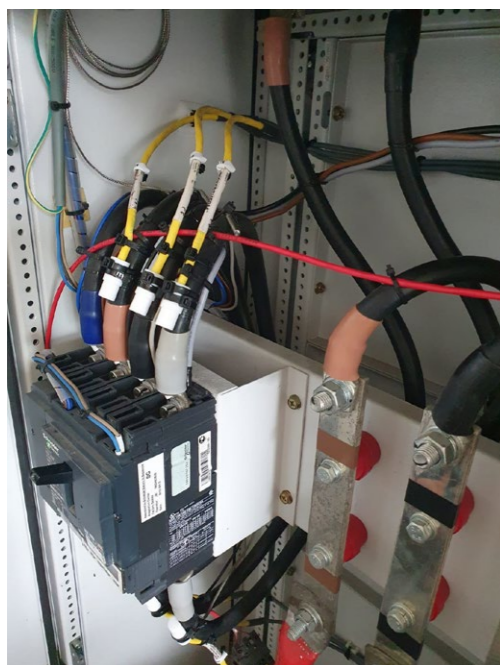
Operations Monitoring



Exertherm Sensor Cable in Hotspot Temperature Monitoring System

Hotspot Temperature Monitoring System (HTMS)

Rolled out in August 2021, the HTMS enables continuous temperature monitoring of busbar joints and terminations on power cables. It provides early detection of hotspots and warning of imminent failures as part of the predictive maintenance of electrical switchboards. This Design for Safety (DfS) technology eliminates electrocution and flashover hazards to our electrical staff and contractor workers.



Exertherm Infrared Sensor in Hotspot Temperature Monitoring System

Increase in Monitoring Sensors

This year, we increased our monitoring sensors from 300 to 1,200 to monitor up to 40% of our transmission pipelines. These sensors can accurately identify and pinpoint the location of leaks along our pipeline which reduces the labour-intensive operations for leak detection and enables our officers to react swiftly to the leaks.

Deployment of Volatile Organic Compound (VOC) Monitoring Units to Monitor Illegal Discharge

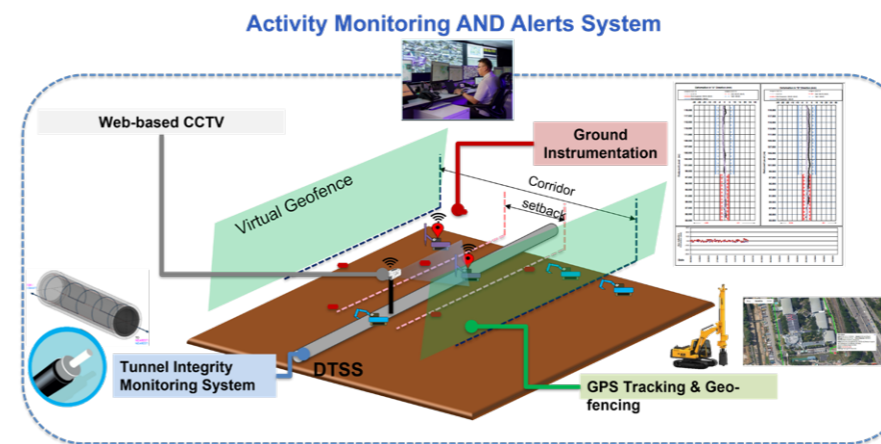
In 2022, PUB will deploy some 175 Microbial Electrochemical Sensor (MES) units at trade premises to deter illegal discharge, as well as increase the deployment of Volatile Organic Compound (VOC) monitoring units from 92 to 100 in the sewerage network. Development is underway for Discharge Effluent Analytical Monitoring System – an integrated dashboard for the centralised monitoring and data analysis. Robots and drones have been used for ambush operations of suspected trade premises since 2018, and these technologies provide us with evidence of illegal dumping within trade premises.



VOC Monitoring Unit



MES Unit



AMANDA: a one-stop platform to monitor construction activities near the DTSS

The Activity Monitoring AND Alerts (AMANDA) system

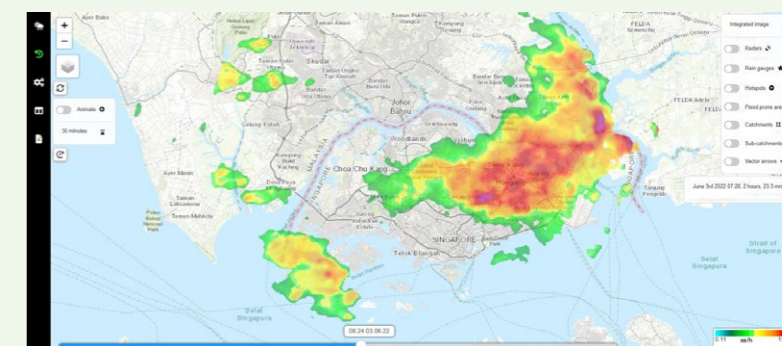
Slated to be completed by 2023, AMANDA enhances PUB's sewerage infrastructure monitoring and protection. The system will allow Qualified Professionals to upload ground instrumentation data and alert PUB when the readings breach pre-determined alert levels as well as enable PUB to monitor CCTVs at construction sites via a single platform.

Radar Rainfall Monitoring System

We have incorporated additional radar and machine learning algorithms to enhance the Radar Rainfall Monitoring System. These algorithms improve the forecasting of heavy rainfall locations and quicken the deployment of PUB's Quick Response Teams (QRTs) to potential areas at risk of flash floods.



Radar at Changi Water Reclamation Plant



Integrated Rainfall Map

Improved Service Delivery & Customer Experience

In its role as a water services provider and water regulatory authority, PUB manages a range of services for customers and businesses. PUB is embarking on a comprehensive review of our e-services to streamline our transactions and leverage technologies and digitisation to improve the user experience. Some key initiatives include:

The Smart Water Meter Programme:

In the first phase of the Smart Water Meter Programme, PUB has started the installation of some 300,000 smart water meters as of January 2022. The Smart Water Meter Programme is an opportunity to re-invent our customer experience by providing consumers with on-demand and convenient access to water consumption information. Customers with smart water meters installed will be able to login to their MySmartWaterMeter account to view daily, or even hourly breakdowns of their water consumption data, and be alerted of suspected leaks and high consumption in their premises. This empowers them to become smarter users of water, enabling them to save water and money in the process.

Review Customer Service Journeys

We have been looking to improve our customer satisfaction and identify opportunities in our customer experience by reviewing our customers' service journey with PUB and leveraging digital solutions to deliver better and more responsive services. In 2021, we have identified ways to improve our water services in view of rolling out of the Smart Water Meter Programme. Moving on, we will establish a framework to monitor customer experience and incorporate our findings into the respective digital solutions.

A Refreshed PUB Website and New Business and Professional Portal

PUB has been awarded the Best Functionality and Best Search Engine Optimisation (SEO) award in the medium agency size category by Govtech for the inaugural Digital Services Awards 2021. This award recognises agencies' achievement and commitment to maintaining excellent digital service standards for its users. Notwithstanding this, PUB will continue to explore ways to further improve the usability and relevance of our digital services for our stakeholders. For example, we will be adopting a service journey approach as we commence our project to refresh the PUB website and set up a new portal for businesses and professionals by 2023.

Building a Future-Proof Workforce

Our people are our most valuable resource. We seek to maximise their potential and build a future-proof workforce by adopting a People-Centric Approach. These initiatives involve upskilling our workers, as well as providing leadership and digital competencies development in emerging areas. For example, we have extended learning opportunities and knowledge sharing to our contractors and the wider water industry. To ensure every aspect of our employees are taken care of, we continue to emphasise staff well-being and aim for a healthy and safe workplace. These initiatives ensure that our workforce can advance together towards the new economy with enthusiasm and confidence.

Upskilling our workers

Developing Deeper and Broader competencies

The Singapore Water Academy (SgWA) is committed to delivering competency-based training for every officer through in-person and virtual training, via different learning modalities. In 2022 and beyond, SgWA will continue to level up staff's organisational competencies to meet transformation needs. We will focus on emerging skillsets, such as data analytics, cybersecurity and smart solutions, and training for innovation tools such as Agile and Design Thinking. To support the Singapore Green Plan's movement on sustainable development and climate change, SgWA is developing a Sustainability Competency Framework for PUB officers to raise their awareness and knowledge on sustainability challenges.



Digital Literacy Training to upskill Grade 15/16 officers

Digital Learning Platforms: At a Glance

	PUB Platform		WOG Platform
	Access via SOE Machine	Access via Mobile App/Web Browser	
Structured learning arranged by SgWA	PUBLearn	SgWA Mobile Learning	Learn by Civil Service College
Self-directed learning	PUBTube		Learn GOV.SG

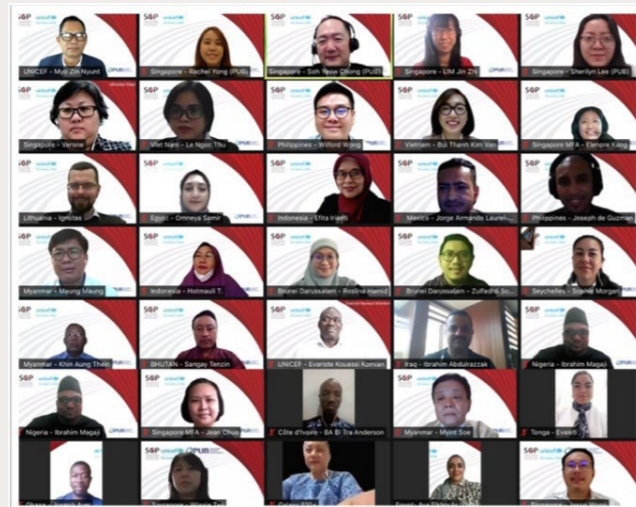
PUB's Digital Learning Platforms

Training the Water Industry

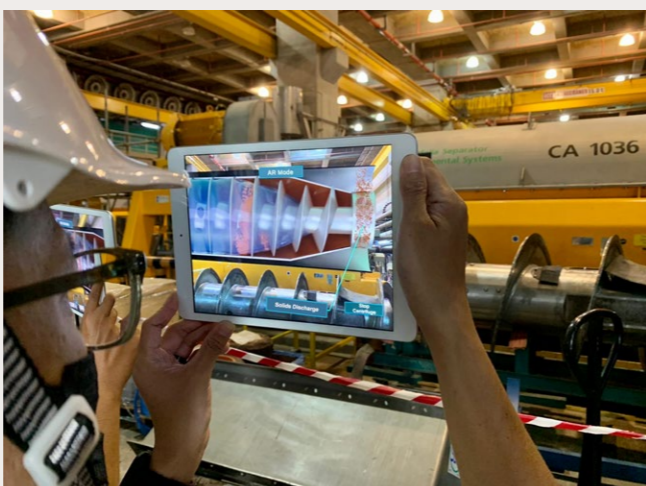
To ensure that Operations & Maintenance (O&M) contractors have the competencies to deliver high-quality services to PUB, SgWA will progressively launch PUB Induction E-Learning for O&M Contractors by the end of 2022 to familiarise our O&M contractors and their workers with PUB's water systems and operating environment. Beyond PUB, SgWA provides training to international participants and the industry. In 2021, SgWA conducted virtual runs of the Ministry of Foreign Affairs - Singapore Cooperation Programme (MFA-SCP), in partnership with United Nations International Children's Emergency Funds (UNICEF), on the topics of water sanitation and health (WASH) and climate action package (CAP) to promote learning in water, sanitation and public health, climate adaptation and stormwater management. In 2022, SgWA pivoted towards physical runs for training, allowing delegates from overseas to network in-person and benefit from physical site visits to key installations.



Roll out of PUB Induction E-learning for O&M contractors and workers



Inaugural Virtual Training on Singapore-UNICEF Joint Training Programme on Sustainable Integrated Water Resources and Stormwater Management in November 2021



Using Augmented Reality technology at CWRP during Induction Programme site visit



Training how to operate & maintain equipment through Mixed Reality technology

Driving Digital learning

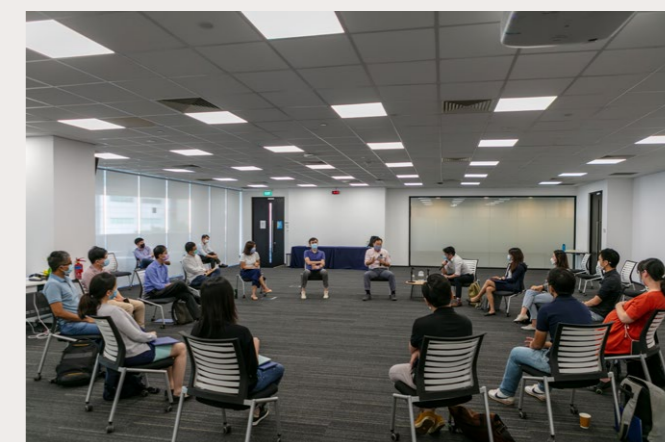
Over the years, SgWA has converted in-house training programmes to e-learning modules to make learning more flexible and accessible. Over 67 of our in-house programmes are converted to e-learning to date. To enhance the staff's learning experience and to cultivate a positive self-directed learning culture, SgWA leverages existing digital platforms such as PUBLearn, PUBTube, LEARN by Civil Service College (CSC) and SgWA Mobile Learning application. To date, more than 50 webinars have been conducted fortnightly in-house and recorded webinars are uploaded on PUBTube and SgWA Mobile Learning app for staff to view at their own pace and time.

In March 2021, SgWA also expanded Augmented Reality (AR) technology to worksites to allow visualisation of complex plant processes, and Mixed Reality applications were launched to complement practical training, providing a safe and immersive environment for PUB officers while they learn to maintain our equipment. An Operator Training Simulator (OTS) was launched at Lower Seletar Waterworks in July 2022 to equip plant operators with process knowledge and enable them to be trained on various operational scenarios without the risk of disrupting actual plant operations.



Developing Leaders for Effective Team Leadership

Leadership development is a key area of emphasis for PUB as we prepare our middle managers to lead their teams effectively. The refreshed Leadership Development Programme (LDP) and the inaugural LDP-Booster, a follow-on development programme for LDP graduates, kicked-started virtually in 2021. The programme continued in-person in 2022 as we emerged from the constraints posed by COVID-19.



8th LDP dialogue with former CE in November 2021

Staff Well-Being



Gym Facilities at WaterHub



PUB staff exercising at fitness classes

Get Active

Top-notch fitness facilities were set up at selected workplaces and classes were organised to enable our staff to reap the benefits of staying active. We organise regular sporting interest group activities to encourage our staff to stay active and healthy together.



Eat Right

The right diet can go a long way towards keeping healthy. Besides organising talks to educate our staff on healthy eating habits and approaches, PUB also adopted the Whole-of-Government (WOG) Healthier Catering Policy to nourish our staff with more nutritious choices at our work events.



Live Well

By addressing the non-physical aspect of well-being, PUB ensures that our staff continue to have a healthy mindset. We conducted the iWorkHealth Survey in March 2021, where we garnered insights and addressed key areas of concern with our staff. Additionally, we equipped our supervisors with skills to render help to team members who require mental health assistance.



Safety

Sustaining our System

We will be implementing PUBSafe, a one-stop smart safety management system for PUB staff and contractors to submit safety observations and conduct safety inspections and toolbox meetings. PUBSafe will help ensure quality and ease of reporting, follow-up tracking, and analysis of safety data.



Mobile application platform — Novade

Reinforcing our 'Culture'

To promote a culture of safety within PUB, we have expanded the coverage of Leading Indicators* to include Corporate Departments. In addition, we extended the observation and intervention training via e-learning to our contractors to empower them as effective change agents, improve the reach of safety learning to our staff through regular public webinars and bite-size e-learning content on digital learning platforms.



PUB safety initiatives on Observation and Intervention Training via E-Learning



Publicity campaign on Safety Ambassadors through posters

Strengthening our People

We engaged an Occupational Health and Hygiene specialist to review and recommend enhancements to PUB's occupational health risks and management programme. The ongoing review includes a gap analysis of our existing occupational health management system, proposals for adequate environmental monitoring and personal medical examinations to evaluate occupational health risks. To inculcate safety ownership within PUB, we introduced the Safety Ambassadors programme to encourage staff to report and intervene when they observe unsafe acts at the workplace. In addition, we implemented multi-lingual Safety Orientation Briefings to ensure that our contractor's workers understand safety messages easily.

*Leading Indicators are measurable indicators, e.g. Health/Safety Trainings, that help to predict the possible occurrence of a safety event before it occurs.

Chapter 3

Advancing Towards Sustainability and Resiliency

With the launch of the Singapore Green Plan 2030, which outlines Singapore's latest national roadmap toward sustainable development, PUB is committed to supporting the national agenda by working with like-minded partners to build a sustainable and resilient water system for ourselves and generations to come.



Going Green in our Operations

In line with the national sustainability agenda under the Singapore Green Plan, PUB is working towards net-zero carbon emissions by 2050 through research, innovation, new technologies and new operating methods. We have established a Green Financing Framework to support the issuance of green bonds where the receipts will go into funding capital needs for green projects. In addition, we will adopt a 3R (Reduce, Replace, Remove) approach to decarbonise our operations.



Artist's impression of Tuas Nexus

Reduce

Tuas Nexus

To reap the potential synergies of Water-Energy-Waste nexus, Tuas WRP will be integrated with NEA's Integrated Waste Management Facility to form the Tuas Nexus. One example is to produce more biogas by digesting used water sludge and bio-pulp together. Electricity generated by the Waste-to-Energy process will be used to power the operations of Tuas Nexus and exported to the grid. This fully integrated Water-Energy-Waste complex is the first of its kind in the world.

Co-digestion plant at Changi Water Reclamation Plant (CWRP)

Building on the same concept adopted in Tuas Nexus, NEA and PUB plan to co-locate a similar food waste treatment facility at CWRP. The biogas produced will generate electricity for CWRP's in-plant use.



Reduce Energy Consumption

Through continuous R&D efforts, PUB is on track to reduce the energy consumption of seawater desalination from 3.5 kWh/m³ to 2.6 kWh/m³. In 2023, a desalination Integrated Validation Plant (IVP) will be commissioned to trial promising technologies to reduce the energy consumption of desalination to less than the R&D target of 2 kWh/m³. Successful trials will pave the way for the technologies to be implemented in full-scale desalination plants.

