

# Forge Ahead with Resilience

砥礪奮進 創迎機遇

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## 抱負 VISION

致力提供優質機電工程服務，精益求精，以提升市民的生活質素。  
To improve the quality of life for our community through continuous enhancement of our electrical and mechanical engineering services.

## 使命 MISSION

### 客戶 CUSTOMER

提供優質的工程方案，以滿足客戶的需要。  
Providing quality engineering solutions to satisfy our customers' needs.

### 員工 STAFF

建立一支卓越的員工隊伍，並維持和諧的工作環境。  
Developing a competent workforce and maintaining a harmonious environment.

### 部門 ORGANISATION

掌握科技發展和流程改善，以提供更佳服務。  
Keeping pace with technology development and process improvement for service enhancement.

## 信念 VALUES

### 誠信 INTEGRITY

我們秉持誠信，維持良好道德操守。  
We uphold honesty and integrity to embrace an ethical culture.

### 出色服務 SERVICE EXCELLENCE

我們提供安全可靠、高效率、具成本效益和優質的服務。  
We provide safe, reliable, efficient, cost-effective and quality services.

### 關懷 CARING

我們關懷員工、客戶和市民大眾，並重視環保。  
We care for our staff, customers, community and the environment.

### 以客為本 CUSTOMER FOCUS

為滿足客戶的各種需要，我們盡心竭力，積極提供工程方案，以贏取客戶的信任和支持。  
We focus on the needs of our customers and provide engineering solutions in a proactive and responsible manner to win their trust and support.

### 承擔 COMMITMENT

我們言行一致，信守承諾。  
We do what we promise.

# 常務委員會 EXECUTIVE BOARD



## 主席 CHAIRMAN

林世雄太平紳士  
**Mr Lam Sai-hung, JP**

發展局常任秘書長(工務)  
Permanent Secretary for  
Development (Works)



周紹喜太平紳士  
**Mr Chau Siu-hei, Francis, JP**

發展局副秘書長(工務)3  
Deputy Secretary for  
Development (Works) 3



彭耀雄太平紳士  
**Mr Pang Yiu-hung, JP**

機電工程營運基金總經理  
(機電工程署署長)  
General Manager, EMSTF  
(Director of Electrical and  
Mechanical Services)



張遠芳太平紳士  
**Mr Cheung Yuen-fong, JP**

機電工程署副署長/營運服務  
Deputy Director/  
Trading Services, EMSD



## 秘書 SECRETARY

袁秀明女士  
**Ms Yuen Sau-ming, Anna**

機電工程署主任秘書  
Departmental Secretary, EMSD



\* 薛永恒太平紳士出任機電工程署署長至2020年4月21日  
Mr Sit Wing-hang, Alfred, JP was Director of Electrical and Mechanical Services up to 21 April 2020



## 管理委員會 MANAGEMENT BOARD



### 主席 CHAIRMAN

**彭耀雄太平紳士**  
**Mr Pang Yiu-hung, JP**

機電工程營運基金總經理  
(機電工程署署長)  
General Manager, EMSTF  
(Director of Electrical and  
Mechanical Services)

### 成員 MEMBERS

**張遠芳太平紳士**  
**Mr Cheung Yuen-fong, JP**

機電工程署副署長/營運服務  
Deputy Director/Trading Services, EMSD

**陳嘉聰先生**  
**Mr Chan Ka-chung**

署理機電工程署助理署長/1  
Assistant Director/1 (Acting), EMSD

**黃偉光先生**  
**Mr Wong Wai-kwong**

機電工程署助理署長/2  
Assistant Director/2, EMSD

**陳志偉太平紳士**  
**Mr Chan Chi-wai, Richard, JP**

機電工程署助理署長/3  
Assistant Director/3, EMSD

**李慧儀女士**  
**Ms Lee Wai-ye**

機電工程署總庫務會計師/  
財政管理  
Chief Treasury Accountant/  
Financial Management, EMSD

**劉志偉先生**  
**Mr Lau Chi-wai, Wilfred**

機電工程署員工關係主任  
Staff Relations Officer, EMSD

### 秘書 SECRETARY

**袁秀明女士**  
**Ms Yuen Sau-ming, Anna**

機電工程署主任秘書  
Departmental Secretary,  
EMSD

\* 薛永恒太平紳士出任機電工程署署長至2020年4月21日  
Mr Sit Wing-hang, Alfred, JP was Director of Electrical and Mechanical Services up to 21 April 2020

\* 王錫章太平紳士出任機電工程署助理署長/1至2020年7月21日  
Mr Wong Sek-cheung, JP was Assistant Director/1, EMSD up to 21 July 2020

\* 李碧雲女士出任機電工程署總庫務會計師/財政管理至2021年1月12日  
Ms Li Pik-wan, Clara was Chief Treasury Accountant/Financial Management, EMSD up to 12 January 2021



彭耀雄太平紳士  
Mr Pang Yiu-hung, JP

機電工程營運基金總經理  
General Manager, Electrical and Mechanical Services Trading Fund

## 總經理報告 GENERAL MANAGER'S REPORT

儘管受到2019冠狀病毒病疫情影響，機電工程營運基金（營運基金）在2020/21年度依然表現出色。有賴各同事的努力不懈和竭誠投入，營運基金在疫情下成功轉危為機，為客戶、機電行業和市民大眾創造巨大公眾價值。營運基金財務狀況不但穩健，亦符合我們的營運原則。年內總收入上升至85.78億港元，收入回報率下降至2.3%。業務持續增長是收入上升的原因，而收入回報率下降，則是由於我們為客戶提供多種抗疫增值服務，並招聘了約1,500名臨時員工，務求在疫情下創造就業機會所致。收入回報率下降，讓客戶保留資金為公眾提供服務，也符合我們以低回報率營運的方針。

The Electrical and Mechanical Services Trading Fund (EMSTF) delivered impressive performance in 2020/21 despite the Coronavirus Disease 2019 (COVID-19). Thanks to our colleagues' tireless efforts and their wholehearted commitment, the EMSTF successfully turned the crisis into an opportunity and created great public value for clients, the E&M trade and the public. Its financial situation was healthy and in line with our operating principles. Total revenue rose to HK\$8,578 million and return on revenue (ROR) was reduced to 2.3%. The increased revenue was attributable to sustained business growth, while the drop in ROR was a result of the provision of value-added anti-epidemic services for clients and our hiring of about 1,500 temporary staff to help create jobs amid the epidemic. The drop in ROR is also in line with our operational policy of lowering the financial return so that clients can retain funding for their services to the public.

### 制度優勢 締造佳績

我們的同事表現優秀，充分發揮了營運基金在經驗、科技和財務三方面的「制度優勢」。

我們熟悉客戶的場地，配合豐富的經驗，在實際工作中擁有優勢，尤其有助我們將現有設備改裝成抗疫設施，例如將公立醫院的多個普通病房迅速改裝成二線負壓病房；協助設立亞洲國際博覽館社區治療設施；興建北大嶼山醫院香港感染控制中心；以及在短短三日內，為普及社區檢測計劃200多個候選檢測中心的通風系統進行評估工作。

要將疫情的種種挑戰轉化為機遇，不但需要創新思維，更要有創新技術，即創新科技（創科）的支持。我們有幸早於多年前已開始推動創科，一方面藉此提升機電工程署（機電署）本身的營運效率，並協助客戶將其機電系統數碼化，務求提高效益和節能。

營運基金的各個策略業務單位累積了不少創科經驗，加上多年來與機電業合作伙伴的工作關係，使各單位都能在極短時間內回應客戶要求，例如為社區疫苗接種中心建立運用物聯網技術的綜合疫苗冷藏櫃監察系統。由於我們的區域數碼監控中心能監察來自各個疫苗接種中心的綜合疫苗冷藏櫃監察系統及其他實時機電數據，因此可提供「五星級」設施管理服務，對2019冠狀病毒病疫苗接種計劃得以順利推行十分重要。

### MAKING A DIFFERENCE WITH SYSTEM INNOVATION

Our colleagues performed well in leveraging the EMSTF's "system innovation" in the three aspects of experience, technology and finance.

Our rich experience and profound knowledge of client venues have proved particularly valuable in transforming existing facilities for anti-epidemic work, such as promptly converting numerous general wards into second-tier pressure wards at public hospitals, helping set up the Community Treatment Facilities at AsiaWorld-Expo and the iconic North Lantau Hospital Hong Kong Infection Control Centre, and assessing the ventilation systems of over 200 potential venues for the Universal Community Testing Programme within three days.

Taking on the challenges of the epidemic and turning them into opportunities required not only an innovative mindset but also technological innovation, i.e., the support of innovation and technology (I&T). We are fortunate in having made a start some years ago in promoting I&T to enhance our own operation and digitise clients' E&M systems for greater efficiency and energy saving.

The I&T experience that our Strategic Business Units (SBUs) have, coupled with their working relation with E&M trade partners, have enabled them to satisfy client needs at very short notice. An example is the setting up of an integrated Fridge Monitoring System (iFMS) using Internet of Things (IoT) technology for the Community Vaccination Centres (CVCs). Monitoring the iFMS and other real-time E&M data from the CVCs, our Regional Digital Control Centre, provides "five-star" facility management services which are proved valuable to the smooth operation of the COVID-19 Vaccination Programme.

# 總經理報告

## GENERAL MANAGER'S REPORT

另一例子是，我們為2021年年初農曆新年的年花銷售活動，僅僅花了兩星期時間，動員約160名同事和多個承辦商，便成功利用物聯網和其他技術，建立人流量監察系統，滿足客戶和相關部門不斷變化的服務需求。假如我們沒有在思維和組織架構方面的創新優勢，以及強大的創科根基和多年來與供應商建立的聯繫，這些抗疫項目根本無法實現。

疫情也突顯了我們具備穩健財政狀況和靈活架構的重要性，兩者讓我們能為客戶承辦時間緊迫而技術難度高的任務，農曆新年年花銷售點項目正是一例。我們動員眾多同事，在短時間內為15個年花銷售點設置中央人流監察系統和輪候及派籌機制系統，體現了營運基金信念，就是必要時定會充分利用我們的財政資源和靈活優勢，為客戶提供支援。

事實上，營運基金收入回報率下降也應以這個正面角度去理解。年內我們招聘了約1 500名臨時員工，協助部門進行各種宣傳、資產數碼化甚至額外的清潔工作，以配合政府創造更多就業機會的措施。另外，我們也為客戶免費提供多項增值服務。我們很高興能夠有穩健的財政條件略盡綿力，在疫情危機中創造公眾價值，造福社羣。

### 以身作則 推動智慧創科發展

就營運基金的創科工作及我們作為政府「創新促成者」的角色，在本年及以往的年報中着墨不少。疫情至今，已引發社會各界對創科方案的龐大需求，我們希望這新常態能激起雪球效應，進一步推動香港的創科發展。

這新常態亦為政府帶來良好契機，運用創科方案精簡工作程序，以迎合商界及市民不斷上升的期望；政府亦可藉此良機以身作則，推動私營機構加快其創科發展。我們各項智慧創科措施的定位，是必須能提升營運基金為客戶服務的表現，並為公眾創造價值。

事實上，營運基金已肩負《香港智慧城市藍圖2.0》（《藍圖2.0》）所提出的多項措施，包括加強遠足人士安全、智能洗手間、防控鼠患、「建築信息模擬—資產管理」、政府的物聯網網絡（政府物聯網）、「機電創科網上平台」、非收費錶停車場的實時空置泊車資訊、精簡政府服務和實施精明規管者方案等。這些措施都是我們為香港發展為智慧政府領導的智慧城市所直接作出的貢獻。

Another example was the setting up of crowd control systems using IoT and other technologies at the sale event of the Chinese New Year flowers in early 2021 within only two weeks, mobilising some 160 colleagues and many contractors to satisfy the highly dynamic needs of the client and related departments. Without the necessary mindset and organisational innovation, as well as our strong I&T foundation and connections with suppliers built up over the years, these anti-epidemic projects would not have been accomplished.

The epidemic has underscored the importance of our healthy financial situation and organisational agility, which enabled us to take on urgent and technically challenging tasks for clients. The work done for the Chinese New Year flower sale points, for example, where we mobilised numerous colleagues to implement at short notice a central footfall monitoring system and a ticketing and queuing system at 15 points of flower sale, testifies to our belief that we support our clients as far as possible when necessary by leveraging our financial resources and flexibility.