We are also adopting Flow Reversal Technology (FRT) that can increase the reverse osmosis recovery from 75% to 90% with no increase in energy consumption. FRT is planned to be implemented at Changi NEWater Factory 3 and Tuas NEWater Factory 1.

Conversion of Waste Materials to Useful Products

PUB targets to reduce the amount of sludge sent to incineration from 0.16kg per m³ of used water today to 0.11kg per m³ of used water by 2025 and 0.08kg per m³ of used water by 2050. We also aim to convert waste from our Water Reclamation Plants and Waterworks into useful products. PUB has embarked on several research projects to study how the sludge can be transformed by gasification and pyrolysis into slag and biochar for industrial applications. Sludge-derived slag has the potential to be an alternative construction aggregate for structural applications.

Replace

Solar Photovoltaic (PV) Systems

Solar energy is the most viable source of renewable energy in Singapore. With Singapore's water demand projected to double by 2060 compared to today, PUB has invested in solar PV systems on our rooftops and reservoirs to harness clean energy and reduce carbon emissions. In 2021, a 60-megawatt peak (MWp) floating solar PV system was opened at Tengeh Reservoir, and two smaller 1.5 MWp floating solar PV systems were commissioned at Bedok and Lower Seletar Reservoirs. In the coming years, we expect to see more large-scale floating solar PV systems being implemented at other reservoirs such as Pandan Reservoir and Lower Seletar Reservoir.



60 MWp system at Tengeh Reservoir



1.5 MWp system at Lower Seletar Reservoir

Fully Electric Vehicle Fleet

To support Singapore's aim to develop a greener and more sustainable land transport sector under the Singapore Green Plan 2030, PUB will deploy a fully Electric Vehicle (EV) fleet by 2040.



Remove

Capturing Carbon Dioxide in Seawater

To offset its carbon emissions, PUB is working with University of California, Los Angeles on the use of alkaline electrolysis technology to capture carbon dioxide (CO₂) from seawater. This technology could be integrated as part of PUB's desalination plants to combine dissolved CO₂ in seawater with other minerals present to form carbonates that can be recovered for applications in construction and building coastal defences.

Fostering Innovation

To foster innovation and achieve water sustainability, PUB collaborates with a network of local and international research institutions and industry partners to develop and test-bed new technologies that can advance us towards a more sustainable future.

Over the last five years, we committed to S\$18 million in industry R&D spending. This resulted in 36 new technologies deployed in Singapore and the creation of 29 new intellectual properties (IPs). Through the National Research Foundation, S\$145 million will be set aside for the next five years to build and deepen research for test-bedding, translation and commercialisation capabilities in the Singapore water ecosystem. Of this, S\$51 million would be allocated to supporting research through grant calls under the Competitive Funding for Water Research (CWR) programme. In FY2021, two grant calls were made — RFP2101: Recovering Chemicals & Minerals from the Water Loop and RFP2102: Protecting the Impacts of Climate Change on Singapore's Water System. A further S\$86 mil will be allocated to strengthen research and translation capabilities in two Centres of Excellence — the Nanyang Environment and Water Research Institute and the Separation Technologies Applied Research and Translation.

PUB launched the grant call to “close the waste loop” (resource recovery) and an open innovation challenge titled “Carbon Zero Grand Challenge” in 2021. The Carbon Zero Grand Challenge

sought carbon capture, utilisation and removal solutions that can directly address emissions associated with PUB's facilities and be integrated with PUB's operations. For the grant call, PUB received proposals on technologies and solutions that could help PUB achieve greater environmental sustainability, such as recovering valuable rare metals from seawater desalination brine, with three projects to be funded. 71 solutions from 21 countries tackling PUB's greenhouse gas emissions were received. Two solutions were selected by PUB: “Algae-based treatment of anaerobic digester effluent for carbon footprint reduction and nutrient recovery” by Xylem Water Solutions Singapore Pte Ltd and Gross-Wen Technologies and “Modular and scalable emissions reduction solution” by CO2Tech Pty Ltd from Australia.



Identifying and Managing Risk

Proactive management of risks and opportunities is key to building resilience and sustainability.

Building a Culture of Risk Awareness

For risk management actions to be effective, every PUB staff needs to be aware of the risks within their day-to-day activities and be competent in managing the risks. During Risk Awareness Month, bite-sized information on PUB's risks were disseminated to staff at all levels through infographics, Electronic Direct Mailers, computer lock screens and quizzes. We have also curated an e-learning course for supervisors, to equip them with essential knowledge and skillsets to identify and manage risks in their respective roles.



Pre-Emptive Risk Management

PUB introduced a regular scan for Emerging Strategic Issues (ESIs) in 2021 as part of PUB's Enterprise Risk Management framework. These ESIs are identified based on the scan of global and local trends and reports of overseas water companies. Identifying ESIs early helps us understand our operating environment's uncertainties and potential blind spots and anticipate the impact on PUB.



Chapter 4

Everyone for Water

Building a sustainable water system is not a one-man show. We need to rally the community to conserve water and collaborate with industry partners to co-create innovative water solutions. Collaborations allow us to build a strong ecosystem which is key to safeguarding our nation's water sustainability.



Strengthening Industry Involvement

In collaboration with the industry and other stakeholders, PUB aims to grow water technologies that will be instrumental to its mission. To accelerate translation and commercialisation, PUB rolled out new initiatives in FY2021 to push the transition of research from the lab to the market.

Technology Translation & Commercialisation

PUB first rolled out a series of Water Technology Roadshows to profile promising water research to the industry for licensing or further development. Since the inaugural edition in May 2021, 14 technologies from the academic and research institutions have been profiled in the industry, seeding interest in the cutting-edge research that NRF/PUB is supporting.



Singapore Water Technology Roadshow

Recognising that it is important to develop capabilities for successful entrepreneurship, PUB organised the first-ever Commercialisation Programme for six start-ups and SMEs with key technologies of interest to PUB. The 8-week programme equipped participants with the skills and competencies to scale up and bring their technologies to market.



PUB organised monthly Water Utilities Series webinars to help start-ups/SMEs identify opportunities for technology deployment overseas and in adjacent industries.



Additionally, PUB organised TechXchange, a platform that connects innovators with investors, partners and buyers to advance the commercialisation of new and exciting water technologies. About 100 local and international delegates attended the session in April 2022.



Singapore Tech X Change

Our efforts saw two water start-ups, EnvironSens and Nexusbit, achieve more than \$250,000 in revenue in 2021. Another local start-up, Wateroam, which participated in Singapore International Water Week (SIWW) Hydropreneur Programme in 2014, clinched the 2021 Abu Zayed Sustainability Prize, a prestigious award from the United Arab Emirates.

In FY2021, the Singapore Water Exchange (SgWX) continued to grow as a global marketplace for innovative water companies. It has achieved more than 90% occupancy amidst challenging market conditions brought about by the pandemic and is now home to close to more than 30 companies from 12 countries, including the Singapore Water Association, which relocated to SgWX in February 2021.

In addition, SgWX supports PUB's sustainability objectives and was awarded the Green Mark Platinum (Super Low Energy Building) certification in May 2022.

PUB continues to press on with its focus on translation and commercialisation. We will explore venture co-creation with the industry to spin off promising research developed from NRF/PUB funding, to facilitate licensing of technologies by water companies.



Singapore International Water Week (SIWW2022)

SIWW2022 returned for the first time since 2018 as an in-person event. Held from 17 to 21 April 2022 alongside the CleanEnviro Summit Singapore, both events welcomed more than 11,000 attendees from 65 countries/regions, with over 2,200 international participants. As the biggest gathering of global water leaders and experts since the pandemic, SIWW2022 successfully profiled the vibrant water ecosystem in Singapore and the latest projects and innovations in PUB. These included the official opening of the Jurong Island Desalination Plant by DPM Heng Swee Keat; the return of NEWBrew, Singapore's unique brand of craft beer made from NEWater; the signing of a memorandum of understanding between PUB and Rwanda Water & Sanitation Corporation; and the launch of a Request for Proposal for innovative coastal protection strategies.

Delegates also had the opportunity to visit the latest facilities, such as the Sembcorp Tengoh Solar Floating Farm and the Keppel Marina East Desalination Plant. At SIWW2022, Professor Kazuo Yamamoto (Emeritus Professor at the University of Tokyo and Audit & Supervisory Board Member, Idea Consultants, Inc.) was awarded the Lee Kuan Yew Water Prize 2020 for inventing and operationalising the submerged membrane bioreactor.



Professor Yamamoto receiving the Lee Kuan Yew Water Prize award from Mdm Halimah Yacob, President of the Republic of Singapore



Water Expo at SIWW2022



Water Recycling by Industrial Users

As Singapore's non-domestic demand will account for more than half of our future water requirements, PUB will continue to provide incentives and work closely with large non-domestic water users to catalyse solutions to improve the water footprint of their plants. These include incorporating more water-efficient manufacturing processes, segregation of used water streams from production, and adopting new technologies for enhanced used water treatment and recovery. Some key technologies include ceramic membranes and advanced oxidation systems for contaminant removal, alternative water sources (e.g. seawater) for cooling, and recycling of cooling tower blowdown water. The total reduction in industrial water demand from such projects is 27.2mgd.

Enhancing Community Engagement

PUB hopes to manage Singapore's water demand through public communications and community engagement to raise awareness, grow support and generate action among stakeholders to take joint ownership of our water resources and play a role in water conservation.

The Active, Beautiful, Clean Waters (ABC Waters) Programme

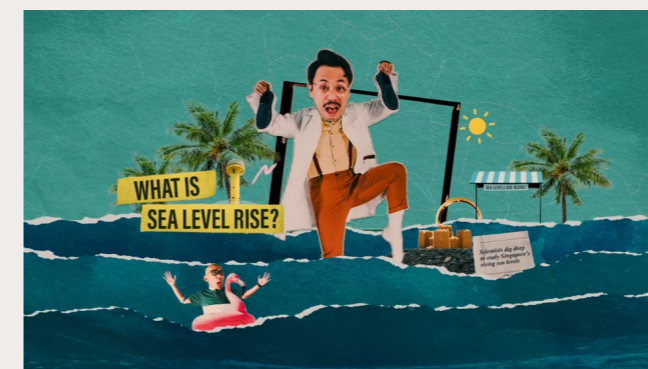
The ABC Waters Programme aims to integrate our waterways with the surrounding landscape to promote multi-functional use of space and enhance the liveability of our environment. As of March 2022, PUB has completed 51 ABC Waters projects since its launch in 2006, with the latest two projects at Sungei Tampines.



Before: Sungei Tampines



After: Sungei Tampines



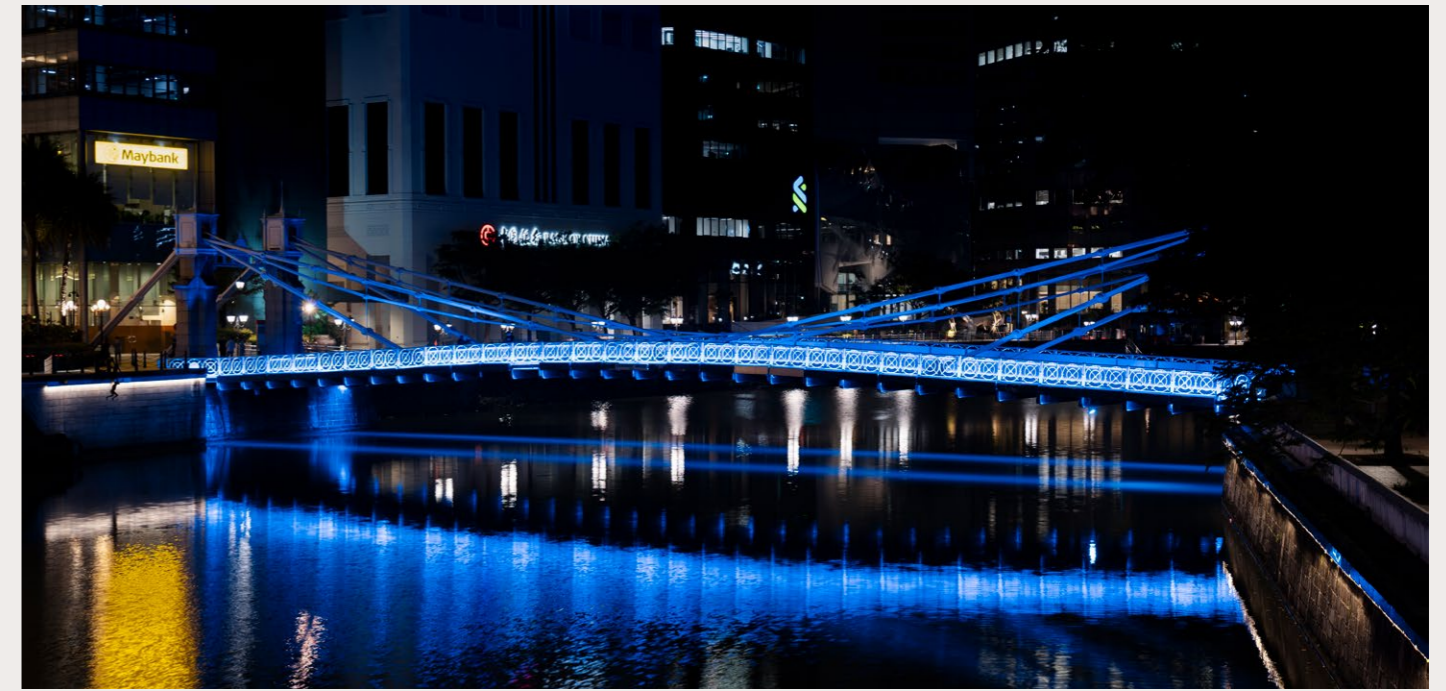
Entertainment Video: "Sea-Rius Li" Series

An Integrated Public Campaign to Raise Awareness on Rising Seas

An integrated education campaign is rolled out in 2022 to raise awareness of rising sea levels and educate the public on PUB's efforts to protect our coastlines. Informative content such as media stories and entertainment videos were also created and published on various media channels.

Singapore World Water Day 2022

The Singapore World Water Day 2022 entailed a plethora of education and publicity efforts focused on creating buy-in that every individual effort goes towards making every drop count. More than 460 partners supported our water conservation cause. Over 130 schools conducted water-centric activities like roadshows and games for students every Wednesday in March 2022, a marked increase from 80 schools in March 2021. In addition, the #GoBlue4SG movement rallied community partners to offer blue deals and light up their buildings in blue in March 2022, in support of water conservation. The movement culminated in the signature “City Turns Blue” event from 19 to 22 March 2022 to commemorate the United Nations World Water Day, with a record-breaking number of 58 buildings lit up in blue in 2022. A ‘My Take on Water’ Photo Contest was also organised in collaboration with Canon Singapore to capture images of what water means in their daily lives in interesting and creative ways.



‘City Turns Blue’ at Cavenagh Bridge



Participants from ‘My Take on Water’ Photo Contest



Students from Zhonghua Primary School participating in water-centric activities



‘Water Wednesday’ initiative by Nan Chiau Primary School



Staff supporting ‘Water Wednesday’ initiative at Nan Chiau Primary School

2021/2022

Financial Report

FINANCIAL HIGHLIGHTS Ended 31 March 2022

	Group	
	FY2021	FY2020
	\$ million	\$ million
OPERATING RESULTS		
Operating Income	1,447.8	1,419.0
Net Non-Operating Income	85.0	59.8
Operating Expenses	(1,557.1)	(1,408.9)
Finance Expenses	(33.2)	(38.0)
Net (Loss)/Income before Government Grants	(57.5)	31.9
Operating Grants from Government	402.3	381.7
Net Income after Government Grants and before Contribution to Consolidated Fund and Taxation	344.8	413.6
Contribution to Consolidated Fund Taxation	(58.9)	(70.4)
	-	-
Net Income after Government Grants and after Contribution to Consolidated Fund and Taxation	285.9	343.2

	FY2021	FY2020
	\$ million	\$ million
FINANCIAL POSITION		
Property, Plant and Equipment	9,066.9	8,709.2
Cash and Cash Equivalents	331.3	397.8
Other Assets	274.2	251.6
Total Assets	9,672.4	9,358.6

Capital Account	6,860.3	6,572.7
(Accumulated Losses)/Retained Earnings	(0.2)	1.2
Water Efficiency Fund	6.0	6.0
Share Capital	1.3	1.1
Borrowings	1,000.0	1,000.0
Other Liabilities	1,805.0	1,777.6
Total Equity and Liabilities	9,672.4	9,358.6

Average Total Assets (\$ billion)	9.5	9.2
Return on Total Assets ¹ %	3.3	4.1
Gearing Ratio ² %	18.1	19.0

¹ Return on Total Assets = Return before Interest and after Contribution to Consolidated Fund and Tax / Average Total Assets

² Gearing Ratio = (Borrowings + Lease Liabilities) / Average Total Assets

PERFORMANCE OVERVIEW

The Group recorded a net income after Government grants and Contribution to Consolidated Fund and Taxation of \$285.9 million this year (prior year: \$343.2 million). A lower return of \$57.3 million over the previous year is largely attributed to an increase in operating expenses which more than offset the increase in total income.

INCOME

The Group's operating income of \$1,447.8 million (prior year: \$1,419.0 million) was from its water supply and used water operations. The Group's other major source of income of \$402.3 million (prior year: \$381.7 million) is from the Government operating grants for the operations and maintenance of the drainage systems, the Active, Beautiful, Clean (ABC) Waters Programme as well as other government-funded activities.

OPERATING EXPENSES

The Group's operating expenses³ totalled \$1,557.1 million in FY2021 (prior year: \$1,408.9 million). Operating expenses of the Group comprise largely of depreciation of Property, Plant and Equipment (PPE), manpower, maintenance, electricity, research & development, administrative and other miscellaneous expenses incurred related to the collection, production, distribution and reclamation of water in Singapore.