Indeed, the drop in the EMSTF's ROR should be also seen in this positive light. We hired about 1 500 temporary staff to assist in various publicity, asset digitalisation and even additional cleaning work in support of the Government's job creation initiative. We also provided value-added services for many clients at no extra charge. We were glad to be in a financial situation to help in these small ways and create public value for community betterment in the epidemic crisis.

### LEADING BY SETTING EXAMPLES: SMART I&T MOVES

Much has been written in this and previous annual reports about EMSTF's I&T work and our role as the Government's Innovation Facilitator. Now that the epidemic has triggered enormous demand for I&T solutions in all walks of life, we hope this new normal will kick-start a snowball effect of further I&T development in Hong Kong.

The new normal also brings about tremendous opportunities for the Government to use I&T solutions to streamline its work processes to meet rising expectations from businesses and the public, and to lead by setting examples in these opportunities so that the private sector will expedite its own I&T developments. The positioning of our I&T smart initiatives is that they must enhance the performance of the EMSTF for our clients and create value for the public.

Indeed, the EMSTF has taken up several initiatives put forward in the Smart City Blueprint for Hong Kong 2.0 (Blueprint 2.0), including hiker safety, smart toilet, rodent control management, Building Information Modelling-Asset Management (BIM-AM), the Government-Wide Internet of Things Network (GWIN), the E&M InnoPortal, real-time parking vacancy information for non-metered car parks, and streamlining of government services and implementation of smart regulator solutions. These initiatives are our direct contribution to Hong Kong's moves towards becoming a smart city with a smart government.

以智能洗手間為例，我們在機電署總部設立及測試該洗手間，馬上引起不少發展商注意。至今市面部分商場已設有智能洗手間，除了監測廁格佔用情況，還可監察消耗品和其他環境參數，例如室內空氣質素等。這個例子說明，我們的試驗計劃一旦引起業界和市民的興趣，相關的物業管理行業即能迅速把其發展成智能設施管理方案，推而廣之。我們相信，我們為《藍圖2.0》所推出的其他項目，也極有可能獲私營機構採納，未來作大規模應用發展。

另一創科發展途徑，是我們協助客戶度身訂製專屬創科方案，最佳例子是我們與懲教署合作開發並屢獲獎項的智慧監獄方案，而大潭峽懲教所這香港首個智慧監獄，也將於2021年稍後正式啓用，是智慧監獄項目的另一里程碑。假如我們通過打造智慧城市和建構智慧政府的創科工作，能激勵更多初創公司、企業和大學加快創科工作，最終受惠的會是市民和所有持份者。

我們也欣然報告，機電署的創科項目在2021年日內瓦國際發明展獲得佳績，在來自20多個國家和地區的600項發明中，我們的創科項目共贏得四項金獎和四項銀獎。我們的八項參賽作品全是同事自發參賽，其中七項來自營運基金，實在令人鼓舞，這可說是我們努力深化部門創科文化的成果。就創科方面，我們也成立了創科督導委員會，下設多個工作小組，以雙管齊下的方式推動創科，當中包括由下而上的方式推動創科，例如鼓勵員工參加「Inno@E&M創新科技挑戰賽」等內部比賽，協助客戶提高生產力；至於由上而下方面，則由管理層制訂具體創科方向並啟動發展項目，以提高營運基金本身在預測性維修保養等方面的效率。

### 深化區域合作

在疫情下，我們在線上繼續與中國內地（內地）及海外合作伙伴進行交流活動，包括與粵港澳大灣區（大灣區）的廣州市技師學院等機構舉辦聯合培訓課程，以至通過我們的「機電創科網上平台」進行創科合作。我們的目標是進一步深化與現有伙伴的合作。在2020年12月，我們與廣州市人力資源和社會保障局簽署新的合作備忘錄。此外，我們積極於大灣區物色更多新伙伴，拓展合作網絡的深度和廣度。

Let's take the smart toilet as an example. The trial toilets set up in the Electrical and Mechanical Services Department (EMSD) Headquarters caught the immediate attention of many developers. Smart toilets are now in use in some shopping centres to monitor consumables and other environmental parameters like indoor air quality, etc., in addition to toilet occupancy. This example shows that once our trial has triggered interest from the trade and the public, it can evolve quickly into an intelligent facility management solution in the hands of the property management sector for further promotion. We believe that some of other projects launched by us for the Blueprint 2.0 also stand a good chance of being adopted by the private sector for development on a major scale in the future.

Another route on I&T development is to help clients tailor their unique I&T solutions. A notable example is the award-winning Smart Prison solutions which we jointly developed with the Correctional Services Department. The initiative will achieve a milestone when Hong Kong's first Smart Prison, Tai Tam Gap Correctional Institution, is officially launched later in 2021. Ultimately, if our I&T work towards a smart city and smart government can motivate more start-ups, businesses and universities to accelerate their I&T efforts, the public and all stakeholders will benefit.

We are also delighted to report that the I&T projects of the EMSD have obtained marvellous results, winning four gold and four silver medals out of the 600 inventions from over 20 countries/regions at the International Exhibition of Inventions of Geneva 2021. It is all the more heartening that all our eight entries, seven of which from the EMSTF, were submitted on a voluntary basis, demonstrating that our efforts to deepen our I&T culture borne fruit. In this regard, we have set up a Steering Committee on I&T with working groups, which uses a two-pronged parallel approach to promote I&T. These include a bottom-up approach where staff are encouraged to participate in internal competitions like the Inno@E&M Challenge to help clients enhance productivity, and a top-down approach where senior management sets specific directions and initiates projects to enhance the EMSTF's own efficiency in areas such as predictive maintenance.

### DEEPENING REGIONAL CO-OPERATION

Exchanges with counterparts of the Mainland of China (Mainland) and overseas have continued online during the epidemic, ranging from joint training programmes with entities such as the Guangzhou Technician College in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) to I&T collaboration via our E&M InnoPortal. Our aim is to further deepen the co-operation with existing partners. In December 2020, we signed a new Memorandum of Understanding with the Guangzhou Municipal Human Resources and Social Security Bureau. Moreover, we keep on identifying new partners in the GBA to extend the depth and breadth of our co-operation network.

# 總經理報告

## GENERAL MANAGER'S REPORT

承着機電署創科項目在日內瓦國際發明展的成績和勢頭，我們將於2021年稍後展開一項國際人工智能大賽的跨地域活動。這項由廣東省科學技術協會和機電工程署合辦，中國科學技術協會港澳台辦公室及香港特別行政區政府創新及科技局為指導單位，活動會聚焦人工智能在屋宇裝備業的發展和應用。今次將是全球首個，也是迄今最大型的建築機電系統人工智能賽事，歡迎世界各地的研究人員、學生和初創企業參加。

是次活動的重點是「語義人工智能」，這項前沿技術於建築機電業極具潛力，有大量創新的應用尚待開發。除了論壇和工作坊之外，我們還會舉辦線上人工智能比賽，參賽者須開發一個人工智能模型，以預測一幢商業大樓的冷卻需求負荷，結果會交由人工智能進一步處理和解讀，以決定如何優化建築物機電設備的操作系統，實現最佳能源效率。營運基金團隊已開始籌備比賽。我們很高興能與內地伙伴合作，攜手舉辦這項國際盛事。

### 來年展望

政府正努力爭取於2050年實現碳中和，因此減碳會是我們2021/22年度的工作重點。減碳對營運基金並非新事物，多年來，我們的策略業務單位一直協助客戶落實各種節能和可再生能源項目。為盡量減少氣候變化現象(例如超級颱風)對客戶沿岸基礎設施可能造成的破壞，我們的同事已累積豐富經驗，為客戶採取相應的預防和緩解措施。我們已準備就緒，可進一步支援政府的減碳工作。

人才是營運基金的最大資產，因此我們非常重視招聘和培訓工作。營運基金兩個技術員訓練計劃均縮短了一年，由2021年夏季起推行，為業界引入生力軍。對於現職員工，在瞬息萬變的世界中，終身學習和擴闊視野至關重要。我們將繼續提供持續學習的機會，並善用我們的大灣區和國際合作網絡，協助同事拓闊眼界和見識。

年內，我們的員工協助客戶執行不同的抗疫工作，亦與其他政府部門聯手進行各項相關工作，例如於龍琛路體育館的社區疫苗接種中心當值，以及在油麻地等「受限區域」協助進行強制2019冠狀病毒病檢測等，表現英勇，堅毅不拔。事實上，我們不單提供機電服務，更會照顧社區的需要。營運基金表現出色，最新的2020年客戶意見調查中，在8分為滿分的客戶滿意指數項目，我們取得6.83分，創歷史新高。我們的員工更於2020年獲政務司司長頒發數以千計的致謝函。

A new development was the cross-regional organisation of an international artificial intelligence (AI) competition which will kick off later in 2021, riding on the momentum and success of our I&T projects in the International Exhibition of Inventions of Geneva. Jointly organised by the Guangdong Provincial Association for Science and Technology and EMSD, with the Office of Hong Kong, Macao and Taiwan Affairs of the China Association for Science and Technology and the Innovation and Technology Bureau of the Hong Kong Special Administrative Region Government as advisors, the competition will focus on AI development and applications in the building services industry. This will be the first and largest AI event so far on building E&M services in the world and researchers, students and start-ups from around the world are welcome to participate.

The event will focus on "Semantic AI", a frontier technology with much potential and exciting applications for the building E&M industry. Apart from conferences and workshops, there will be an online AI Competition where participants will develop an AI model to predict the cooling demand of a commercial building, the result of which can be further processed and interpreted by AI to decide how the building services system can be operated for best energy efficiency. A team of the EMSTF colleagues has been working on the event, and we are delighted to be jointly organising this global competition with the Mainland partners.

### LOOKING FORWARD

In line with the Government's efforts to strive to achieve carbon neutrality by 2050, decarbonisation will be our focus in 2021/22. This is not a new concept to the EMSTF, as our SBUs have been assisting clients in implementing energy-saving and renewable energy projects throughout the years. Our colleagues have also gained solid experience in carrying out preventive and mitigation measures to minimise the potential damage of the phenomena of climate change, such as super typhoons, on clients' coastal infrastructures. We stand ready to further support the Government's decarbonisation work.

Human capital is our greatest asset and we attach much importance to recruitment and training. To attract young talents, the EMSTF's two Technician Training Schemes are shortened by one year, with effect from the 2021 summer intake as planned. For existing staff, life-long learning and broadening of horizons are important in a fast-changing world. We will continue to provide continuous learning opportunities and leverage our GBA and international collaboration networks to enrich our colleagues' exposure.

During the year, our staff assisted in clients' anti-epidemic work and participated in other joint tasks with various government departments, such as manning the CVC at Lung Sum Avenue Sports Centre and assisting in the compulsory COVID-19 testing in "restricted areas" like Yau Ma Tei, demonstrating great courage and resilience. In fact, not only do we provide E&M services, but we also cater to community needs. The EMSTF's performance was well recognised, as shown in the record high score of 6.83 out of 8 in the Customer Satisfaction Index in the latest Customer Opinion Survey 2020. Moreover, our staff received thousands of appreciation letters from the Chief Secretary for Administration in 2020.

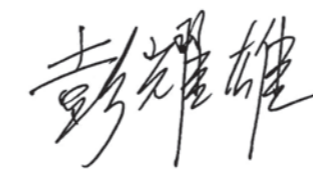
我們也會繼續開展創科工作。營運基金最近就不同類別的機電資產出版了四份優良操作和維修作業守則。日後，我們會繼續領導機電同業，推動優良作業方法。我們現正開發網站，供業界人士上載經審查的優良作業方法相關資訊和影片，鼓勵同業互相學習。此外，機電署已獲得ISO 37001反賄賂管理體系認證，成為首個取得這項認證的政府部門。營運基金尤其重視誠信，並會提供所有必要的支援和培訓，維持廉潔的環境。

### 由衷感謝

疫情改變了世界，也讓我們洞悉如何應對未來的挑戰。我們衷心感謝所有客戶於過去一年的信任和合作，也感激營運基金同事的努力和優秀表現。常務委員會、各決策局和政府部門為我們提供指導和支持，我們亦深表謝意。

至於各專業團體、商會和業界伙伴、學術界、培訓和研究機構、非政府組織以及所有內地與海外合作伙伴，倘沒有他們的支持，在此充滿挑戰的時刻，營運基金決不可能完成工作，我們謹此由衷致意。我們也感謝市民、傳媒、立法會議員和其他意見領袖的監察和意見。