FINANCIAL POSITION

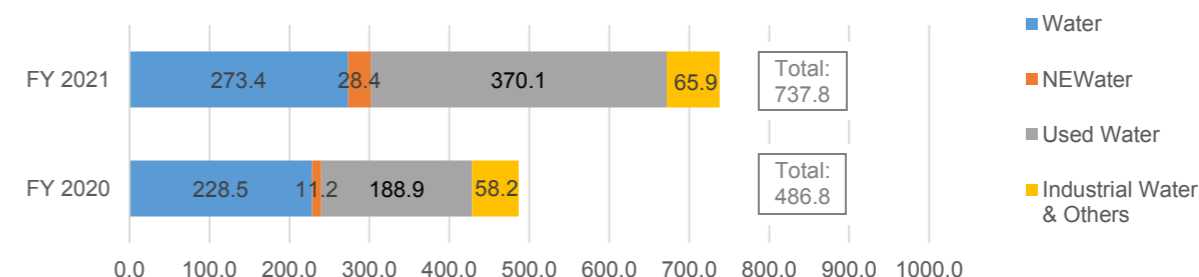
As at 31 March 2022, the Group's total assets stood at \$9,672.4 million (prior year: \$9,358.6 million). The increase of \$313.8 million was largely due to an increase in PPE of \$357.7 million and other assets of \$22.6 million which more than offset a net reduction in cash and cash equivalents of \$66.5 million.

93.7% of the Group's total assets or \$ 9,066.9 million (prior year: 93.1%, \$8,709.2 million) are accounted for by PPE which includes land, pipelines, plant, equipment and buildings (to house the plant and equipment).

CAPITAL EXPENDITURE

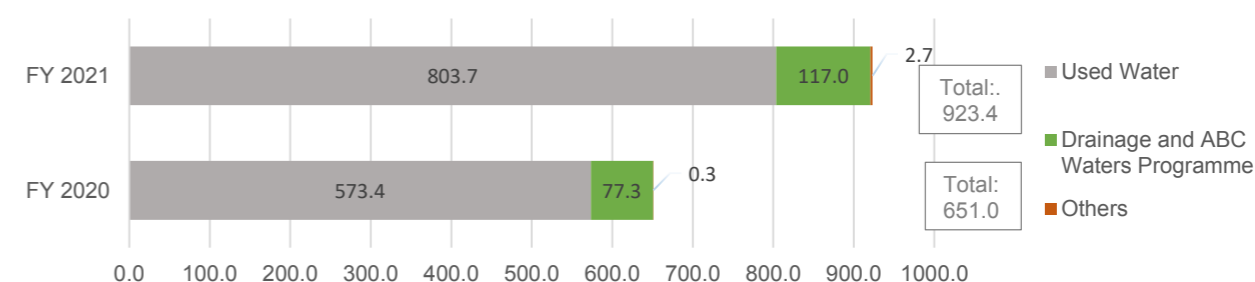
During the year, the capital expenditure of the Group was \$1,661.2 million (prior year: \$1,137.8 million). This comprises PUB-funded capital expenditure of \$737.8 million and government-funded capital expenditure of \$923.4 million as shown in the following charts:

PUB-Funded (\$ million)



PUB spent \$737.8 million (prior year: \$486.8 million) in capital expenditure as part of its continual efforts to replace, improve and expand water and used water infrastructure to cater for future water needs of the nation. These infrastructures are funded by cash generated from revenue collected (net of expenses) and borrowings, and under the Design, Build, Own and Operate (DBOO) arrangement.

Government-Funded (\$ million)



Government-funded capital expenditure of \$923.4 million (prior year: \$651.0 million) were mainly for drainage network, used water reticulation network and the ABC Waters Programme projects. These assets belong to the Government.

³ The Group's operating expenses do not include depreciation expenses for the drainage, ABC Waters Programme and used water reticulation networks belonging to the Government.

TEN - YEAR SUMMARY OF OPERATING RESULTS AND FINANCIAL POSITION

GROUP	FY2021	FY2020	FY2019	FY2018	FY2017	FY2016	FY2015	FY2014⁴	FY 2013	FY 2012
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
OPERATING RESULTS										
Operating Income	1,447,819	1,418,973	1,447,273	1,404,797	1,286,167	1,222,432	1,201,313	1,182,495	1,143,538	1,090,013
Operating Expenses	(1,557,127)	(1,408,864)	(1,417,507)	(1,405,514)	(1,323,969)	(1,270,242)	(1,239,334)	(1,193,636)	(1,138,645)	(1,064,474)
Net Operating (Loss)/Income	(109,308)	10,109	29,766	(717)	(37,802)	(47,810)	(38,021)	(11,141)	4,893	25,539
Net Non-Operating Income	85,009	59,813	91,342	74,338	71,411	73,459	56,345	49,842	47,686	30,252
Finance Expenses	(33,167)	(37,964)	(35,480)	(74,838)	(84,014)	(84,844)	(87,660)	(95,926)	(97,407)	(92,261)
Net (Loss)/Income before Government Grants	(57,466)	31,958	85,628	(1,217)	(50,405)	(59,195)	(69,336)	(57,225)	(44,828)	(36,470)
Government Operating Grants	402,322	381,712	355,138	354,849	332,868	298,826	270,431	276,992	296,378	215,514
Net Income after Government Grants and before Consolidated Fund and Tax	344,856	413,670	440,766	353,632	282,463	239,631	201,095	219,767	251,550	179,044
Contribution to Consolidated Fund and Tax	(58,862)	(70,456)	(75,046)	(60,112)	(48,392)	(40,691)	(34,258)	(37,378)	(42,530)	(30,425)
Net Income after Government Grants and after Contribution to Consolidated Fund and Tax	285,994	343,214	365,720	293,520	234,071	198,940	166,837	182,389	209,020	148,619
FINANCIAL POSITION										
Property, Plant and Equipment	9,066,900	8,709,201	8,241,303	8,121,274	7,854,348	7,147,445	6,793,808	6,778,733	6,855,671	6,652,223
Investment in Bonds	-	-	-	-	-	-	90,945	98,745	-	-
Cash and Cash Equivalents	331,326	397,829	615,420	450,282	513,438	683,301	830,546	780,255	1,088,925	888,985
Other Current Assets	247,907	246,416	244,640	242,841	270,042	236,746	220,954	215,554	203,059	182,107
Other Non-Current Assets	26,266	5,128	10,395	9,417	8,778	6,572	5,743	9,012	195	196
Total Assets	9,672,399	9,358,574	9,111,758	8,823,814	8,646,606	8,074,064	7,941,996	7,882,299	8,147,850	7,723,511
Borrowings ¹	1,000,000	1,000,000	1,300,000	1,300,000	1,400,000	1,400,000	1,650,000	1,750,000	2,100,000	2,100,000
Deferred Income ¹	562,343	502,656	505,515	528,773	549,467	225,831	243,117	246,641	248,161	243,001
Lease Liabilities ¹	723,808	751,438	426,420	598,059	629,320	658,882	512,793	535,317	556,558	399,223
Provision for Asset Restoration Obligations	12,903	13,393	14,562	12,424	12,345	12,613	13,829	14,577	27,047	26,517
Other Current Liabilities	505,909	510,097	628,987	512,518	476,915	432,163	376,767	355,537	418,246	365,952
Total Liabilities	2,804,963	2,777,584	2,875,484	2,951,774	3,068,047	2,729,489	2,796,506	2,902,072	3,350,012	3,134,693
Share Capital	1,255	1,057	1	1	1	1	1	1	1	1
Capital Account	6,860,331	6,572,705	6,228,274	5,863,311	5,571,307	5,335,175	5,138,057	4,972,795	4,790,787	4,582,817
Water Efficiency Fund	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
(Accumulated Losses)/Retained Earnings ²	(150)	1,228	1,999	2,728	1,251	3,399	1,432	1,431	1,050	-
Total Equity	6,867,436	6,580,990	6,236,274	5,872,040	5,578,559	5,344,575	5,145,490	4,980,227	4,797,838	4,588,818
Total Liabilities and Equity	9,672,399	9,358,574	9,111,758	8,823,814	8,646,606	8,074,064	7,941,996	7,882,299	8,147,850	7,723,511
Net Assets/(Liabilities) of Trust Funds ³	4,868,737	4,923,289	(49,985)	(51,071)	(59,179)	(52,403)	(36,939)	(38,115)	634	3,220

Notes:

¹ Borrowings, Deferred Income, Lease Liabilities comprise current and non-current portion.

² Retained earnings was after setting aside amounts to meet the Board's capital commitments in accordance with Section 14 of the Public Utilities Act (Chapter 261).

³ Assets and liabilities belonging to Trust Funds are excluded and presented separately from the Group's assets and liabilities.

⁴ With effect from FY2014, PUB took over the industrial water operations from the Government.

TEN - YEAR SUMMARY OF STATISTICAL DATA

	FY2021	FY2020	FY2019	FY2018	FY2017	FY2016	FY2015	FY2014	FY2013	FY2012
EMPLOYEES										
Number of employees										
- PUB	3,242	3,282	3,342	3,351	3,425	3,442	3,421	3,382	3,229	3,196
- PUBC	-	6	25	1	-	-	-	-	-	-
Group	3,242	3,288	3,367	3,352	3,425	3,442	3,421	3,382	3,229	3,196
CUSTOMERS										
Number of accounts ('000)	1,670	1,639	1,622	1,599	1,567	1,527	1,463	1,424	1,363	1,333
PERFORMANCE INDICATORS										
As at end of financial year										
- Number of accounts served per PUB employee	515	499	485	477	458	444	428	421	422	417
- Net Operating Income after grant per employee (S\$'000)	90	119	114	106	86	73	68	79	93	75
For period January - December										
- Flood Prone Areas (hectare) ¹	28	28	29	29	30	31	32	34	36	40
- Number of Disruptions per month per 1,000 km of Sewers	10	10	10	10	10	11	11	11	12	13
- Per capita Household Water Consumption (litres/day) ²	158	154	141	141	143	148	149	149	-	-
- Per capita Domestic Water Consumption (litres/day) ²	-	-	-	-	-	-	151	150	151	152
- % of Unaccounted for Water ³	-	-	5.5	5.6	5.1	5.0	5.0	5.2	5.2	4.7
- % of Distribution Losses ³	8.2	8.0	8.2	-	-	-	-	-	-	-
- % of tests meeting WHO Guidelines for Drinking-Water Quality and EPH (Quality of Piped Drinking Water) Regulations	100	100	100	100	100	100	100	100	100	100
CAPITAL EXPENDITURE										
	\$ million	\$ million	\$ million	\$ million	\$ million	\$ million	\$ million	\$ million	\$ million	\$ million
FUNDED BY AND BELONGING TO PUB										
Water	273.4	228.5	337.7	413.3	404.6	363.6	157.6	102.0	135.5	117.7
NEWater	28.4	11.2	14.2	8.6	13.9	20.9	50.6	65.1	81.8	120.3
Used Water	370.1	188.9	195.4	187.0	294.6	104.5	94.7	51.0	64.2	20.2
Industrial Water & Others ⁴	65.9	58.2	50.9	42.6	19.9	11.8	17.0	4.2	0.1	7.2
Total	737.8	486.8	598.2	651.5	733.0	500.8	319.9	222.3	281.6	265.4
FUNDED BY AND BELONGING TO GOVERNMENT										
Used Water	803.7	573.4	789.0	450.6	254.5	193.3	193.7	140.3	142.6	161.5
Drainage and ABC Waters Programme	117.0	77.3	209.4	270.7	307.0	357.5	300.7	215.2	161.7	187.3
Others	2.7	0.3	-	-	-	-	-	-	-	-
Total	923.4	651.0	998.4	721.3	561.5	550.8	494.4	355.5	304.3	348.8
Total	1,661.2	1,137.8	1,596.6	1,372.8	1,294.5	1,051.6	814.3	577.8	585.9	614.2

Notes:

¹ From FY2013 onwards, flood prone area (hectare) was reported based on calendar year. It was reported based on financial year previously.

² From FY2016 onwards, the indicator was revised from "Per capita Domestic Water Consumption" to "Per capita Household Water Consumption", which refers to water consumption within household premises only (i.e. usage in purpose built dormitories and common areas excluded).

³ "Distribution Losses" has replaced the "Unaccounted for Water" indicator from 2019 onwards as "Distribution Losses" accounts for all possible leaks and is therefore, a more holistic indicator on water loss.

⁴ With effect from FY2014, PUB took over the industrial water operations from the Government.

**PUBLIC UTILITIES BOARD AND
ITS SUBSIDIARIES**

(Established under the Public Utilities Act 2001)

ANNUAL REPORT

For the financial year ended 31 March 2022

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

(Established under the Public Utilities Act 2001)

ANNUAL REPORT

For the financial year ended 31 March 2022

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INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF PUBLIC UTILITIES BOARD

Report on the Audit of the Financial Statements

Our opinion

In our opinion, the accompanying consolidated financial statements of Public Utilities Board (the "Board") and its subsidiaries (the "Group") and the statement of comprehensive income, statement of financial position and statement of changes in equity of the Board are properly drawn up in accordance with the provisions of the Public Sector (Governance) Act 2018, No. 5 of 2018 (the "Public Sector (Governance) Act"), the Public Utilities Act 2001 (the "Act") and Statutory Board Financial Reporting Standards in Singapore ("SB-FRSs") so as to present fairly, in all material respects, the state of affairs of the Group and the Board as at 31 March 2022 and the consolidated results, consolidated changes in equity and consolidated cash flows of the Group and the results and changes in equity of the Board for the financial year ended on that date.

What we have audited

The financial statements of the Board and the Group comprise:

- the statements of comprehensive income of the Group and the Board for the financial year ended 31 March 2022;
- the statements of financial position of the Group and the Board as at 31 March 2022;
- the consolidated statement of changes in equity of the Group and the statement of changes in equity of the Board for the financial year then ended;
- the consolidated statement of cash flows of the Group for the financial year then ended; and
- the notes to the financial statements, including a summary of significant accounting policies.

Basis for Opinion

We conducted our audit in accordance with Singapore Standards on Auditing ("SSAs"). Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We are independent of the Group in accordance with the Accounting and Corporate Regulatory Authority Code of Professional Conduct and Ethics for Public Accountants and Accounting Entities ("ACRA Code") together with the ethical requirements that are relevant to our audit of the financial statements in Singapore, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the ACRA Code.

Our Audit Approach

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the accompanying financial statements. In particular, we considered where management made subjective judgments; for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. As in all of our audits, we also addressed the risk of management override of internal controls, including among other matters consideration of whether there was evidence of bias that represented a risk of material misstatement due to fraud.

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF PUBLIC UTILITIES BOARD

(continued)

Our Audit Approach (continued)

Key Audit Matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements for the financial year ended 31 March 2022. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Key Audit Matter	How our audit addressed the matter
<p>Carrying values of property, plant and equipment ("PPE") and assessment of useful lives of PPE</p> <p><i>Refer to note 2.9(b), note 3 and note 13 to the financial statements</i></p> <p>As of 31 March 2022, the carrying values of PPE of the Group amounted to \$9,067 million.</p> <p>We had focused our audit on the carrying values of PPE because PPE accounts for the majority of the Group's total assets and significant management judgement is involved in determining the useful lives of PPE. Given the significance of PPE to the Group's financial statements, errors in estimating the useful lives of PPE could result in a material misstatement to the financial statements.</p> <p>Accordingly, we have identified this as a key audit matter.</p>	<p>Our audit procedures included the following:</p> <ul style="list-style-type: none"> • We obtained understanding and validated the key controls over the Group's processes for accounting of property, plant and equipment, and noted that the determination of useful lives of PPE which is being performed on an annual basis, takes into consideration asset utilisation rate, internal technical evaluation, operational plans and technological developments. • We reviewed the appropriateness of management's estimates of the useful lives of PPE as follows: <ol style="list-style-type: none"> i) Discussed with management on the operational plans of the PPE; ii) Assessed management's estimate for the useful lives of new PPE acquired by tracing to underlying documentary support such as project documentation, technical assessment and vendor's specifications; iii) Reviewed management's analysis of estimated useful lives of the PPE including the identification of conditions that may indicate significant changes to estimated useful lives such as expected usage of the asset, expected physical wear and tear, technical or commercial obsolescence and legal or similar limits on the use of the asset such as the expiry dates of related lease; and iv) Compared the useful lives of the PPE against entities in the utilities industry based on published information of these entities. <p>Based on our audit procedures performed, we found management's estimates of the useful lives of PPE to be reasonable.</p>

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF PUBLIC UTILITIES BOARD
(continued)

Other Information

Management is responsible for the other information. The other information refers to all the sections of the annual report but does not include the financial statements and our auditor's report thereon. The other information is expected to be made available to us after the date of this auditor's report.

Our opinion on the financial statements does not cover the other information and we will not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

When we read the other information, if we conclude that there is a material misstatement therein, we are required to communicate the matter to those charged with governance and take appropriate actions in accordance with SSAs.

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 the provisions of the Public Sector (Governance) Act, the Act and SB-FRSs, and for such internal controls as management determines are necessary to enable the presentation of financial statements that are free from material misstatement, whether due to fraud or error.

A statutory board is constituted based on its constitutional act and its dissolution requires Parliament's approval. 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 there is intention to wind up the Group or for the Group to cease operations.

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

Auditor's Responsibilities for the Audit of the Financial Statements

Our 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 our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with SSAs 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.

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF PUBLIC UTILITIES BOARD
(continued)

Auditor's Responsibilities for the Audit of the Financial Statements (continued)

As part of an audit in accordance with SSAs, we exercise professional judgement and maintain professional scepticism throughout the audit. We 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 our 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 we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our 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. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We 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 we identify during our audit.

We also provide those charged with governance with a statement that we 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 our independence, and where applicable, related safeguards.

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF PUBLIC UTILITIES BOARD
(continued)

Auditor's Responsibilities for the Audit of the Financial Statements (continued)

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

Report on Other Legal and Regulatory Requirements

Opinion

In our opinion:

- (a) the receipts, expenditure, investment of moneys and the acquisition and disposal of assets by the Board during the financial year are, in all material respects, in accordance with the provisions of the Public Sector (Governance) Act, the Act and the requirements of any other written law applicable to moneys of or managed by the Board; and
- (b) proper accounting and other records have been kept, including records of all assets of the Board whether purchased, donated or otherwise.

Basis for Opinion

We conducted our audit in accordance with SSAs. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Compliance Audit* section of our report. We are independent of the Group in accordance with the ACRA Code together with the ethical requirements that are relevant to our audit of the financial statements in Singapore, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the ACRA Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion on management's compliance.

Responsibilities of Management for Compliance with Legal and Regulatory Requirements

Management is responsible for ensuring that the receipts, expenditure, investment of moneys and the acquisition and disposal of assets are in accordance with the provisions of the Public Sector (Governance) Act, the Act and the requirements of any other written law applicable to moneys of or managed by the Board. This responsibility includes monitoring related compliance requirements relevant to the Board, and implementing internal controls as management determines are necessary to enable compliance with the requirements.

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF PUBLIC UTILITIES BOARD
(continued)

Auditor's Responsibilities for the Compliance Audit

Our responsibility is to express an opinion on management's compliance based on our audit of the financial statements. We planned and performed the compliance audit to obtain reasonable assurance about whether the receipts, expenditure, investment of moneys and the acquisition and disposal of assets are in accordance with the provisions of the Public Sector (Governance) Act, the Act and the requirements of any other written law applicable to moneys of or managed by the Board.

Our compliance audit includes obtaining an understanding of the internal control relevant to the receipts, expenditure, investment of moneys and the acquisition and disposal of assets; and assessing the risks of material misstatement of the financial statements from non-compliance, if any, but not for the purpose of expressing an opinion on the effectiveness of the Board's internal control. Because of the inherent limitations in any internal control system, non-compliances may nevertheless occur and not be detected.

The engagement partner on the audit resulting in this independent auditor's report is Lee Kok Hooi.



PricewaterhouseCoopers LLP
Public Accountants and Chartered Accountants
Singapore, 25 July 2022


PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

STATEMENTS OF COMPREHENSIVE INCOME

For the financial year ended 31 March 2022

	Note	Group		Board	
		31 March 2022 \$'000	31 March 2021 \$'000	31 March 2022 \$'000	31 March 2021 \$'000
Operating income	4	1,447,819	1,418,973	1,446,891	1,418,973
Operating expenses	5	(1,557,127)	(1,408,864)	(1,554,818)	(1,408,079)
Net operating (loss)/gain		(109,308)	10,109	(107,927)	10,894
Net non-operating income	6	85,009	59,813	85,006	59,806
Net (loss)/income before finance expenses and operating grants		(24,299)	69,922	(22,921)	70,700
Finance expenses	7	(33,167)	(37,964)	(33,167)	(37,964)
Net (loss)/gain before operating grants		(57,466)	31,958	(56,088)	32,736
Operating grants from government		402,322	381,712	402,322	381,712
Net income after government grants and before contribution to Consolidated Fund and taxation		344,856	413,670	346,234	414,448
Contribution to Consolidated Fund	8(a)	(58,862)	(70,463)	(58,862)	(70,463)
Taxation	8(b)	-	7	-	-
Net income after government grants and after contribution to Consolidated Fund and taxation		285,994	343,214	287,372	343,985
Other comprehensive income					
<u>Items that will not be reclassified to profit or loss</u>					
Net re-measurement gain on pension obligation	16	254	446	254	446
Total comprehensive income		286,248	343,660	287,626	344,431
Attributable to:					
Shareholder of the Board		286,248	343,660	287,626	344,431


Chiang Chie Foo
Chairman


Goh Si Hou
Chief Executive

The accompanying notes form an integral part of these financial statements.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

STATEMENTS OF FINANCIAL POSITION

As at 31 March 2022

	Note	Group		Board	
		31 March 2022 \$'000	31 March 2021 \$'000	31 March 2022 \$'000	31 March 2021 \$'000
ASSETS					
Current assets					
Cash and cash equivalents	9	331,326	397,829	327,757	395,453
Inventories	10	102,836	89,422	102,836	89,422
Trade and other receivables	11	140,086	143,184	139,936	142,810
Prepaid and deferred expenses	12	4,985	13,810	4,930	13,803
		579,233	644,245	575,459	641,488
Non-current assets					
Property, plant and equipment	13	9,066,900	8,709,201	9,066,900	8,709,201
Investments in subsidiaries	14	-	-	2,100	100
Trade and other receivables	11	21,370	-	21,370	-
Prepaid and deferred expenses	12	4,896	5,128	4,895	4,773
		9,093,166	8,714,329	9,095,265	8,714,074
Total assets		9,672,399	9,358,574	9,670,724	9,355,562
LIABILITIES					
Current liabilities					
Trade and other payables	15	442,121	434,317	440,810	433,047
Provision for pension	16	4,926	5,318	4,926	5,318
Provision for contribution to Consolidated Fund and taxation		58,862	70,462	58,862	70,462
Lease liabilities	17	54,567	47,559	54,567	47,559
Deferred income	18	17,434	14,710	16,920	14,710
Borrowings	19	400,000	-	400,000	-
		977,910	572,366	976,085	571,096
Non-current liabilities					
Lease liabilities	17	669,241	703,879	669,241	703,879
Deferred income	18	544,909	487,946	544,909	487,432
Borrowings	19	600,000	1,000,000	600,000	1,000,000
Provision for asset restoration obligations	20	12,903	13,393	12,903	13,393
		1,827,053	2,205,218	1,827,053	2,204,704
Total liabilities		2,804,963	2,777,584	2,803,138	2,775,800
NET ASSETS		6,867,436	6,580,990	6,867,586	6,579,762
Equity					
Share capital	21	1,255	1,057	1,255	1,057
(Accumulated losses)/retained earnings		(150)	1,228	-	-
Capital account	22	6,860,331	6,572,705	6,860,331	6,572,705
Water Efficiency Fund	23	6,000	6,000	6,000	6,000
		6,867,436	6,580,990	6,867,586	6,579,762
Supplementary information					
Net assets/(liabilities) of trust funds	24	4,868,737	4,923,289	4,868,737	4,923,289

The accompanying notes form an integral part of these financial statements.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

For the financial year ended 31 March 2022

Note	← Group →				
	Share Capital	(Accumulated losses)/ retained earnings	Capital account	Water Efficiency Fund	Total
	\$'000	\$'000	\$'000	\$'000	\$'000
31 March 2022					
Beginning of financial year	1,057	1,228	6,572,705	6,000	6,580,990
Net income after government grants and after contribution to Consolidated Fund and taxation for the year	-	285,994	-	-	285,994
Other comprehensive gain for the year	-	254	-	-	254
Total comprehensive income for the year	-	286,248	-	-	286,248
Issue of Shares	21	198	-	-	198
Transfer to retained earnings upon utilisation	23	-	1,085	-	(1,085)
Transfer to top up Water Efficiency Fund	23	-	(1,085)	-	1,085
Transfer to capital account	22	-	(287,626)	287,626	-
Total transactions with owners, recognised directly in equity		198	(287,626)	287,626	-
End of financial year		1,255	(150)	6,860,331	6,000
					6,867,436
31 March 2021					
Beginning of financial year	1	1,999	6,228,274	6,000	6,236,274
Net income after government grants and after contribution to Consolidated Fund and taxation for the year	-	343,214	-	-	343,214
Other comprehensive gain for the year	-	446	-	-	446
Total comprehensive income for the year	-	343,660	-	-	343,660
Issue of Shares	21	1,056	-	-	1,056
Transfer to retained earnings upon utilisation	23	-	1,422	-	(1,422)
Transfer to top up Water Efficiency Fund	23	-	(1,422)	-	1,422
Transfer to capital account	22	-	(344,431)	344,431	-
Total transactions with owners, recognised directly in equity		1,056	(344,431)	344,431	-
End of financial year		1,057	1,228	6,572,705	6,000
					6,580,990

The accompanying notes form an integral part of these financial statements.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

STATEMENT OF CHANGES IN EQUITY

For the financial year ended 31 March 2022

Note	← Board →				
	Share Capital	Retained earnings	Capital account	Water Efficiency Fund	Total
	\$'000	\$'000	\$'000	\$'000	\$'000
31 March 2022					
Beginning of financial year	1,057	-	6,572,705	6,000	6,579,762
Net income after government grants and after contribution to Consolidated Fund and taxation for the year	-	287,372	-	-	287,372
Other comprehensive gain for the year	-	254	-	-	254
Total comprehensive income for the year	-	287,626	-	-	287,626
Issue of Shares	21	198	-	-	198
Transfer to retained earnings upon utilisation	23	-	1,085	-	(1,085)
Transfer to top up Water Efficiency Fund	23	-	(1,085)	-	1,085
Transfer to capital account	22	-	(287,626)	287,626	-
Total transactions with owners, recognised directly in equity		198	(287,626)	287,626	-
End of financial year		1,255	-	6,860,331	6,000
					6,867,586
31 March 2021					
Beginning of financial year	1	-	6,228,274	6,000	6,234,275
Net income after government grants and after contribution to Consolidated Fund and taxation for the year	-	343,985	-	-	343,985
Other comprehensive gain for the year	-	446	-	-	446
Total comprehensive income for the year	-	344,431	-	-	344,431
Issue of Shares	21	1,056	-	-	1,056
Transfer to retained earnings upon utilisation	23	-	1,422	-	(1,422)
Transfer to top up Water Efficiency Fund	23	-	(1,422)	-	1,422
Transfer to capital account	22	-	(344,431)	344,431	-
Total transactions with owners, recognised directly in equity		1,056	(344,431)	344,431	-
End of financial year		1,057	-	6,572,705	6,000
					6,579,762

The accompanying notes form an integral part of these financial statements.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

CONSOLIDATED STATEMENT OF CASH FLOWS

For the financial year ended 31 March 2022

	Note	Group	
		31 March 2022 \$'000	31 March 2021 \$'000
Cash flows from operating activities			
Net (loss)/gain before operating grants		(57,466)	31,958
Adjustments for:			
- Provision for property, plant and equipment write-off	5(c)	1,495	7,367
- Allowance for doubtful receivables, net	5(c)	1,962	3,546
- Allowance for inventory obsolescence	5(c)	28	132
- Reversal of write-down of inventory	5(c)	(1)	-
- Depreciation of property, plant and equipment	5(c)	398,604	376,804
- Loss on disposal of property, plant and equipment	6	3,023	4,180
- Amortisation of deferred income	6	(16,144)	(15,877)
- Interest income from fixed deposits	6	(1,342)	(5,876)
- Finance expenses	7	33,167	37,964
		363,326	440,198
Change in working capital:			
- Trade and other receivables		(33,503)	17,862
- Prepaid and deferred expenses		9,057	(8,231)
- Trade and other payables, and provisions		47,194	(73,618)
- Deferred income		75,831	13,018
- Inventories		(13,441)	(17,876)
		448,464	371,353
Payment for Consolidated Fund and tax		(70,462)	(75,054)
Net cash provided by operating activities		378,002	296,299
Cash flows from investing activities			
Additions to property, plant and equipment		(705,954)	(455,062)
Disposal of property, plant and equipment		373	1,728
Interest income received		1,828	11,438
Net cash used in investing activities		(703,753)	(441,896)

The accompanying notes form an integral part of these financial statements.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

CONSOLIDATED STATEMENT OF CASH FLOWS

For the financial year ended 31 March 2022

	Note	Group	
		31 March 2022 \$'000	31 March 2021 \$'000
Cash flows from financing activities			
Grants received from government		376,868	349,359
Repayment of borrowings		-	(300,000)
Payment of lease liabilities		(85,850)	(78,738)
Interest expense on fixed rate bonds		(31,938)	(42,615)
Proceeds from issuance of ordinary shares		168	-
Net cash provided by/(used in) financing activities		259,248	(71,994)
Net decrease in cash and cash equivalents		(66,503)	(217,591)
Cash and cash equivalents			
Beginning of financial year	9	397,829	615,420
End of financial year	9	331,326	397,829

Reconciliation of liabilities arising from financing activities

	1 April 2021 \$'000	Cash changes \$'000				Non-cash changes \$'000			31 March 2022 \$'000
		Principal repayments	Interest payments	Grants received from Gov't	Gov't grant utilised	Interest expense	Addition during the year	Lease modification	
Advances received for government grants (Note 15)	69,618	-	-	376,868	(416,607)	-	-	-	29,879
Borrowings (Note 19)	1,000,000	-	-	-	-	-	-	-	1,000,000
Interest payable	9,501	-	(31,938)	-	-	31,938	-	-	9,501
Lease liabilities (Note 17)	751,438	(53,006)	(32,844)	-	-	32,844	27,027	(1,651)	723,808

	1 April 2020 \$'000	Cash changes \$'000				Non-cash changes \$'000			31 March 2021 \$'000
		Principal repayments	Interest payments	Grants received from Gov't	Gov't grant utilised	Interest expense	Addition during the year	Lease modification	
Advances received for government grants (Note 15)	113,610	-	-	349,359	(393,351)	-	-	-	69,618
Borrowings (Note 19)	1,300,000	(300,000)	-	-	-	-	-	-	1,000,000
Interest payable	14,160	-	(42,615)	-	-	37,956	-	-	9,501
Lease liabilities (Note 17)	426,420	(47,347)	(31,391)	-	-	31,391	372,365	-	751,438

The accompanying notes form an integral part of these financial statements.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

These notes form an integral part of and should be read in conjunction with the accompanying financial statements.

1. General information

Public Utilities Board (the "Board") is a statutory board continued under the Public Utilities Act 2001, which came under the purview of the Ministry of Sustainability and the Environment ("MSE") on 1 April 2001. The address of its registered office is 40 Scotts Road, Environment Building, #22-01, Singapore 228231.

The principal activities of the Board established under the Public Utilities Act 2001 (the "Act") are to supply water, provide used water services to the public, and act as agent to the Singapore Government (the "Government") in the construction, management and maintenance of the following belonging to the Government: public sewerage systems, public sewers, storm water drainage systems, and structures to safeguard against both inland flooding and coastal inundation risks. The principal activities of its subsidiaries are set out in Note 14 to the financial statements.

2. Significant accounting policies

2.1 Basis of preparation

These financial statements have been prepared in accordance with the historical cost convention and are drawn up in accordance with the provision of the Public Sector (Governance) Act 2018 (the "Public Sector (Governance) Act"), the "Act" and Statutory Board Financial Reporting Standards ("SB-FRSs").

SB-FRSs include Statutory Board Financial Reporting Standards, Interpretations of SB-FRSs and SB-FRS Guidance Notes as promulgated by the Accountant-General. The Accountant-General is appointed as the legal authority to prescribe accounting standards for statutory boards under the Accounting Standards Act 2007 which came into effect on 1 November 2007.

As at 31 March 2022, the Group's and the Board's current liabilities exceeded their current assets by \$398.7 million and \$400.6 million respectively.

The Group and the Board will be able to pay their debts as and when they fall due, based on the cash flow projections for the financial year ending 31 March 2023 which has been approved by the board members. In addition, the Group and the Board will also tap the capital market to meet its funding requirements.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.1 Basis of preparation (continued)

The preparation of financial statements in conformity with SB-FRSs requires management to exercise its judgment in the process of applying the Group's accounting policies. It also requires the use of certain critical accounting estimates and assumptions. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the financial statements are disclosed in Note 3.

Interpretations and amendments to published standards effective in 2021

On 1 April 2021, the Group adopted the new or amended SB-FRS and Interpretations to SB-FRS ("INT SB-FRS") that are mandatory for application for the financial year. Changes to the Group's accounting policies have been made as required, in accordance with the transitional provisions in the respective SB-FRS and INT SB-FRS.

The adoption of these new or amended SB-FRS and INT SB-FRS did not result in substantial changes to the Group's accounting policies and had no material effect on the amounts reported for the current or prior financial years.

2.2 Revenue recognition

Revenue is recognised when performance obligation is either satisfied over time or satisfied at a point in time. The main revenue streams are as follows:

(a) Revenue from water sales and used water services

Revenue from water sales and used water services are recognised at a point in time when the Group satisfies its performance obligations based on customers' consumption of water and used water services.

Revenue from used water services comprises waterborne fee, sanitary appliance fee and trade effluent fee.

(b) Rental income

Rental income is recognised on a straight-line basis over the period of the lease.

(c) Interest income

Interest income is recognised on an accrual basis using the effective interest method.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.2 Revenue recognition (continued)

(d) Dividend income

Dividend income is recognised when the shareholder's right to receive payment is established.

(e) Project management fee

Project management fee is recognised over time when the services are rendered.

2.3 Government grants

Grants are received for the operations and maintenance of drainage systems, the Active, Beautiful, Clean Waters Programme, coastal management and other government-funded activities.

Grants from the government are recognised as a receivable at their fair values when there is reasonable assurance that the grant will be received and the Group will comply with all the attached conditions.

Government grants receivable are recognised as income over the periods necessary to match them with the related costs which they are intended to compensate, on a systematic basis.

Government grants whose primary condition is that the Group should purchase, construct or otherwise acquire non-current assets are recognised as deferred income in the statement of financial position, and are amortised and charged to profit or loss over the period necessary to match the annual depreciation charge of these assets or when the assets are disposed or written off.

2.4 Group accounting

Subsidiaries

Consolidation

Subsidiaries are all entities (including structured entities) over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power to direct the activities of the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.4 Group accounting (continued)

Subsidiaries (continued)

Consolidation (continued)

In preparing the consolidated financial statements, transactions and balances and unrealised gains on transactions between group entities are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment indicator of the transferred asset. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Group.

2.5 Contribution to Consolidated Fund and income taxes

(a) Contribution to Consolidated Fund

In lieu of income tax, the Board is required to make contribution to the Consolidated Fund in accordance with the Statutory Corporations (Contributions to Consolidated Fund) Act 1989.

(b) Income taxes

The Group's income tax expense comprises current and deferred tax of the subsidiaries. Current income tax liabilities for current and prior periods are recognised at the amounts expected to be paid to the tax authorities, using the tax rates (and tax laws) that have been enacted or substantially enacted by the reporting date.

Deferred income tax assets/liabilities are recognised for all deductible/taxable temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the financial statements except when the deferred income tax assets/liabilities arise from the initial recognition of an asset or liability in a transaction that is not a business combination and at the time of the transaction, affects neither accounting nor taxable profit or loss.

Deferred income tax asset is recognised to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised.