誠如營運基金25周年的紀念主題，我們相信全體員工、客戶和持份者都會繼續給予支持，結伴同行，以「同·創·傳·期」的精神，一同締造更美好的香港。



彭耀雄  
機電工程營運基金總經理

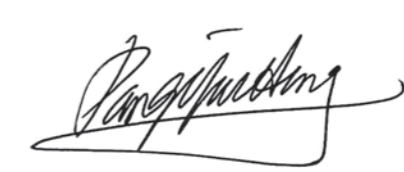
Our I&T work will continue, and we will keep up our work in leading the E&M trade to promote best practices, further to the EMSTF's recent publication of four operation and maintenance best practices booklets on different E&M assets. To encourage trade practitioners to share and learn from each other, we are developing a website for the trade to share relevant materials and videos on best practices, subject to prior vetting. On a related note, the EMSD has obtained the ISO 37001 Anti-bribery Management Systems Certification, making us the first government department to attain this certification. Integrity is vital to the EMSTF, and we shall provide all necessary support and training to maintain a corruption-free environment.

### SINCERE GRATITUDE

The pandemic has transformed the globe and given us insights on how to address the challenges ahead. We sincerely thank our clients for their trust and partnership in the past year, and our colleagues for their commitment and excellent performance. We also owe the Executive Board, various policy bureaux and government departments a big thank-you for their guidance and support.

Our work would not have been possible, especially in these challenging times, without the support of various professional bodies, trade associations and partners, academics, training and research institutions, non-governmental organisations, and our Mainland and overseas partners, and we are deeply grateful. We also thank members of the public, the media, Legislative Councillors and other opinion leaders for their vigilance and suggestions.

With the support from our staff, clients and stakeholders, we are confident that the EMSTF will continue to "co-innovate and co-create" a better Hong Kong, echoing the theme of our 25th anniversary celebrations.



Pang Yiu-hung  
General Manager, Electrical and Mechanical Services Trading Fund





張遠芳太平紳士  
Mr Cheung Yuen-fong, JP

機電工程署副署長 / 營運服務  
Deputy Director/Trading Services, EMSD

## 業務回顧與前瞻

### OPERATIONS REVIEW AND OUTLOOK

儘管受到2019冠狀病毒病影響，機電工程營運基金2020/21年度維持穩健的財務狀況，總收入增加至85.78億港元，較上年增長約6%（2019/20年度：80.87億港元），主要受惠於政府新建築項目及其他新業務增長。收入回報率則下降至2.3%，這是正面發展，也符合我們的營運原則，即只收回成本，讓客戶保留資金，為公共服務創造最大價值。

#### 年內亮點

2020/21年度，營運基金成績美滿，在2020年年底進行的客戶意見調查中獲得的客戶滿意指數創出歷史新高，以8分為滿分計，客戶滿意指數達6.83分，相當於100分的85分，超越2018年調查所得的6.61分。我們在疫情期間仍取得如此佳績，反映客戶信任我們有能力在任何情況下為他們提供支援。

The Electrical and Mechanical Services Trading Fund remained financially healthy in 2020/21 despite the impact of COVID-19. Thanks to the growth arising from new government building projects and other new businesses, the total revenue rose to HK\$8,578 million, representing an increase of about 6% compared to the previous year (2019/20: HK\$8,087 million). The return on revenue fell to 2.3%, which was a positive development consistent with our cost recovery principle to help our clients retain funding to optimise value for the public.

#### ACHIEVEMENTS

A major achievement in 2020/21 was our record-high Customer Satisfaction Index score of 6.83 on the scale of 8, equivalent to 85 out of 100, in the Customer Opinion Survey conducted in late 2020, an improvement compared to 6.61 in the 2018 survey. Achieving this historic score during the epidemic reflects our clients' trust in our ability to provide support through thick and thin.

年內，我們肩負起新任務，致力降低2019冠狀病毒病在公共場所傳播的風險。舉例而言，我們為安老院舍、健身室和餐廳食肆提供支援，量度通風情況，提供通風裝置的技術建議，並制訂空氣淨化機供應商的建議名單。我們又支援政府首個普及社區檢測計劃和2019冠狀病毒病疫苗接種計劃，提供所需的機電設施，包括安裝運用物聯網技術的綜合疫苗冷藏櫃監察系統，全天候24小時監察社區疫苗接種中心的藥用冷藏櫃，並與衛生防護中心分享實時數據。

我們同時為醫院管理局進行多項工作，包括將大量普通病房改裝成二線負壓病房，安裝數百台「流動組合式—高效能空氣微粒子過濾器」，以及為公立醫院加強通風系統，將每小時換氣量增加至12次。就政府在亞洲國際博覽館設立社區治療設施，以及在興建北大嶼山醫院香港感染控制中心的工作，我們也提供堅實支援。

另一項佳績，是同事的創新科技（創科）項目在年內贏得21個獎項和四項專利，包括於享譽盛名的日內瓦國際發明展勇奪四項金獎及四項銀獎。有關項目都是營運基金與初創企業、大學或研究機構合作研發，而最令人欣喜的是，我們參加日內瓦國際發明展的所有參賽項目全部獲獎，成績亮麗，也證明我們作為政府的「創新促成者」與整合者的角色，正發揮作用。

This year we took on new tasks to reduce risks of COVID-19 transmission in public places. For instance, we supported residential care homes for the elderly, gyms and restaurants by measuring their ventilation performance, providing technical advice on ventilation settings, and recommending air-purifier supplier lists. We also supported the Government's first-ever Universal Community Testing Programme (UCTP) and COVID-19 Vaccination Programme (CVP) by providing all the necessary E&M facilities, including an integrated Fridge Monitoring System using Internet of Things (IoT) technology to monitor medical fridges at Community Vaccination Centres (CVCs) round-the-clock and share real-time data with the Centre for Health Protection.

On top of our work for the Hospital Authority, these projects included converting numerous general wards into second-tier negative wards, installing hundreds of Mobile Modular High Efficiency Particulate Air Filter Units and enhancing ventilation systems in public hospitals to increase air flow to 12 air changes per hour. We also solidly supported the Government in setting up a community treatment facility at the AsiaWorld-Expo and the North Lantau Hospital Hong Kong Infection Control Centre.