Deferred income tax assets and liabilities are measured at:

- (i) the tax rates that are expected to apply when the related deferred income tax asset is realised or the deferred income tax liability is settled, based on tax rates (and tax laws) that have been enacted or substantially enacted by the reporting date; and
-

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.5 Contribution to Consolidated Fund and income taxes (continued)

(b) Income taxes (continued)

- (ii) the tax consequence that would follow from the manner in which the Board's subsidiaries expect, at the reporting date, to recover or settle the carrying amounts of its assets and liabilities.

Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities and assets, and they relate to income taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but they intend to settle current tax liabilities and assets on a net basis or their tax assets and liabilities will be realised simultaneously.

Current and deferred income taxes are recognised as income or expenses in profit or loss for the period, except to the extent that the tax arises from a transaction which is recognised directly in statement of changes in equity.

2.6 Cash and cash equivalents

For the purpose of presentation in the consolidated statement of cash flows, cash and cash equivalents include cash at bank and deposits with financial institutions which are subject to an insignificant risk of change in value. These include cash with the Accountant-General's Department ("AGD"), that is managed by the AGD under the Centralised Liquidity Management as set out in the Accountant-General's Circular No. 4/2009 Centralised Liquidity Management for Statutory Boards and Ministries.

2.7 Inventories

The Group's inventories are consumables and spares used primarily for the treatment of water and used water, and maintenance of plant and equipment but not held for trading.

Inventories are stated at the lower of cost and net realisable value. Cost is determined on the weighted average method, and includes expenditure incurred in acquiring the inventories and other costs incurred in bringing them to their existing location and condition.

Inventories which are considered obsolete, deteriorated or damaged are recorded in the allowance for inventories obsolescence before the inventories are authorised to be written off.

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.8 Financial assets

(a) Classification and measurement

The Group classifies its financial assets as amortised cost.

At initial recognition

At initial recognition, the Group measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial assets. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

At subsequent measurement

Debt instruments

Debt instruments of the Group mainly comprise cash and cash equivalents and trade and other receivables.

There are three subsequent measurement categories, depending on the Group's business model in managing the assets and the cash flow characteristic of the assets. Debt instruments that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortised cost. A gain or loss on a debt instrument that is subsequently measured at amortised cost and is not part of a hedging relationship is recognised in profit or loss when the asset is derecognised or impaired. Interest income from these financial assets is included in interest income using the effective interest rate method.

(b) Impairment

The Group assesses on a forward-looking basis the expected credit losses associated with its debt financial assets carried at amortised cost. The impairment methodology applied is disclosed in Note 27.

For trade receivables, the Group applies the simplified approach permitted by the SB-FRS 109, which requires expected lifetime losses to be recognised from initial recognition of the receivables.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.9 Property, plant and equipment

(a) *Measurement*

(i) Owned assets

On 1 May 1963, with the establishment of the Board, property, plant and equipment of the former City Council were vested in the Board at net book value. Property, plant and equipment are stated at historical cost less accumulated depreciation and accumulated impairment losses. The cost of an item of property, plant and equipment includes its purchase price, cost of replacing part of the property, plant and equipment and any cost that is directly attributable to the acquisition, construction, production or bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management.

When significant parts of property, plant and equipment are required to be replaced in intervals, such parts are capitalised and depreciated over their useful lives. The parts that are being replaced are written off. All other repair and maintenance costs are recognised in profit or loss as incurred.

The projected cost of dismantlement, removal or restoration is also included as part of the cost of property, plant and equipment if the obligation for dismantlement, removal or restoration is incurred as a consequence of acquiring or using the asset.

(ii) Right-of-use assets

Property, plant and equipment under lease is capitalised at an amount equal to the lower of its fair value and the present value of the minimum lease payments at the inception of the lease, less subsequent accumulated depreciation and impairment losses. Lease payments are allocated between the finance charges and reduction of the lease liability so as to achieve a constant rate of interest on the remaining balance of the liability. Finance charges are taken to profit or loss.

(b) *Depreciation*

Depreciation of property, plant and equipment is charged from the month of acquisition of the asset or available for use as intended by management and is calculated on the straight-line method to allocate the depreciable amounts over their estimated useful lives.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.9 Property, plant and equipment (continued)

(b) *Depreciation* (continued)

The estimated useful lives of depreciable property, plant and equipment are as follows:

	<u>Useful lives</u>
Leasehold land	18 to 99 years, or the remaining lease period
Land development and buildings ⁽¹⁾	30 to 100 years
Plant and equipment	5 to 50 years
Pipelines	50 to 70 years
Others (mainly meters, vehicles and computer systems)	4 to 15 years

⁽¹⁾ *Buildings comprise mainly civil structure to house plant and equipment.*

No depreciation is charged on freehold land.

Assets that are developed in conjunction with the Right-of-use assets are depreciated over the shorter of the estimated useful life of the assets and the lease term.

Assets under construction included in property, plant and equipment are not depreciated as these assets are not yet available for use.

Depreciation method, useful lives and residual values are reviewed and adjusted prospectively as appropriate, at each reporting date. The Group regularly reviews the useful lives of its property, plant and equipment. Arising from such reviews, property, plant and equipment which are obsolete, unserviceable or unidentifiable are written off.

(c) *Disposal of assets*

An item of property, plant and equipment is derecognised when no future economic benefits are expected from its use or disposal. Gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with its carrying amount, and are recognised net in profit or loss.

(d) *Subsequent expenditure*

Subsequent expenditure relating to property, plant and equipment that has already been recognised is added to the carrying amount of the asset only when it is probable that future economic benefits associated with the item will flow to the entity and the cost of the item can be measured reliably. All other repair and maintenance expenses are recognised in profit or loss when incurred.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.10 Investments in subsidiaries

Investments in subsidiaries are carried at cost less accumulated impairment losses in the Board's statement of financial position. On disposal of an investment in subsidiary, the difference between disposal proceeds and the carrying amounts of the investment is recognised in profit or loss.

2.11 Impairment of non-financial assets

Property, plant and equipment
Right-of-use assets
Investments in subsidiaries

Property, plant and equipment, right-of-use assets and investments in subsidiaries are tested for impairment whenever there is any objective evidence or indication that these assets may be impaired.

For the purpose of impairment testing, the recoverable amount (i.e. the higher of the fair value less cost to sell and the value-in-use) is determined on an individual asset basis unless the asset does not generate cash inflows that are largely independent of those from other assets. If this is the case, the recoverable amount is determined for the cash-generating-unit ("CGU") to which the asset belongs.

If the recoverable amount of the asset (or CGU) is estimated to be less than its carrying amount, the carrying amount of the asset (or CGU) is reduced to its recoverable amount.

The difference between the carrying amount and recoverable amount is recognised as an impairment loss in profit or loss.

An impairment loss for an asset (or CGU) is reversed if, and only if, there has been a change in the estimates used to determine the asset's (or CGU's) recoverable amount since the last impairment loss was recognised. The carrying amount of an asset (or CGU) is increased to its revised recoverable amount, provided that this amount does not exceed the carrying amount that would have been determined (net of any accumulated amortisation or depreciation) had no impairment loss been recognised for the asset (or CGU) in prior years.

A reversal of impairment loss for an asset (or CGU) is recognised in profit or loss.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.12 Trade and other payables

Trade and other payables represent liabilities for goods and services provided to the Group prior to the end of the financial year which are unpaid. They are classified as current liabilities if payment is due within one year or less. Otherwise, they are presented as non-current liabilities.

Trade and other payables are initially recognised at fair value, and subsequently carried at amortised cost using the effective interest method.

2.13 Provisions

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events, it is more likely than not that an outflow of resources will be required to settle the obligation and the amount has been reliably estimated.

Changes in the estimated timing or amount of the expenditure or discount rate are recognised in profit or loss when the changes arise.

2.14 Employee compensation

Employee benefits are recognised as an expense, unless the cost qualifies to be capitalised as an asset.

(a) Central Provident Fund ("CPF") contributions

Contributions to the Group's employees' salaries are made to the CPF as required by law. The CPF contributions are recognised as expenses in the period when the employees rendered their services.

(b) Short-term employee benefits

Short-term employee benefit obligations are measured on an undiscounted basis and are expensed in the period when the employees rendered their services.

Employee entitlements to annual leave and performance bonus are recognised when they accrue to employees. A provision is made for the estimated liability for non-vesting annual leave and performance bonus as a result of services rendered by employees up to the reporting date.

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)**2.14 Employee compensation** (continued)*(c) Pension benefits*

The Group's net obligation in respect of long-term employee benefits is the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value, and the fair value of any related assets is deducted. The discount rate is the yield at the reporting date on Singapore Government Securities that have maturity dates approximating the terms of the Group's obligations and that are denominated in the same currency in which the benefits are expected to be paid. The calculation is performed using the projected unit credit method.

The Board, apart from the legally required contribution plans such as the Central Provident Fund, operates pension plans for pensionable employees transferred from the former Ministry of Environment. The Board's obligation is from 1 April 2001 to the earlier of the day of retirement and death of these employees. The provision for pension is recognised based on the hypothetical gratuity for each pensionable employee accrued from 1 April 2001 up to the reporting date. The hypothetical gratuity for each pensionable officer and Board's share of the gratuity is computed based on existing guidelines found in the Pensions Act 1956 and circulars issued by the Public Service Division.

2.15 Borrowings costs

Borrowing costs consist of interest that the Group incurs in connection with its borrowings. Borrowing costs are expensed in the period they occur except for those costs that are attributable to the construction or development of the qualifying assets. Borrowing costs on general borrowings are capitalised by applying a capitalisation rate to qualifying assets that are financed by general borrowings.

2.16 Borrowings

Borrowings are presented as current liabilities unless the Group has an unconditional right to defer settlement for at least 12 months after the balance sheet date, in which case they are presented as non-current liabilities.

Borrowings are initially recognised at fair value, net of transaction costs incurred and subsequently carried at amortised cost. Any difference between the proceeds (net of transaction costs) and the redemption value is recognised in income or expenditure over the period of the borrowings using the effective interest method.

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)**2.17 Leases***(a) When the Group is the lessee:*

At the inception of the contract, the Group assesses if the contract contains a lease. A contract contains a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. Reassessment is only required when the terms and conditions of the contract are changed.

- Right-of-use assets

The Group recognised a right-of-use asset and lease liability at the date which the underlying asset is available for use. Right-of-use assets are measured at cost which comprises the initial measurement of lease liabilities adjusted for any lease payments made at or before the commencement date and lease incentive received. Any initial direct costs that would not have been incurred if the lease had not been obtained are added to the carrying amount of the right-of-use assets.

These right-of-use assets is subsequently depreciated using the straight-line method from the commencement date to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term.

Right-of-use assets are presented within "Property, plant and equipment".

- Lease liabilities

The initial measurement of lease liability is measured at the present value of the lease payments discounted using the implicit rate in the lease, if the rate can be readily determined. If that rate cannot be readily determined, the Group shall use its incremental borrowing rate or a proxy which estimates the incremental borrowing rate.

Lease payments include the following:

- Fixed payment (including in-substance fixed payments), less any lease incentives receivables;
- Variable lease payment that are based on an index or rate, initially measured using the index or rate as at the commencement date;
- Amount expected to be payable under residual value guarantees
- The exercise price of a purchase option if is reasonably certain to exercise the option; and
- Payment of penalties for terminating the lease, if the lease term reflects the Group exercising that option.

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.17 Leases (continued)

(a) When the Group is the lessee: (continued)

- Lease liabilities (continued)

For contract that contain both lease and non-lease components, the Group allocates the consideration to each lease component on the basis of the relative stand-alone price of the lease and non-lease component.

Lease liability is measured at amortised cost using the effective interest method. Lease liability shall be re-measured when:

- There is a change in future lease payments arising from changes in an index or rate;
- There is a change in the Group's assessment of whether it will exercise an extension option; or
- There are modification in the scope or the consideration of the lease that was not part of the original term.

Lease liability is re-measured with a corresponding adjustment to the right-of-use asset, or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

- Short term and low value leases

The Group has elected to not recognise right-of-use assets and lease liabilities for short-term leases that have lease terms of 12 months or less and leases of low value, except for sublease arrangements. Lease payments relating to these leases are expensed to profit or loss on a straight-line basis over the lease term.

- Variable lease payments

Variable lease payments that are not based on an index or a rate are not included as part of the measurement and initial recognition of the lease liability. The Group shall recognise those lease payments in profit or loss in the periods that triggered those lease payments.

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.17 Leases (continued)

(b) When the Group is the lessor:

The Group leases land under operating leases to non-related parties.

- Lessor – Operating leases

Leases where the Group retains substantially all risks and rewards incidental to ownership are classified as operating leases. Rental income from operating leases (net of any incentives given to the lessees) is recognised in profit or loss on a straight-line basis over the lease term.

Initial direct costs incurred by the Group in negotiating and arranging operating leases are added to the carrying amount of the leased assets and recognised as an expense in profit or loss over the lease term on the same basis as the lease income.

Contingent rents are recognised as income in profit or loss when earned.

2.18 Currency translation

(a) Functional and presentation currency

Items included in the financial statements of each entity in the Group are measured using the currency of the primary economic environment in which the entity operates ("functional currency"). The financial statements are presented in Singapore Dollars ("SGD" or "\$"), which is the functional currency of the Board.

(b) Transactions and balances

Transactions in a currency other than the functional currency ("foreign currency") are translated into the functional currency using the exchange rates at the dates of the transactions. Currency exchange differences resulting from the translation of monetary assets and liabilities denominated in foreign currencies at the closing rates at the reporting date are recognised in profit or loss.

Non-monetary items measured at fair values in foreign currencies are translated using the exchange rates at the date when the fair values are determined.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

2. Significant accounting policies (continued)

2.19 Water Efficiency Fund

The Water Efficiency Fund was launched by the Board to encourage implementation of water conservation initiatives. The fund belongs to the Board and is reviewed periodically by the Board for adequacy. Additional contributions or refunds will be made to or from the fund as appropriate. Receipts and expenditure relating to the fund are accounted for directly in this fund on an accrual basis. Any utilisation of the fund during the financial year will be matched by transfers from the Board's retained earnings. Assets and liabilities of these funds are pooled with those of the Board in the statement of financial position.

2.20 Trust funds

The Board is an agent of the Government for the sewerage, drainage and coastal protection functions. The Board has been receiving funds from the Ministry of Sustainability and the Environment ("MSE") to defray the development costs of Government-owned used water reticulation networks and drainage network.

The Government injected a lump sum into the Coastal and Flood Protection Fund ("CFPF") which can be used to fund the development costs of Government-owned drainage networks and coastal protection infrastructure. However, utilisation of CFPF is only allowed for expenditures prescribed under Section 18A of the Public Utilities Act 2001.

MSE and Singapore Totalisator Board also provide funding to the Board for the construction projects under the Active, Beautiful, Clean Waters Programme, also owned by the Government.

In addition, the Board also receives funds from the National Research Foundation ("NRF") for the disbursement of grants to grantees who are performing the water research and development ("R&D") activities. These funds are held in trust by the Board.

All transactions pertaining to activities supported by the funds are accounted for directly in the respective trust funds as set out in Note 24. Annual excess or shortfall in the funds after disbursing all development expenditure for MSE will be refunded to or recovered from MSE accordingly. The surplus funds received from Singapore Totalisator Board are returned when the construction of assets is completed. The surplus funds received from NRF will be returned upon completion of the water R&D activities. Upon the dissolution of the Coastal and Flood Protection Fund, the balance then remaining in the Fund will be transferred to the Consolidated Fund.

The net assets or liabilities of the funds do not form part of the Board's assets and liabilities but are shown separately in the Group's Statement of financial position. The funds are accounted for on an accrual basis.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

3. Critical accounting estimates, assumptions and judgements

The preparation of the Group's financial statements in conformity with SB-FRS requires management to make judgements, estimates and assumptions that affect the application of accounting policies, the reported amounts of assets, liabilities, income and expenses.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimates are revised and in any future periods affected. In particular, information about significant areas of critical judgements and estimation uncertainty in applying accounting policies that have the most significant effect on the amounts recognised in the financial statements are described below:

Depreciation of property, plant and equipment

Property, plant and equipment are depreciated on a straight-line basis over their estimated useful lives. The Group reviews annually the estimated economic useful lives and residual values of property, plant and equipment based on factors that include asset utilisation rate, internal technical evaluation, operational plans and technological developments. If the estimated useful lives of property, plant and equipment were decreased/increased by 5%, the Group's depreciation charge would increase/decrease by \$21.0 million (2021: \$19.8 million).

4. Operating income

	<u>Group</u>		<u>Board</u>	
	31 March	31 March	31 March	31 March
	2022	2021	2022	2021
	\$'000	\$'000	\$'000	\$'000
Water sales	820,898	803,885	820,898	803,885
Used water services	625,993	615,088	625,993	615,088
Other operating income	928	-	-	-
	<u>1,447,819</u>	<u>1,418,973</u>	<u>1,446,891</u>	<u>1,418,973</u>

Operating income from water sales and used water services are recognised at a point in time.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

4. Operating income (continued)

Trade receivables from contracts with customers

	Group			Board		
	31 March 2022	31 March 2021	1 April 2020	31 March 2022	31 March 2021	1 April 2020
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Current assets						
Trade receivables from contracts with customers (Note 11)	104,201	98,408	111,139	103,750	97,871	110,551
Loss allowance (Note 11)	(9,898)	(9,491)	(7,298)	(9,898)	(9,491)	(7,298)
	94,303	88,917	103,841	93,852	88,380	103,253

5. Operating expenses

	Group		Board	
Note	31 March 2022	31 March 2021	31 March 2022	31 March 2021
	\$'000	\$'000	\$'000	\$'000
Direct operating expenses:				
- electricity	138,835	103,341	138,835	103,341
- manpower	283,553	263,130	283,173	262,293
- depreciation	378,915	361,094	378,915	361,078
- provision for property, plant and equipment write-off	1,495	7,367	1,495	7,367
- property tax	17,484	21,801	17,484	21,801
- maintenance and others 5(a)	539,630	468,774	537,701	468,842
	1,359,912	1,225,507	1,357,603	1,224,722
Indirect operating expenses:				
- service departments' costs 5(b)	197,215	183,357	197,215	183,357
5(c)	1,557,127	1,408,864	1,554,818	1,408,079

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

5. Operating expenses (continued)

- (a) Included in maintenance and others are expenses related to the purchase of raw water from the Government of the State of Johor. Prices for the purchase of raw water from and treated water sold to the Government of the State of Johor in accordance with the 1962 Water Agreement are based on the rate of 3 sen and 50 sen per thousand gallons respectively. The Malaysian Government had sought a review of the price of raw water. The Singapore Government's position is that Malaysia has lost the right of review.
- (b) Service departments' costs comprise manpower, depreciation, maintenance, administrative and other expenses.
- (c) Included in direct and indirect operating expenses are:

	Group		Board	
Note	31 March 2022	31 March 2021	31 March 2022	31 March 2021
	\$'000	\$'000	\$'000	\$'000
Board members' allowance and other benefits	244	233	227	216
Salaries and overtime allowances	319,154	285,328	318,799	284,581
Central/Employee Provident Fund	39,346	35,444	39,337	35,371
Other employee benefits	8,014	7,548	8,014	7,548
Electricity	139,125	103,555	139,125	103,555
Maintenance expenses	312,824	277,219	312,883	277,945
Research and development expenses	14,495	14,774	14,495	14,774
Allowance for inventory obsolescence 10	28	132	28	132
Reversal of write-down of inventories 10	(1)	-	(1)	-
Allowance for doubtful receivables 27(b)	1,962	3,546	1,962	3,546
Depreciation of property, plant and equipment 13	398,604	376,804	398,604	376,788
Provision for property, plant and equipment write-off 13	1,495	7,367	1,495	7,367

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

6. Net non-operating income

	Group		Board	
	31 March 2022 \$'000	31 March 2021 \$'000	31 March 2022 \$'000	31 March 2021 \$'000
Rental income	11,012	10,700	11,012	10,700
Amortisation of deferred income	16,144	15,877	16,144	15,877
Interest income from fixed deposits	1,342	5,876	1,342	5,876
Project management fees	15,703	12,747	15,703	12,747
Disbursement from recoverable jobs	1,620	6,052	1,620	6,052
Other sundry income	42,194	12,819	42,191	12,811
Net foreign exchange gain/(loss)	17	(78)	17	(77)
Loss on disposal of property, plant and equipment - net	(3,023)	(4,180)	(3,023)	(4,180)
	85,009	59,813	85,006	59,806

7. Finance expenses

Note	Group		Board	
	31 March 2022 \$'000	31 March 2021 \$'000	31 March 2022 \$'000	31 March 2021 \$'000
Pension interest expense	16	99	88	99
Interest expense on lease liabilities	17(c)	32,844	31,391	32,844
Interest expense on fixed rate bonds		31,938	37,956	31,938
Accretion expense on asset restoration obligations		224	203	224
		65,105	69,638	65,105
Less: Amount capitalised in property, plant and equipment		(31,938)	(31,674)	(31,938)
		33,167	37,964	33,167

Finance expenses on general financing were capitalised at 3.19% per annum (2021: 3.19% to 3.27% per annum).

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

8. Contribution to Consolidated Fund and taxation

(a) Contribution to Consolidated Fund

The contribution to the Consolidated Fund is made in accordance with Section 3(a) of the Statutory Corporations (Contributions to Consolidated Fund) Act 1989.

	Board	
	31 March 2022 \$'000	31 March 2021 \$'000
Net income after government grants and before contribution to Consolidated Fund and taxation	346,234	414,448
Contribution to Consolidated Fund calculated at rate of 17% (2021: 17%)	58,860	70,456
Effects of:		
- Non-deductible donations	3	6
- (Over)/under provision in prior year	(1)	1
	58,862	70,463

(b) Income tax

Subsidiaries of the Board are subject to tax under the Singapore Income Tax Act 1947.

	Group	
	31 March 2022 \$'000	31 March 2021 \$'000
Tax expense attributable to profit is made up of:		
- Current income tax	-	-
Over provision in prior financial years:		
- Current income tax	-	(7)
	-	(7)

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

8. Contribution to Consolidated Fund and taxation (continued)

(b) Income tax (continued)

The tax on the Group's net income after government grants and before tax differs from the theoretical amount that would arise using the Singapore standard rate of income tax as follows:

	Group	
	31 March 2022 \$'000	31 March 2021 \$'000
Net loss before tax of subsidiaries Excluding intra group transaction	(1,378)	(778)
	<u>-</u>	<u>-</u>
	(1,378)	(778)
Tax calculated at tax rate of 17% (2021: 17%)	(234)	(132)
Effects of:		
- expenses not deductible for tax purposes	-	1
- over provision of tax in prior financial years	-	(7)
- deferred tax assets not recognised	234	131
	<u>-</u>	<u>(7)</u>

(c) Deferred tax assets have not been recognised in respect of the following items:

	Group	
	31 March 2022 \$'000	31 March 2021 \$'000
Unutilised tax losses and capital allowances	3,240	1,863

Deferred tax assets have not been recognised in respect of these items because it is not probable that future taxable profit will be available against which the subsidiaries of the Group could utilise the benefits there from.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

9. Cash and cash equivalents

		Group		Board	
	Note	31 March 2022 \$'000	31 March 2021 \$'000	31 March 2022 \$'000	31 March 2021 \$'000
Cash with AGD - Singapore Dollar	9(a)	318,201	382,989	318,201	382,989
Fixed and ACU deposits - Malaysia Ringgit - United States Dollar	9(b)	1,394 459	6,790 121	1,394 459	6,790 121
Cash at bank - Singapore Dollar - Malaysia Ringgit - United States Dollar	9(c)	4,849 6,406 17	3,703 4,209 17	1,297 6,406 -	1,344 4,209 -
		331,326	397,829	327,757	395,453

(a) Cash with AGD refers to cash that is managed by the Accountant-General's Department ("AGD") under the Government's Centralised Liquidity Management Framework for Statutory Boards and Ministries. The annualised interest rate for cash with AGD for the financial year ended 31 March 2022 for the Group is 0.30% (2021: 0.79%) per annum.

(b) The weighted average interest rate per annum relating to fixed and Asian Currency Unit ("ACU") deposits for the financial year ended 31 March 2022 for the Group are 1.63% for Malaysian Ringgit and 0.09% for United States Dollar (2021: 1.81% for Malaysian Ringgit and 0.02% for United States Dollar).

(c) Cash at bank earns interest at floating rates based on daily bank rates.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

10. Inventories

	Note	Group and Board	
		31 March 2022 \$'000	31 March 2021 \$'000
<u>At cost</u>			
Pipes and fittings		1,241	1,388
Chemicals		10,898	9,565
Spare parts and accessories		87,677	75,479
Fuel and lubricants		2,925	2,908
Sundries and others		276	309
		103,017	89,649
Less: Allowance for inventory obsolescence	10(a)	(181)	(227)
		102,836	89,422
 (a) Allowance for inventory obsolescence			
		Group and Board	
		31 March 2022 \$'000	31 March 2021 \$'000
Beginning of financial year		227	341
Allowance made	5(c)	28	132
Reversal of write-down of inventories	5(c)	(1)	-
		27	132
Allowance utilised		(73)	(246)
End of financial year		181	227

The cost of inventories recognised in operating expenses for the financial year ended 31 March 2022 was \$33.0 million (2021: \$25.6 million).

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

11. Trade and other receivables

	Note	Group		Board	
		31 March 2022 \$'000	31 March 2021 \$'000	31 March 2022 \$'000	31 March 2021 \$'000
<u>Current</u>					
Trade receivables	11(a)	104,201	98,408	103,750	97,871
Less: Allowance for impairment of trade receivables	27(b)	(9,898)	(9,491)	(9,898)	(9,491)
Trade receivables – net		94,303	88,917	93,852	88,380
Sundry receivables	11(b)	45,073	41,717	45,073	41,717
Less: Allowance for impairment of sundry receivables	27(b)	(10)	(1,421)	(10)	(1,421)
Sundry receivables – net		45,063	40,296	45,063	40,296
Other receivables		9	14	9	14
Deposits		145	261	145	261
Amounts due from government		566	13,696	566	13,696
Amounts due from subsidiaries		-	-	301	163
		140,086	143,184	139,936	142,810
<u>Non-current</u>					
Sundry receivables	11(b)	21,370	-	21,370	-
Total trade and other receivables		161,456	143,184	161,306	142,810
<u>Reconciliation to financial assets, at amortised cost</u>					
Total trade and other receivables		161,456	143,184	161,306	142,810
Add: Cash and cash equivalents	9	331,326	397,829	327,757	395,453
Total financial assets, at amortised cost	27(f)	492,782	541,013	489,063	538,263

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

11. Trade and other receivables (continued)

- (a) Trade receivables mainly represent receivables from customers with respect to water supply and used water services. These amounts are unsecured and are generally on credit terms of 14 days. They are recognised at the billed amounts which represent their fair values on initial recognition.
- (b) Sundry receivables comprise the revenue and customer deposits collected by the Board's billing and collection agent, SP Services Limited, which have not been remitted to the Board, miscellaneous billings and other receivables for disbursement recoverable jobs billed and collected by the Board.

12. Prepaid and deferred expenses

Current prepaid expenses are payments made in advance for operating expenditure.

Non-current prepaid expenses comprise mainly payments made for property, plant and equipment where risk and title have not yet been transferred to the Group as at the reporting date.

Deferred expenses relate mainly to expenses incurred in the preparation and organisation of the Singapore International Water Week event which was held in April 2022.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

13. Property, plant and equipment

	Properties - Land \$'000	Properties - development and buildings ⁽²⁾ \$'000	Properties - Leasehold land \$'000	Plant and equipment \$'000	Pipelines \$'000	Others \$'000	Assets under construction \$'000	Total \$'000
Group								
31 March 2022								
Cost								
Beginning of financial year	981	3,226,473	847,868	4,571,401	3,148,047	204,824	1,177,798	13,177,392
Additions	-	23,912	3,039	23	99	6,876	729,319	763,268
Adjustments	-	(715)	-	(1,599)	-	-	-	(2,314)
Transfers	-	5,716	21,733	170,847	277,773	27,606	(503,675)	-
Disposals	-	(20,842)	-	(80,148)	(303)	(7,979)	-	(109,272)
End of financial year	981	3,234,544	872,640	4,660,524	3,425,616	231,327	1,403,442	13,829,074
Accumulated depreciation and provision for write-off								
Beginning of financial year	-	1,219,718	123,729	2,169,971	834,374	120,399	-	4,468,191
Depreciation charge	-	80,634	12,640	229,489	51,322	24,519	-	398,604
Adjustments	-	(293)	-	53	-	-	-	(240)
Transfers	-	58	-	1,089	(498)	(649)	-	-
Disposals	-	(20,807)	-	(76,936)	(199)	(7,934)	-	(105,876)
Provision for write-off	-	142	-	378	975	-	-	1,495
End of financial year	-	1,279,452	136,369	2,324,044	885,974	136,335	-	4,762,174
Net book value								
End of financial year	981	1,955,092	736,271	2,336,480	2,539,642	94,992	1,403,442	9,066,900

⁽²⁾ Buildings comprise mainly civil structure to house plant and equipment.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

13. Property, plant and equipment (continued)

	Properties – Land \$'000	Properties - development and buildings ⁽²⁾ \$'000	Properties - Leasehold land \$'000	Plant and equipment \$'000	Pipelines \$'000	Others \$'000	Assets under construction \$'000	Total \$'000
Board								
31 March 2022								
Cost								
Beginning of financial year	981	3,226,413	847,868	4,571,401	3,148,047	204,824	1,177,798	13,177,332
Additions	-	23,912	3,039	23	99	6,876	729,319	763,268
Adjustments	-	(715)	-	(1,599)	-	-	-	(2,314)
Transfers	-	5,716	21,733	170,847	277,773	27,606	(503,675)	-
Disposals	-	(20,782)	-	(80,148)	(303)	(7,979)	-	(109,212)
End of financial year	981	3,234,544	872,640	4,660,524	3,425,616	231,327	1,403,442	13,829,074
<i>Accumulated depreciation and provision for write-off</i>								
Beginning of financial year	-	1,219,658	123,729	2,169,971	834,374	120,399	-	4,468,131
Depreciation charge	-	80,634	12,640	229,489	51,322	24,519	-	398,604
Adjustments	-	(293)	-	53	-	-	-	(240)
Transfers	-	58	-	1,089	(498)	(649)	-	-
Disposals	-	(20,747)	-	(76,936)	(199)	(7,934)	-	(105,816)
Provision for write-off	-	142	-	378	975	-	-	1,495
End of financial year	-	1,279,452	136,369	2,324,044	885,974	136,335	-	4,762,174
Net book value								
End of financial year	981	1,955,092	736,271	2,336,480	2,539,642	94,992	1,403,442	9,066,900

⁽²⁾ Buildings comprise mainly civil structure to house plant and equipment.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

13. Property, plant and equipment (continued)

	Properties – Land \$'000	Properties - development and buildings ⁽²⁾ \$'000	Properties - Leasehold land \$'000	Plant and equipment \$'000	Pipelines \$'000	Others \$'000	Assets under construction \$'000	Total \$'000
Group								
31 March 2021								
Cost								
Beginning of financial year	981	3,174,573	837,972	4,100,801	3,031,835	186,981	1,049,171	12,382,314
Additions	-	5,462	-	365,626	64	9,486	478,463	859,101
Adjustments	-	(1,373)	-	64	-	-	-	(1,309)
Transfers	-	50,378	9,896	154,636	118,320	16,606	(349,836)	-
Disposals	-	(2,567)	-	(49,726)	(2,172)	(8,249)	-	(62,714)
End of financial year	981	3,226,473	847,868	4,571,401	3,148,047	204,824	1,177,798	13,177,392
<i>Accumulated depreciation and provision for write-off</i>								
Beginning of financial year	-	1,144,959	111,411	1,984,542	787,443	112,656	-	4,141,011
Depreciation charge	-	79,536	12,318	221,431	47,776	15,743	-	376,804
Adjustments	-	(249)	-	64	-	-	-	(185)
Transfers	-	(2,003)	-	1,988	12	3	-	-
Disposals	-	(2,525)	-	(44,163)	(2,115)	(8,003)	-	(56,806)
Provision for write-off	-	-	-	6,109	1,258	-	-	7,367
End of financial year	-	1,219,718	123,729	2,169,971	834,374	120,399	-	4,468,191
Net book value								
End of financial year	981	2,006,755	724,139	2,401,430	2,313,673	84,425	1,177,798	8,709,201

⁽²⁾ Buildings comprise mainly civil structure to house plant and equipment.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

13. Property, plant and equipment (continued)

	Properties - Land development and buildings ⁽²⁾ \$'000	Properties - Leasehold land \$'000	Plant and equipment \$'000	Pipelines \$'000	Others \$'000	Assets under construction \$'000	Total \$'000	
Board 31 March 2021								
Cost	981	3,174,513	837,972	4,100,801	3,031,835	186,981	1,049,171	12,382,254
Beginning of financial year								
Additions	-	5,462	-	365,626	64	9,486	478,463	859,101
Adjustments	-	(1,373)	-	64	-	-	-	(1,309)
Transfers	-	50,378	9,896	154,636	118,320	16,606	(349,836)	-
Disposals	-	(2,567)	-	(49,726)	(2,172)	(8,249)	-	(62,714)
End of financial year	981	3,226,413	847,868	4,571,401	3,148,047	204,824	1,177,798	13,177,332
Accumulated depreciation and provision for write-off								
Beginning of financial year	-	1,144,915	111,411	1,984,542	787,443	112,656	-	4,140,967
Depreciation charge	-	79,520	12,318	221,431	47,776	15,743	-	376,788
Adjustments	-	(249)	-	64	-	-	-	(185)
Transfers	-	(2,003)	-	1,988	12	3	-	-
Disposals	-	(2,525)	-	(44,163)	(2,115)	(8,003)	-	(56,806)
Provision for write-off	-	-	-	6,109	1,258	-	-	7,367
End of financial year	-	1,219,658	123,729	2,169,971	834,374	120,399	-	4,468,131
Net book value	981	2,006,755	724,139	2,401,430	2,313,673	84,425	1,177,798	8,709,201
End of financial year								

⁽²⁾ Buildings comprise mainly civil structure to house plant and equipment.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

13. Property, plant and equipment (continued)

Right-of-use of assets acquired under leasing arrangements are presented together with the owned assets of the same class. Details of such leased assets are disclosed in Note 17.

The cash outflow for acquisition of property, plant and equipment amounts to \$706.0 million (2021: \$455.1 million).

The carrying amount of plant and equipment held under leases at the reporting date was \$625.5 million (2021: \$671.2 million). These relate to the water purchase agreements with private entities for the supply of desalinated water and NEWater to the Group under the Design-Build-Own-Operate arrangements. The Group has recognised these Design-Build-Own-Operate projects as leases and at initial recognition, recorded these as plant and equipment with a corresponding lease liabilities as set out in Note 17.