Another achievement was that our colleagues received 21 awards and four patents, including four gold and four silver medals at the prestigious International Exhibition of Inventions of Geneva for their innovation and technology (I&T) projects this year. Each of these projects were collaborations with start-ups, universities or research institutions, and it is remarkable that all our entries won an award. Such excellent results show that we are working well as the Government's Innovation Facilitator and integrator.

# 業務回顧與前瞻

## OPERATIONS REVIEW AND OUTLOOK

### 新常態下服務香港

由於營運基金早於多年前已開始涉足創科工作，所以當疫情於2020年年初襲港時，我們已準備就緒，能幫助客戶迅速作出回應，例如馬上進行抗疫創科方案測試或推出可供採用的方案，包括在政府辦公室和場地引入清潔機械人，以及在公立醫院推出送貨機械人。我們還透過「機電創科網上平台」為客戶部門邀請初創企業提供抗疫創科方案，並就40多個項目進行測試，包括消毒機械人和非接觸式升降機按鈕等。

當疫情持續，政府竭盡所能讓市民重過正常生活，享受傳統節慶活動，例如農曆新年花市場。儘管面對諸多技術挑戰，我們仍悉力在兩星期內為全港15個年花銷售點建立了一套運用政府物聯網的人流量監察系統，以及輪候與派籌系統，讓客戶可於2021年2月農曆新年期間，井然有序地管理各個年花銷售點，並把公眾感染風險減至最低。我們在今年年花市場，以及在普及社區檢測計劃、疫苗接種計劃和其他抗疫項目中所得的經驗，將為日後在新常態下的工作提供有用參考。

新常態也有助提高我們的營運透明度。由於疫情需要，我們必須更廣泛應用物聯網為機電系統進行遙距監察，因而加快了我們與客戶分享數據的進度。我們現正運用「顧客為本電子平台」作為與客戶分享數據的通用平台，以提高透明度。

### 以創新科技締造智慧城市

總體而言，我們對營運基金的創科工作感到高興，但絕不自滿，也充分了解要將客戶的機電系統數碼化，以及把香港建設成為智慧城市，任重道遠，未來尚有大量工作需要完成。令人欣慰的是，本港和廣東許多初創企業都已運用我們的「機電創科網上平台」，按平台上的客戶創科願望清單提出各種方案，包括廣受歡迎的機械人和非接觸式升降機按鈕抗疫方案等。

為了優化我們的「建築信息模擬—資產管理」系統，我們最近將擴增實境技術和5G通信技術與該系統結合，開發一個綜合平台，讓維修保養人員能通過流動設備及智能眼鏡管理機電資產，實時監察有關設備，進行故障診斷和快速找出設備位置。綜合平台可提升維修保養的工作效率，並可減少公共服務中斷的情況。

### SERVING HONG KONG UNDER THE NEW NORMAL

Thanks to the EMSTF's early start in I&T work years ago, we were well prepared to help clients respond quickly when the COVID-19 struck Hong Kong in early 2020. We rapidly trialled or rolled out for clients I&T solutions, including cleaning robots for government offices and venues, and delivery robots in public hospitals. We also leveraged our E&M InnoPortal to invite anti-epidemic solutions from start-ups for client departments, and arranged over 40 trials such as those on disinfection robots and touchless lift buttons.

When the COVID-19 epidemic persisted, the Government worked hard to enable the public to go about their daily lives and enjoy festivities such as the Chinese New Year fairs. Despite many technical challenges, we set up within two weeks a footfall monitoring system using the Government-Wide IoT Network (GWIN) and a queuing and ticketing system for crowd management for the 15 points of sale of New Year flowers, facilitating the client to operate the venues during the Chinese New Year in February 2021 in an orderly manner with minimum risk of infection. This, together with our work on the UCTP, CVP and other anti-epidemic projects, will serve as a useful reference for the way forward to the new normal.

The new normal has helped enhance our operational transparency too. As the epidemic necessitates the wider use of IoT-based remote monitoring of E&M systems, it has in turn accelerated data sharing with clients. We are leveraging our Customer Centric e-Platform as a common platform for data sharing with clients to enhance transparency.

### MAKING OUR CITY SMARTER WITH INNOVATION AND TECHNOLOGY

In general, we are pleased but far from complacent about our I&T work, as much remains to be done to digitalise our clients' E&M systems and make our city smarter. It is gratifying that many start-ups in Hong Kong and Guangdong have leveraged our E&M InnoPortal to propose solutions to satisfy clients' I&T wish lists, including much welcomed anti-epidemic solutions like robots and touchless lift buttons.

To fine-tune our Building Information Modelling-Asset Management (BIM-AM) system, we recently combined augmented reality and 5G communication technologies with BIM-AM to develop a comprehensive platform that enables maintenance personnel to use mobile devices to manage assets by carrying out real-time monitoring, fault diagnosis and rapid equipment positioning via smart glasses. This enhances the effectiveness of maintenance work and reduces service disruptions for the public.

我們在運用政府物聯網方面也有長足發展，農曆新年年花銷售點的工作便是一例。此外，我們在渠務署的「智慧渠務—洪水監察系統」運用物聯網水位傳感器，將40多個新增的地點連接到政府物聯網。我們也在多幢政府建築物安裝了80多個政府物聯網基站，為遙距監察機電設備進行測試。

作為政府的「創新促成者」，在《香港智慧城市藍圖2.0》提出的130項措施中，我們負責推行其中八項，包括「建築信息模擬—資產管理」及政府物聯網等。我們還會為客戶部門的智慧城市項目提供創科支援，例如全港第一所智慧監獄—大潭峽懲教所。這些創科項目得以順利開發的關鍵因素，是營運基金上下員工對創科抱持開放態度，大家都勇於嘗試新意念，我們因而也成功轉型為一個精通科技的靈活機構。

### 深化粵港澳大灣區合作

疫情沒有窒礙我們與粵港澳大灣區的交流。機電署於2020年12月與廣州市人力資源和社會保障局就機電人才發展簽訂新的合作備忘錄，深化機電人才發展合作。至於廣州市技師學院和廣州市工貿技師學院這兩個大灣區內的機構，也繼續為我們的技術員訓練學員提供不同科目的線上培訓課程。

### 五年策略計劃再進一步

2020/21年度是營運基金第二個五年策略計劃的第三年，取得良好進展。我們完成了多幢主要政府大樓的機電資產數碼化工作，而已完工的建築物總數達200多幢，相當於我們目標的一半。我們年內設立的第一個區域數碼監控中心，先導運作相當成功，其他策略業務單位會引為參考，分別建立本身的區域數碼監控中心，用以監控和分析來自數碼化機電系統的實時數據，從而優化資產效率。

在提升機電水平方面，機電署諮詢業界後，年內出版了四本關於不同機電資產優良操作和維修服務作業守則，每冊均涵蓋基本、良好和最佳作業守則。這四本守則實現了我們與業界分享優良作業守則的願景。

We also made headway in the GWIN, as seen in our work for the points of sale of New Year flowers. For the Drainage Services Department's Smart Drainage – Flood Monitoring System, we connected over 40 additional sites to the GWIN network with IoT water-level sensors. We also set up over 80 GWIN gateways at government buildings for remote E&M monitoring trials.