14. Investments in subsidiaries

	Board	
	31 March 2022 \$'000	31 March 2021 \$'000
Equity investments at cost		
Beginning of financial year	100	100
Additions	2,000	-
End of financial year	2,100	100

The Group has the following subsidiaries as at 31 March 2022 and 2021:

Name	Principal activities	Country of business/ incorporation	Proportion of ordinary shares directly held by parent		Proportion of ordinary shares directly held by the Group	
			2022	2021	2022	2021
<i>Held by the Board</i>						
PUB Consultants Private Limited ("PUBC") ⁽³⁾	Note 14(a)	Singapore	100%	100%	100%	100%
<i>Held by PUBC</i>						
Singapore International Water Week Pte. Ltd. ("SIPL") ⁽³⁾	Note 14(b)	Singapore	100%	100%	100%	100%

⁽³⁾ Audited by PricewaterhouseCoopers LLP, Singapore

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

14. Investments in subsidiaries (continued)

- (a) PUBC was incorporated on 2 August 1991. Its principal activity is to serve as the commercial arm of the Board. PUBC harnesses the Board's experience and resources to support activities that grow and promote technologies that are key to the Board's operational needs, in collaboration with Singapore-based companies and other stakeholders.
- (b) SIPL was incorporated on 24 September 2007. Its principal activity is to organise the Singapore International Water Week ("SIWW"), a water event that serves as a global platform to share and co-create innovative water solutions. Stakeholders from the global water industry gather at SIWW to share business opportunities and showcase the latest water technologies. SIWW is part of the strategic programme of the Singapore Government to grow the water industry in Singapore and develop water technologies and solutions.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

15. Trade and other payables

	Note	Group		Board	
		31 March 2022 \$'000	31 March 2021 \$'000	31 March 2022 \$'000	31 March 2021 \$'000
<i>Current</i>					
Trade and other payables due to:					
- non-related parties		112,377	104,910	111,415	103,687
- government ⁽⁴⁾		31,925	71,201	31,925	71,201
		144,302	176,111	143,340	174,888
Accruals		201,397	163,757	201,047	163,710
Customer deposits		96,422	94,449	96,422	94,449
Amounts due to subsidiaries		-	-	1	-
Total trade and other payables		442,121	434,317	440,810	433,047
<i>Reconciliation to financial liabilities, at amortised cost</i>					
Total trade and other payables		442,121	434,317	440,810	433,047
Less: Net Goods and Services Tax payables		(6,849)	(6,510)	(6,848)	(6,507)
		435,272	427,807	433,962	426,540
Borrowings	19	400,000	-	400,000	-
Lease liabilities	17	54,567	47,559	54,567	47,559
		889,839	475,366	888,529	474,099
<i>Non-current</i>					
Borrowings	19	600,000	1,000,000	600,000	1,000,000
Lease liabilities	17	669,241	703,879	669,241	703,879
Total financial liabilities, at amortised cost	27(f)	2,159,080	2,179,245	2,157,770	2,177,978

⁽⁴⁾ Included in the Group's trade and other payables to government is advances received for government grants which amounted to \$29.9 million (2021: \$69.6 million).

Trade and other payables and accruals are unsecured and are short-term in nature. Trade payables are normally settled on credit terms of 21-30 days (2021: 21-30 days).

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

16. Provision for pension

The Group's pension obligation is a defined benefit plan, which relates to pensionable employees transferred from the former Ministry of Environment. The Board and the government jointly finance the pension payments to pensionable employees upon their retirement.

The proportion of pension benefits payable to pensionable employees prior to their transfer to the Board on 1 April 2001, which is to be borne by the government, is excluded from the amount stated above.

The movement in the defined benefit obligation is as follows:

	Note	Group and Board	
		31 March 2022	31 March 2021
		\$'000	\$'000
Beginning of financial year		5,318	9,026
Interest expense	7	99	88
Re-measurement gain		(254)	(446)
Liability extinguished on settlement		(237)	(3,350)
End of financial year		<u>4,926</u>	<u>5,318</u>

The significant actuarial assumptions used were as follows:

- (i) All pensionable employees will retire at age of 62 years (2021: 62 years).
- (ii) Pensionable employees are entitled to select one of the following state-managed pension schemes upon retirement:
 - (a) Monthly pension payments;
 - (b) Reduced monthly pension payments together with gratuity payment upon retirement; or
 - (c) Lump sum gratuity payment upon retirement.
- (iii) The discount rate for the pension obligation is 2.40% (2021: 1.90%) per annum, which is based on the market yields on the Government bonds.
- (iv) The Board's average share of pension obligation is estimated at a factor of 0.70 (2021: 0.70).

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

16. Provision for pension (continued)

The sensitivity of the defined benefit obligation to changes to each of above significant assumptions at the reporting date, assuming all other assumptions were held constant is:

	Change in assumption	Impact on defined benefit obligation	
		31 March 2022	31 March 2021
		\$'000	\$'000
Discount rate	0.5% p.a. (0.5)% p.a.	<u>(268)</u> <u>292</u>	<u>(308)</u> <u>338</u>

As at 31 March 2022, the average duration of the pension obligation is 11 years (2021: 12 years).

17. Lease liabilities

	Group		Board	
	31 March 2022	31 March 2021	31 March 2022	31 March 2021
	\$'000	\$'000	\$'000	\$'000
<i>Current</i>				
Lease liabilities	<u>54,567</u>	<u>47,559</u>	<u>54,567</u>	<u>47,559</u>
<i>Non-current</i>				
Lease liabilities	<u>669,241</u>	<u>703,879</u>	<u>669,241</u>	<u>703,879</u>

Nature of the leasing activities

The Group and Board leases office premises, lands, buildings and plants for the purpose of its operations.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

17. Lease liabilities (continued)

(a) Carrying amounts

Right-of-use assets classified within property, plant and equipment

	Group		Board	
	31 March 2022 \$'000	31 March 2021 \$'000	31 March 2022 \$'000	31 March 2021 \$'000
Design-Build-Own-Operate Projects	625,530	671,191	625,530	671,191
Properties – Land, Land development and buildings	23,691	8,173	23,691	8,173
Others	982	1,581	982	1,581
	650,203	680,945	650,203	680,945

(b) Depreciation charge during the year

	Group		Board	
	2022 \$'000	2021 \$'000	2022 \$'000	2021 \$'000
Design-Build-Own-Operate Projects	(44,009)	(41,697)	(44,009)	(41,697)
Properties – Land, Land development and buildings	(9,884)	(9,851)	(9,884)	(9,835)
Others	(675)	(524)	(675)	(524)
	(54,568)	(52,072)	(54,568)	(52,056)

(c) Interest expense

	Group	Board
Interest expense on lease liabilities	31 March 2022 \$'000	31 March 2021 \$'000
	32,844	31,391

(d) Lease expense not capitalised in lease liabilities

	Group	Board
Lease expense – short-term leases	31 March 2022 \$'000	31 March 2021 \$'000
	544	349
Lease expense – low-value leases	31 March 2022 \$'000	31 March 2021 \$'000
	2,504	2,105
	3,048	2,454

(e) Total cash outflows for all the leases in 2022 for the Group and Board were \$88.9 million (2021: \$81.2 million) and \$88.9 million (2021: \$81.2 million) respectively.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

17. Lease liabilities (continued)

(f) Additions of right-of-use assets during the financial year 2022 for the Group and Board were \$25.5 million (2021: \$372.4 million) and \$25.5 million (2021: \$372.4 million) respectively.

(g) Future cash outflow which are not capitalised in lease liabilities

Extension options

The leases for certain office premises, lands, buildings and plants contain extension periods, for which the related lease payments had not been included in lease liabilities as the Group is not reasonably certain to exercise these extension options. The Group negotiates extension options to optimise operational flexibility in terms of managing the assets used in the Group's operations. The majority of the extension options are exercisable by the Group and not by the lessor.

18. Deferred income

	Group		Board	
	31 March 2022 \$'000	31 March 2021 \$'000	31 March 2022 \$'000	31 March 2021 \$'000
<i>Current</i>				
Deferred capital grants	8,873	8,840	8,873	8,840
Other deferred income	8,561	5,870	8,047	5,870
	17,434	14,710	16,920	14,710
<i>Non-current</i>				
Deferred capital grants	437,241	445,046	437,241	445,046
Other deferred income	107,668	42,900	107,668	42,386
	544,909	487,946	544,909	487,432
Total deferred income	562,343	502,656	561,829	502,142

Deferred capital grants comprise:

(i) Amounts received from government bodies and private developers towards the capital outlay for the provision of water facilities that were completed in and after 1998; and

(ii) Amounts received from government relating to the acquisition of fixed assets.

Other deferred income comprise:

(i) Operating lease income received in advance in respect of 10 land leases with periods ranging from 9 to 30 years (2021: 7 land leases with periods ranging from 20 to 30 years);

(ii) Interest income received in advance in respect of sundry receivables; and

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

18. Deferred income (continued)

- (iii) Billings made in advance for the Singapore International Water Week (“SIWW”) event which was held in April 2022.

19. Borrowings

	<u>Group and Board</u>	
	31 March 2022	31 March 2021
	\$'000	\$'000
<i>Current</i>		
Bonds	400,000	-
<i>Non-current</i>		
Bonds	600,000	1,000,000
Total borrowings	<u>1,000,000</u>	<u>1,000,000</u>

Total borrowings comprise unsecured fixed-rate bonds and the details are as follows:

					<u>Group and Board</u>	
Currency	Tenure (years)	Interest rate (% per annum)	Issue date	Maturity date	31 March 2022	31 March 2021
					\$'000	\$'000
Singapore Dollar	12	3.012	12/07/2010	12/07/2022	400,000	400,000
Singapore Dollar	20	3.620	12/10/2007	12/10/2027	300,000	300,000
Singapore Dollar	15	3.010	18/07/2018	18/07/2033	300,000	300,000
					<u>1,000,000</u>	<u>1,000,000</u>

Fair value of non-current borrowings

	<u>Group and Board</u>	
	31 March 2022	31 March 2021
	\$'000	\$'000
Bonds	<u>628,788</u>	1,073,712

As at 31 March 2022, there is no PUB bonds holding by PUB Board Members and Key Management Personnel (2021: nil).

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

20. Provision for asset restoration obligations

A provision of \$12.9 million (2021: \$13.4 million) was made to recognise the Board's asset restoration obligations. The provision was estimated based on the latest available demolition costs of comparable assets and discounted at the market government bond yield rate ranging from 1.86% to 2.62% (2021: 0.52% to 2.08%) which commensurate with the estimated number of years to restoration.

21. Share capital

	No. of ordinary shares	Amount \$'000
<u>Group and Board</u>		
31 March 2022		
Beginning of financial year	1,056,946	1,057
Shares issued	197,596	198
End of financial year	<u>1,254,542</u>	<u>1,255</u>
31 March 2021		
Beginning of financial year	1,000	1
Shares issued	1,055,946	1,056
End of financial year	<u>1,056,946</u>	<u>1,057</u>

All issued ordinary shares are fully paid. There is no par value for these ordinary shares.

The shares are held by the Minister for Finance, a body corporate incorporated by the Minister for Finance (Incorporation Act) 1959 and who is a shareholder of the Board. The shares do not carry any voting rights.

The holder of ordinary shares is entitled to receive dividends as and when declared annually, in accordance with Finance Circular Minute No. M26/2008 issued by Ministry of Finance. No dividends were declared for the financial years ended 31 March 2022 and 31 March 2021 as the net income after government grants and after contribution to Consolidated Fund and taxation has been utilised for capital expenditure.

During the financial year, the Board issued 197,596 ordinary shares for a total consideration of \$197,596 (2021: \$1,055,946) for cash. The newly issued shares rank pari passu in all aspects with the previously issued shares.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

22. Capital account

The capital account comprises the accumulated transfers from retained earnings which had been appropriated for the Board's property, plant and equipment such as plants and pipelines. It also includes the amounts paid by government bodies and private developers towards the capital outlay for the provision of utility facilities completed before 1998. The movement of the capital account represents the retained earnings set aside for the year to meet the Board's capital commitments in accordance with Section 14 of the Public Utilities Act 2001.

23. Water Efficiency Fund

	<u>Group and Board</u>	
	31 March	31 March
	2022	2021
	\$'000	\$'000
Beginning and end of financial year	6,000	6,000

During the financial year ended 31 March 2022, \$1.1 million (2021: \$1.4 million) of co-funding was incurred. The co-funding amount incurred was drawn from the Water Efficiency Fund during the financial year. The same amount was transferred from retained earnings to the Water Efficiency Fund to maintain the fund at \$6.0 million (2021: \$6.0 million) as at the reporting date.

24. Net assets/(liabilities) of trust funds

Funds held and managed on behalf by the Board includes:

	<u>Group and Board</u>	
	31 March	31 March
	2022	2021
	\$'000	\$'000
Coastal and Flood Protection Fund [Note 24(a)]	4,921,097	5,002,408
Development Expenditure Fund [Note 24(b)]		
- Ministry of Sustainability and the Environment	(57,793)	(89,121)
- Singapore Totalisator Board	1,571	1,324
National Research Fund [Note 24(c)]	3,862	8,678
	4,868,737	4,923,289

The assets and liabilities of the trust funds are excluded from the assets and liabilities of the Group and the Board.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

24. Net assets/(liabilities) of trust funds (continued)

(a) Coastal and Flood Protection Fund

From 1 April 2020, PUB has assumed an additional role as the nation's Coastal Protection Agency, to safeguard Singapore's coastline against the threat of rising sea levels due to climate change. A new Coastal and Flood Protection Fund ("CFPF") has been set up under PUB, with an initial funding of \$5 billion from the Government. The CFPF will fund capital and non-recurrent coastal protection and drainage expenditures, with allowable purposes prescribed under Section 18A of the Public Utilities Act 2001 as set out in Note 2.20.

The fund is accounted for as follows:

	<u>Group and Board</u>	
	31 March	31 March
	2022	2021
	\$'000	\$'000
Beginning of financial year	5,002,408	-
Receipts:		
- funds received	-	5,000,000
- interest income	28,456	2,408
- liquidated damages	12	-
	28,468	5,002,408
	5,030,876	5,002,408
Expenditure:		
- development expenditure	(102,607)	-
- Good and Services Tax	(7,172)	-
	(109,779)	-
End of financial year	4,921,097	5,002,408
Represented by:		
Assets:		
- cash at bank	48,568	144,000
- financial assets at amortised cost*	4,870,057	4,856,000
- sundry receivables	2,527	2,408
	4,921,152	5,002,408
Liabilities:		
- sundry creditors and others	(55)	-
	(55)	-
Net assets of trust fund	4,921,097	5,002,408

* Financial assets at amortised cost relates to Investment in Special Singapore Government Securities.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

24. Net assets/(liabilities) of trust funds (continued)

(b) Development Expenditure Fund

The trust funds comprise funds received from Ministry of Sustainability and the Environment ("MSE") and Singapore Totalisator Board for the construction of assets owned by the Government as set out in Note 2.20.

The funds are accounted for as follows:

	<u>Group and Board</u>	
	31 March	31 March
	2022	2021
	\$'000	\$'000
Beginning of financial year	(87,797)	(58,688)
Receipts:		
- funds received	878,339	687,753
- interest income	284	575
- liquidated damages	106	4,659
- recovery of development expenditure	289	44
	879,018	693,031
	791,221	634,343
Expenditure:		
- development expenditure	(788,438)	(679,261)
- Goods and Services Tax	(59,005)	(42,879)
	(847,443)	(722,140)
End of financial year	(56,222)	(87,797)
Represented by:		
Assets:		
- cash at bank	2,646	1,793
- sundry receivables	188	153
- prepayments	455	37,770
	3,289	39,716
Liabilities:		
- sundry creditors and others	(58,642)	(127,212)
- tender deposits	(869)	(301)
	(59,511)	(127,513)
Net liabilities of trust funds	(56,222)	(87,797)

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

24. Net assets/(liabilities) of trust funds (continued)

(c) National Research Fund

The Board receives funds from National Research Foundation ("NRF") for disbursement of grants to grantees who are performing the water R&D activities as set out in Note 2.20.

The fund is accounted for as follows:

	<u>Group and Board</u>	
	31 March	31 March
	2022	2021
	\$'000	\$'000
Beginning of financial year	8,678	8,703
Receipts:		
- funds received	8,098	8,304
- interest income	12	87
	8,110	8,391
	16,788	17,094
Expenditure:		
- disbursements to grantees	(12,926)	(8,416)
	(12,926)	(8,416)
End of financial year	3,862	8,678
Represented by:		
Assets:		
- cash at bank	3,856	8,656
- sundry receivables	6	22
	3,862	8,678
Net assets of trust fund	3,862	8,678

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

25. Related party transactions

(a) *Nature and amount of individually significant transactions*

Except as already disclosed elsewhere in the financial statements, there are no individually significant transactions with related parties.

The Board supplies water and provides used water services to all entities in Singapore which also includes its subsidiaries and Government agencies (comprising Ministries, Organs of State and other Statutory Boards). These transactions are conducted in the ordinary course of business.

(b) *Key management personnel compensation*

Key management personnel compensation is as follows:

	Group		Board	
	31 March 2022	31 March 2021	31 March 2022	31 March 2021
	\$'000	\$'000	\$'000	\$'000
Wages, salaries and post-employment benefits	9,929	8,613	9,922	8,606
Employer's contribution to CPF	502	511	502	511
	10,431	9,124	10,424	9,117

(c) *Board members' allowance and other benefits*

Board members' allowance and other benefits are as follows:

	Group		Board	
	31 March 2022	31 March 2021	31 March 2022	31 March 2021
	\$'000	\$'000	\$'000	\$'000
Board Members' allowance	242	231	225	214
Other benefits	2	2	2	2
	244	233	227	216

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

26. Commitments

Capital commitments

Capital expenditures contracted for as at the reporting date but not recognised in the financial statements are as follows:

	Group and Board	
	31 March 2022	31 March 2021
	\$'000	\$'000
Development projects belonging to the Board	2,742,717	2,441,669
Development projects belonging to the Government (funded by trust funds)	2,879,287	3,297,763
	5,622,004	5,739,432

27. Financial risk management

Financial risk factors

The Group is exposed to market risk (including foreign currency risk and interest rate risk), credit risk and liquidity risk.

The board members have overall responsibility for the establishment and oversight of the Group's risk management framework.

The Group's overall financial risk management approach focuses on the state and the unpredictability of the financial and capital markets and seeks to minimise the potential adverse effects from the exposures to these risks on the financial performance of the Group.

There has been no change to the Group's exposure to these financial risks or the manner in which it manages and measures the risks.