As the Government's Innovation Facilitator, we have taken up eight of the 130 initiatives put forward in the Hong Kong Smart City Blueprint 2.0, including the BIM-AM and GWIN, etc. We also provided I&T support to clients' smart city initiatives such as the first smart prison at Tai Tam Gap Correctional Institution. The key factor in all these developments is the EMSTF's I&T mind-set which our workforce has embraced to transform us into a tech-savvy, agile organisation where people are ready to try new ideas.

### DEEPENING GREATER BAY AREA CO-OPERATION

The epidemic has not stopped our exchanges with the Guangdong-Hong Kong-Macao Greater Bay Area (GBA). The EMSD signed a new Memorandum of Co-operation with the Guangzhou Municipal Human Resources and Social Security Bureau to deepen collaboration on E&M talent development in December 2020. The Guangzhou Technician College and the Guangzhou Industry and Trade Technician College, both GBA entities, have continued to train our technician trainees online on different subjects.

### FIVE-YEAR STRATEGIC PLAN PROGRESS FURTHER

2020/21 was the third year of the EMSTF's second Five-year Strategic Plan and made good progress. We completed the E&M assets digitisation at major government buildings, bringing the total to over 200, representing halfway of our target. Based on the success of the first pilot Regional Digital Control Centre (RDCC) established in 2020/21, our other Strategic Business Units will set up their own RDCCs for monitoring and analysing real-time data from the digitised E&M systems to optimise asset efficiency.

In enhancing the standard of E&M facilities, after industry consultations, the EMSD published four booklets on best practices for operation and maintenance services on different E&M assets, each covering basic, good and best practices. The booklets fulfil our vision of sharing best practices with the trade.

## 業務回顧與前瞻 OPERATIONS REVIEW AND OUTLOOK

對內方面，我們為電氣和空調工作成立了兩支特定機電團隊，旨在樹立優秀團隊的榜樣，尤其在應急支援工作、知識分享傳承、靈活團隊和協作方面起示範作用。為吸引年輕人才，我們優化營運基金的兩個技術員訓練計劃，分別改為兩年制及三年制；新訓練計劃將由2021年新學員入學起實施。

此外，疫情突顯了我們對社會和環境的承擔。2021年1月政府為油麻地指定「受限區域」進行強制檢測，我們的員工自願參與提供協助，其後又主動支援龍琛路體育館社區疫苗接種中心的運作。我們也響應政府在疫情期間創造就業機會的措施，聘請了約1 500名臨時員工支援各種工作。我們並繼續推行「好人好事嘉許計劃」，鼓勵員工積極參與社區服務。

環境方面，我們於2020年10月成立了能源管理小組，為約250幢政府建築物統籌能源審核和碳審計，以響應政府的綠色能源目標措施。2021年3月，機電署總部露天廣場翻新工程落成，創造了一個上佳的社區公共空間供市民享用，並加強了總部大樓作為可持續發展示範單位的地位。

Internally, we launched two special duty units on electrical as well as air-conditioning, serving as role models in building an excellent team for emergency support work, knowledge sharing, agile teamwork and collaboration. To attract young talent, our two Technician Training Schemes were revitalised to become two-year and three-year programmes starting from the 2021 intake.

Besides, the epidemic has underscored our social and environmental commitments. We volunteered to facilitate compulsory COVID-19 testing in the specified "restricted area" in Yau Ma Tei in January 2021, supported the operation of the CVC at Lung Sum Avenue Sports Centre, and hired about 1 500 temporary staff for various support tasks as part of Government's initiative to create jobs during the epidemic. We also continued our "Good People, Good Deeds Commendation Scheme", encouraging staff community service.

Regarding the environment, in October 2020, we set up an energy management team to co-ordinate energy and carbon audits for about 250 government buildings, in support of the Government's "Green Energy Target" initiative. In March 2021, we completed the refurbishment of our headquarters piazza, creating an excellent public space for the community to enjoy and reinforcing our building's status as a showcase of sustainability.

## 展望將來

年內，營運基金既保持正常服務，也成功落實多項抗疫新任務。展望2021/22年度，我們會充分利用五年策略計劃的最後兩年，實現所有計劃目標，並深化我們與大灣區的合作。

2021年，我們以「同·創·傳·期」為主題，舉行營運基金銀禧誌慶活動。我們不會忘記，營運基金多年來的穩健表現實有賴同事的承擔、客戶的信任、常務委員會及各決策局的指導，以及各商會、合作伙伴、大學及學者、專業團體、培訓和研究機構的支持。我們也衷心感謝營運基金在本港、中國內地和海外的合作伙伴。我們定當竭盡所能，充當機電工程卓越服務提供者和政府的「創新促成者」，作出更大貢獻。

前瞻來年，我們期望營運基金在各方面的努力和協作，都會有更豐碩的成果。

張遠芳  
機電工程署副署長 / 營運服務

## WAY FORWARD

In the year, the EMSTF successfully accomplished many new tasks to fight the epidemic while carrying on with our normal services. In 2021/22, we shall make the most of the final two years of our Five-year Strategic Plan to attain all its goals and deepen our collaborations in the GBA.

As we celebrate the EMSTF's silver jubilee in 2021 under the theme of "Co-innovate and Co-create Our Future", we shall not forget that we owe our steady performance over the years to the commitment of our colleagues, the trust of our clients, the guidance of the Executive Board and policy bureaux, as well as the support of trade associations and partners, universities and academics, professional bodies and training and research institutions. We also sincerely thank our co-operation partners in Hong Kong, the Mainland of China and overseas. We endeavour to make greater contributions as an excellent E&M service provider and Innovation Facilitator in the Government.