(a) *Market risk*

(i) *Foreign currency risk*

The Group's exposure to foreign currency risk arises from its foreign currency contracts for purchase of goods and services and its operations in Malaysia. Foreign currency risk arises when transactions are denominated in foreign currencies other than functional currency such as the United States Dollar ("USD"), Malaysian Ringgit ("MYR"), Euro ("EUR") and Canadian Dollar ("CAD"), from financial assets and liabilities denominated in currencies other than the local functional currency.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(a) Market risk (continued)

(i) Foreign currency risk (continued)

The Group's exposures to foreign currencies at the reporting date are as follows:

	USD \$'000	MYR \$'000	EUR \$'000	CAD \$'000
Group				
<u>At 31 March 2022</u>				
Financial assets				
Cash and cash equivalents	476	7,800	-	-
Trade and other receivables	-	190	-	-
	<u>476</u>	<u>7,990</u>	-	-
Financial liabilities				
Trade and other payables	(528)	(2,151)	(80)	(33)
Currency exposure of financial (liabilities)/ assets net of those denominated in the respective entities' functional currencies				
	<u>(52)</u>	<u>5,839</u>	<u>(80)</u>	<u>(33)</u>
<u>At 31 March 2021</u>				
Financial assets				
Cash and cash equivalents	138	10,999	-	-
Trade and other receivables	-	194	-	-
	<u>138</u>	<u>11,193</u>	-	-
Financial liabilities				
Trade and other payables	(113)	(2,041)	-	-
Currency exposure of financial assets net of those denominated in the respective entities' functional currencies				
	<u>25</u>	<u>9,152</u>	-	-

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(a) Market risk (continued)

(i) Foreign currency risk (continued)

The Board's exposures to foreign currencies at the reporting date are as follows:

	USD \$'000	MYR \$'000	EUR \$'000	CAD \$'000
Board				
<u>At 31 March 2022</u>				
Financial assets				
Cash and cash equivalents	459	7,800	-	-
Trade and other receivables	-	190	-	-
	<u>459</u>	<u>7,990</u>	-	-
Financial liabilities				
Trade and other payables	(528)	(2,151)	(80)	(33)
Currency exposure of financial (liabilities)/ assets net of those denominated in the respective entities' functional currencies				
	<u>(69)</u>	<u>5,839</u>	<u>(80)</u>	<u>(33)</u>
<u>At 31 March 2021</u>				
Financial assets				
Cash and cash equivalents	121	10,999	-	-
Trade and other receivables	-	194	-	-
	<u>121</u>	<u>11,193</u>	-	-
Financial liabilities				
Trade and other payables	(113)	(2,041)	-	-
Currency exposure of financial assets net of those denominated in the respective entities' functional currencies				
	<u>8</u>	<u>9,152</u>	-	-

Sensitivity analysis

If the USD, MYR, EUR and CAD strengthened/weakened against the SGD by 5% with all other variables including tax rate being held constant, the effects arising from the net financial liability/asset that are exposed to currency risk will be as follows:

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(a) Market risk (continued)

(i) Foreign currency risk (continued)

	← Increase/(Decrease) →	
	31 March 2022	31 March 2021
	Net income (after government grants before contribution to Consolidated Fund and taxation)	Net income (after government grants before contribution to Consolidated Fund and taxation)
<u>Group</u>		
USD against SGD		
- Strengthened	(3)	2
- Weakened	3	(2)
MYR against SGD		
- Strengthened	292	458
- Weakened	(292)	(458)
EUR against SGD		
- Strengthened	(4)	-
- Weakened	4	-
CAD against SGD		
- Strengthened	(2)	-
- Weakened	2	-
<u>Board</u>		
USD against SGD		
- Strengthened	(4)	1
- Weakened	4	(1)
MYR against SGD		
- Strengthened	292	458
- Weakened	(292)	(458)
EUR against SGD		
- Strengthened	(4)	-
- Weakened	4	-
CAD against SGD		
- Strengthened	(2)	-
- Weakened	2	-

This analysis is based on foreign currency exchange rate variances that the Group considered to be reasonably possible at the end of the reporting period.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(a) Market risk (continued)

(ii) Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates.

The Group's exposure to interest rate risk relates mainly to the cash with AGD which refers to cash managed by the Accountant-General's Department under the Centralised Liquidity Management as set out in the Accountant-General's Circular No. 4/2009 Centralised Liquidity Management for Statutory Boards and Ministries. The interest rates for cash with AGD are based on deposit rates determined by the financial institutions and/or Monetary Authority of Singapore with which the deposits are placed and are expected to move in tandem with market interest rate movements.

The Board's borrowings are limited to fixed rate bonds and accordingly, the Board is not exposed to fluctuations in interest rates. The carrying amounts and effective interest rates of investments in fixed deposits are as follows:

	Note	Weighted average interest rate per annum		Carrying amount	
		31 March 2022	31 March 2021	31 March 2022	31 March 2021
		%	%	\$'000	\$'000
<u>Group</u>					
Fixed-rate instruments					
Fixed deposits					
- Malaysia Ringgit	9	1.63	1.81	1,394	6,790
- United States Dollar	9	0.09	0.02	459	121
Variable-rate instruments					
Cash (including cash with AGD)	9	0.30	0.79	329,473	390,918
				331,326	397,829
<u>Board</u>					
Fixed-rate instruments					
Fixed deposits					
- Malaysia Ringgit	9	1.63	1.81	1,394	6,790
- United States Dollar	9	0.09	0.02	459	121
Variable-rate instruments					
Cash (including cash with AGD)	9	0.30	0.79	325,904	388,542
				327,757	395,453

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(a) Market risk (continued)

(ii) Interest rate risk (continued)

Sensitivity analysis

An increase/decrease of 50 basis points in the interest rates at the reporting date would have increased/decreased the net income (after government grants before contribution to Consolidated Fund and taxation) by the amounts shown below:

	← Increase/(decrease) →	
	31 March 2022	31 March 2021
	Net income (after government grants before contribution to Consolidated Fund and taxation) \$'000	Net income (after government grants before contribution to Consolidated Fund and taxation) \$'000
<u>Group</u>		
Variable-rate instruments		
Cash (including cash with AGD)		
- Increase	1,647	1,955
- Decrease	(1,647)	(1,955)
<u>Board</u>		
Variable-rate instruments		
Cash (including cash with AGD)		
- Increase	1,630	1,943
- Decrease	(1,630)	(1,943)

This analysis assumes that all other variables, in particular foreign currency rates, remain constant.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(b) Credit risk

Credit risk is the risk of financial loss if a customer or counterparty to a financial instrument defaults on its contractual obligations.

The Group's exposure to credit risk arises mainly from trade and other receivables. Cash which mainly comprised cash managed by Accountant-General's Department under the Centralised Liquidity Management are placed in Singapore dollar deposits with banks (and cash is made available to the Board upon request) while foreign currency deposits (these are denominated in Malaysian Ringgit and United States Dollar) are placed with licensed commercial banks in Malaysia and Singapore respectively. For trade receivables, the Group has policies in place to ensure that customers maintain deposits with the Group.

The Group establishes an allowance account that represents its estimate of incurred losses in respect of trade and other receivables. The main components of this allowance are a specific loss component that relates to individually significant exposures, and a collective loss component established for groups of similar financial assets in respect of losses that have been incurred but not yet identified. The collective loss allowance is determined based on historical data of payment statistics for similar financial assets. The allowance account in respect of trade and other receivables is used to record impairment losses unless the Group is satisfied that no recovery of the amount owing is possible. At that point, the financial asset is considered irrecoverable and the amount charged to the allowance account is written off against the carrying amount of the impaired financial asset.

Excessive risk concentration

There is no concentration of credit risk relating to trade receivables due to the large customer base.

Exposure to credit risk

The gross carrying amounts of these financial assets recorded in the financial statements represent the Group's maximum exposure to credit risk.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(b) Credit risk (continued)

Impairment of financial assets

Cash and cash equivalents and other receivables are subject to immaterial credit loss. The Group's and Board's trade receivables and sundry receivables are subject to more than immaterial credit losses where the expected credit loss model has been applied.

Movement in credit loss allowance for financial assets are set out as follows:

	Trade receivables \$'000	Sundry receivables \$'000	Total \$'000
<u>Group and Board</u>			
Balances as at 1 April 2021	9,491	1,421	10,912
Loss allowance recognised in profit or loss during the year on:			
- Allowance made during the year	1,954	8	1,962
Allowance utilised	(1,547)	(1,419)	(2,966)
Balances as at 31 March 2022	9,898	10	9,908
Balances as at 1 April 2020	7,298	1,424	8,722
Loss allowance recognised in profit or loss during the year on:			
- Allowance made during the year	3,545	1	3,546
Allowance utilised	(1,352)	(4)	(1,356)
Balances as at 31 March 2021	9,491	1,421	10,912

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(b) Credit risk (continued)

Impairment of financial assets (continued)

The Group used historical loss ratios to determine the amount of provisions for credit losses for trade receivables after adjusting for forward-looking macroeconomic factors.

To measure the expected credit losses, these receivables have been grouped based on days past due.

Receivables are written off when there is no reasonable expectation of recovery. The Group makes a provision for write off of the receivable when a debtor fails to make payment within the agreed time frame. The amount of provision is based on historical collection trend. Where receivables have been written off, the Group continues with its debts-recovery process to recover the receivables due. Where recoveries are made, these are recognised in profit or loss.

The Group and Board's credit risk exposure in relation to trade receivables as at 31 March 2022 and 31 March 2021 are set out in the provision matrix as follows:

<u>Group</u>	← Past due →					Total \$'000
	Current \$'000	Within 30 days \$'000	31 to 90 days \$'000	91 to 180 days \$'000	More than 180 days \$'000	
31 March 2022						
Trade receivables	79,305	9,685	5,150	2,987	7,074	104,201
Less: Specific allowances	-	(129)	(187)	(319)	(5,168)	(5,803)
	79,305	9,556	4,963	2,668	1,906	98,398
Less: Trade receivables with no expected credit loss (Note)	(10,386)	(66)	-	-	(37)	(10,489)
	68,919	9,490	4,963	2,668	1,869	87,909
Expected loss rates	0%	6%	11%	42%	100%	
Loss allowances	-	(543)	(560)	(1,123)	(1,869)	(4,095)

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(b) Credit risk (continued)

Impairment of financial assets (continued)

Group	Past due					Total \$'000
	Current \$'000	Within 30 days \$'000	31 to 90 days \$'000	91 to 180 days \$'000	More than 180 days \$'000	
31 March 2021						
Trade receivables	74,503	10,295	4,673	2,859	6,078	98,408
Less: Specific allowances	-	(559)	(261)	(595)	(4,773)	(6,188)
	74,503	9,736	4,412	2,264	1,305	92,220
Less: Trade receivables with no expected credit loss (Note)	(9,793)	(71)	(17)	-	-	(9,881)
	64,710	9,665	4,395	2,264	1,305	82,339
Expected loss rates	0%	5%	11%	46%	100%	
Loss allowances	-	(490)	(469)	(1,039)	(1,305)	(3,303)

Board	Past due					Total \$'000
	Current \$'000	Within 30 days \$'000	31 to 90 days \$'000	91 to 180 days \$'000	More than 180 days \$'000	
31 March 2022						
Trade receivables	78,854	9,685	5,150	2,987	7,074	103,750
Less: Specific allowances	-	(129)	(187)	(319)	(5,168)	(5,803)
	78,854	9,556	4,963	2,668	1,906	97,947
Less: Trade receivables with no expected credit loss (Note)	(9,935)	(66)	-	-	(37)	(10,038)
	68,919	9,490	4,963	2,668	1,869	87,909
Expected loss rates	0%	6%	11%	42%	100%	
Loss allowances	-	(543)	(560)	(1,123)	(1,869)	(4,095)

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(b) Credit risk (continued)

Impairment of financial assets (continued)

Board	Past due					Total \$'000
	Current \$'000	Within 30 days \$'000	31 to 90 days \$'000	91 to 180 days \$'000	More than 180 days \$'000	
31 March 2021						
Trade receivables	73,966	10,295	4,673	2,859	6,078	97,871
Less: Specific allowances	-	(559)	(261)	(595)	(4,773)	(6,188)
	73,966	9,736	4,412	2,264	1,305	91,683
Less: Trade receivables with no expected credit loss (Note)	(9,255)	(71)	(17)	-	-	(9,343)
	64,711	9,665	4,395	2,264	1,305	82,340
Expected loss rates	0%	5%	11%	46%	100%	
Loss allowances	-	(490)	(469)	(1,039)	(1,305)	(3,303)

Note: Based on historical default rates, the Group believes that no expected loss allowance is necessary in respect of these trade receivables.

The carrying amount of sundry receivables individually determined to be impaired are as follows:

Group and Board	Past due					Total \$'000
	Current \$'000	Within 30 days \$'000	31 to 90 days \$'000	91 to 180 days \$'000	More than 180 days \$'000	
31 March 2022						
Sundry receivables	66,394	22	14	1	12	66,443
Less: Specific allowances	-	-	-	-	(10)	(10)
	66,394	22	14	1	2	66,433

Group and Board	Past due					Total \$'000
	Current \$'000	Within 30 days \$'000	31 to 90 days \$'000	91 to 180 days \$'000	More than 180 days \$'000	
31 March 2021						
Sundry receivables	40,260	13	23	-	1,421	41,717
Less: Specific allowances	-	-	-	-	(1,421)	(1,421)
	40,260	13	23	-	-	40,296

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(b) Credit risk (continued)

Impairment of financial assets (continued)

Other than the above, the remaining sundry receivables is subjected to insignificant level of credit risk.

Financial assets that are neither past due nor impaired

Financial assets that are neither past due nor impaired are mainly deposits with banks with high credit-ratings assigned by international credit-rating agencies. Trade receivables that are neither past due nor impaired are substantially companies with a good collection track record with the Group and Board.

Other than the above, there are no credit loss allowance for other financial assets at amortised costs as at 31 March 2022 and 31 March 2021.

(c) Liquidity risk

Liquidity risk refers to the Group's ability to meet its financial obligations as and when they fall due.

The Group's exposure to liquidity risk is minimal as it adopts prudent liquidity risk management by regularly reviewing its cash flow needs, maintaining sufficient cash from its internally generated cash flow and putting in place adequate financing arrangements.

The cash flow needs in respect of operation, maintenance and construction of Government assets or projects approved and funded by the Government are based on forecasted payment schedule.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(c) Liquidity risk (continued)

The amounts disclosed in the table are the contractual undiscounted cash flows.

	Less than 1 year \$'000	Between 1 and 5 years \$'000	Over 5 years \$'000
<u>Group</u>			
At 31 March 2022			
Trade and other payables	435,272	-	-
Lease liabilities	85,254	277,994	672,106
Borrowings	423,290	79,614	662,728
At 31 March 2021			
Trade and other payables	427,807	-	-
Lease liabilities	80,425	291,852	724,227
Borrowings	31,938	502,871	662,674
<u>Board</u>			
At 31 March 2022			
Trade and other payables	433,962	-	-
Lease liabilities	85,254	277,994	672,106
Borrowings	423,290	79,614	662,728
At 31 March 2021			
Trade and other payables	426,540	-	-
Lease liabilities	80,425	291,852	724,227
Borrowings	31,938	502,871	662,674

(d) Capital management

The Group's policy is to ensure that it maintains sufficient capital to carry out its statutory functions. To achieve this, the Group reviews its sufficiency of capital as appropriate, taking into consideration its capital expenditure needs, government policies, regulatory requirements and its ability to access capital markets. The Group defines capital as its share capital, retained earnings, capital account and borrowings.

There were no changes in the Group's approach to capital management during the financial years ended 31 March 2022 and 31 March 2021. The Group is not subject to any externally imposed capital requirements.

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(e) *Fair value measurements*

The Group categorises fair value measurements using a fair value hierarchy that is dependent on the valuation inputs used as follows:

- Level 1 – Quoted prices (unadjusted) in active market for identical assets or liabilities that the Group can access at the measurement date,
- Level 2 – Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly, and
- Level 3 – Unobservable inputs for the asset or liability.

Fair value measurements that use inputs of different hierarchy levels are categorised in its entirety in the same level of the fair value hierarchy at the lowest level input that is significant to the entire measurement.

Assets and liabilities not carried at fair value but for which fair value is disclosed

The following table shows an analysis of the Group's and Board's assets and liabilities not measured at fair value as at the reporting date but for which fair value is disclosed:

	<u>Level 1</u> \$'000	<u>Level 2</u> \$'000	<u>Level 3</u> \$'000	<u>Total</u> \$'000
Group and Board				
31 March 2022				
<i>Liabilities</i>				
Borrowings	-	1,028,788	-	1,028,788
31 March 2021				
<i>Liabilities</i>				
Borrowings	-	1,073,712	-	1,073,712

Determination of fair value

The fair values of the assets and liabilities, for disclosure purposes, are calculated based on prices at reporting date obtained from Bloomberg (2021: Bloomberg).

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

27. Financial risk management (continued)

(e) *Fair value measurements (continued)*

Fair value of financial instruments by classes that are not carried at fair value and whose carrying amounts are not reasonable approximation of fair value:

	Note	<u>Group and Board</u> Carrying amount \$'000	<u>Fair</u> <u>value</u> \$'000
Group and Board			
31 March 2022			
<i>Liabilities</i>			
Borrowings	19	1,000,000	1,028,788
31 March 2021			
<i>Liabilities</i>			
Borrowings	19	1,000,000	1,073,712

(f) *Financial instruments by category*

The carrying amount of the different categories of financial instruments is as disclosed on the face of the statement of financial position, except for the following:

	<u>Group</u>		<u>Board</u>	
	31 March	31 March	31 March	31 March
	2022	2021	2022	2021
	\$'000	\$'000	\$'000	\$'000
Financial assets, at amortised cost	492,782	541,013	489,063	538,263
Financial liabilities, at amortised cost	2,159,080	2,179,245	2,157,770	2,177,978

PUBLIC UTILITIES BOARD AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2022

28. New or revised accounting standards and interpretations

Certain new accounting standards and interpretations have been published that are not mandatory for 31 March 2022 reporting periods and have not been early adopted by the Group. These standards are not expected to have a material impact on the Group in the current or future reporting periods and on foreseeable future transactions.

29. Segment reporting

The Group's chief operating decision-maker comprises the senior management. The Group has only one reportable operating segment as it operates in the water industry as one business segment in the provision of water and related facilities for the public and majority of its activities are located in Singapore. The reportable segment is reviewed regularly by the chief operating decision-maker.

30. Authorisation of financial statements

These financial statements were authorised for issue by the board members on 25 July 2022.

31. Events occurring after balance sheet date

Commencement of operations of Jurong Island Desalination Plant ("JIDP")

PUB has entered into a Water Purchase Agreement with TP-STM Water Resources Pte Ltd ("TP-STM") in 2017 for the construction of the JIDP under a Design-Build-Own-Operate arrangement. Under the Design-Build-Own-Operate arrangement, TP-STM will construct the plant and supply water to PUB over a 25 year period.

Although JIDP is operational, it has yet to attain the Project Commercial Operation Date ("PCOD") as at 25 July 2022. Management expects the PCOD to be attained during the financial year ending 31 March 2023 and will recognise right of use assets and lease liabilities estimated to be \$187.3 million.



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