We look forward to ever more fruitful ventures and co-operation in 2021/22.

Cheung Yuen-fong  
Deputy Director/Trading Services, EMSD

## 營運服務 TRADING SERVICES

### 抗疫工作與新常態

過去一年，2019冠狀病毒病為香港帶來種種挑戰，影響市民生活，而許多抗疫措施更已成為「新常態」的一部分。我們的策略業務單位互相協作，支援客戶的抗疫工作，為市民的福祉努力。

在抗疫工作中，我們其中一項主要任務是繼續支援政府優化香港的隔離設施。過去一年，我們協助醫院管理局（醫管局）將公立醫院多個普通病房改裝為二線負壓病房，並在有關病房安裝了數百台「流動組合式—高效能空氣微粒子過濾器」，以及加強通風系統。

### ANTI-EPIDEMIC WORK AND THE NEW NORMAL

In the year under review, the Coronavirus Disease 2019 (COVID-19) brought challenges to every aspect of life in Hong Kong. Once again, our Strategic Business Units (SBUs) worked in concert to support clients in their anti-epidemic efforts for the well-being of the public under the "new normal", where a number of anti-epidemic measures have become part of our daily lives.

In fighting the virus, one of our key tasks was to continue supporting the Government to optimise the isolation facilities in Hong Kong. Over the years, we assisted the Hospital Authority (HA) in converting numerous general wards of public hospitals into second-tier negative pressure wards through the installation of hundreds of Mobile Modular High Efficiency Particulate Air Filter Units (MMHUs) and enhancement of the ventilation systems.



我們主動為新建的北大嶼山醫院香港感染控制中心提供有關各機電系統的設計、安裝、測試及調校的技術意見，使有關機電系統更穩定、運作更有效率及便於維修，以隨時應對嚴峻的2019冠狀病毒病的疫情。

We proactively provided technical advice on the design, installation, testing and commissioning of various E&M systems at the newly established NLHHKICC to enhance the reliability, operational efficiency and maintainability of the systems, in order to combat the severe COVID-19 epidemic at any time.

我們的策略業務單位亦負責為政府其他抗疫防線，包括檢疫和社區治療設施，以及社區檢測和疫苗接種計劃，提供機電和其他技術支援。2019/20年度，我們參與把社區設施改建為檢疫中心的工程。其後，我們向食物及衛生局及衛生署提供技術意見，為指定檢疫酒店計劃下的酒店進行通風系統評估。我們也參與興建新的隔離設施，包括亞洲國際博覽館的社區治療設施和具標誌性的北大嶼山醫院香港感染控制中心，兩者均是疫情高峰期處理大量個案的重要設施。

Our SBUs also provided E&M and other technical support for the Government's other lines of defence, including the quarantine and community treatment facilities and community testing and vaccination programmes. Further to our participation in the conversion works of various community facilities into quarantine centres in 2019/20, we continued to provide technical advice to the Food and Health Bureau and the Department of Health (DH) in assessing the ventilation systems of hotels for the Designated Quarantine Hotel Scheme. We also took part in constructing new isolation facilities such as the Community Treatment Facilities at AsiaWorld-Expo and the iconic North Lantau Hospital Hong Kong Infection Control Centre (NLHHKICC), both of which were vital facilities with capacity for the large number of cases at the peak of the epidemic.



(左上)在疫情期間，香港對醫療設施的需求激增。為應付此情況，亞洲國際博覽館需進行社區治療設施增建工程，機電署團隊和醫管局高級行政經理(工程)源栢樑博士(右四)參與有關工程。機電署就不同機電及醫療設備提供技術支援，包括右下圖中的「流動組合式—高效能空氣微粒子過濾器」。

(Top left) The EMSD team, together with Dr Yuen Pak-leung (4th right), Senior Manager (Engineering) of the Hospital Authority, participated in the community treatment facility expansion at AsiaWorld-Expo to cope with Hong Kong's surging demand for medical facilities during the epidemic. The EMSD provided technical support for different E&M and medical equipment, including the MMHUs in the picture of bottom right.

(左下)機電署為消防處何文田救護站增設新的消毒設施，包括更衣間及淋浴間。救護人員可於負壓室更衣和淋浴，減低病毒傳播的風險及加強個人保護。

(Bottom left) The EMSD installed for the Fire Services Department at Ho Man Tin Ambulance Depot a new disinfection facility with changing and shower areas. Ambulance officers can change and take showers in the negative pressure compartment to minimise the risk of spreading the virus and enhance personal protection.

救護車經常運送確診或疑似個案患者，容易留有病毒。我們除了為消防處的救護車進行全面清潔和消毒，以及在其後置空調系統加裝空氣過濾網外，還在何文田救護站增設新的消毒設施，建設負壓室讓救護人員更衣和淋浴，進一步減低病毒傳播的風險，我們也正為薄扶林救護站興建類似設施。

Ambulances are prone to contamination as they were often tasked to convey confirmed or suspected cases. In addition to cleaning and disinfecting the Fire Services Department's ambulances and installing additional air filters in their rear air-conditioning systems, we also installed at Ho Man Tin Ambulance Depot a negative pressure compartment, a new disinfection facility, for ambulance officers to change and shower, further minimising the risk of the spread of the virus. Similar facilities are also being built at Pok Fu Lam Ambulance Depot.



我們在十天內完成中山紀念公園體育館電力供應系統的改裝工作，以為臨時氣膜實驗室提供充足電力，並檢查超過200所社區檢測中心的通風系統，確保普及社區檢測計劃運作暢順。

We modified electricity supply system of the Sun Yat Sen Memorial Park Sports Centre to provide adequate power supply for the temporary air-inflated laboratory at the venue within ten days, and conducted inspections of ventilation systems for over 200 Community Testing Centres, in order to ensure smooth operation of the UCTP.

年內，我們還承接了多個檢疫設施的機電保養維修工作，例如竹篙灣檢疫中心、饒宗頤文化館翠雅山房及柴灣鯉魚門公園度假村。2020年12月，政府為進一步加強外防輸入，減低抵港人士與本地社區接觸，全面實施指定檢疫酒店計劃。我們協助衛生署評估檢疫酒店的通風系統，確保其通風水平良好，符合感染控制的要求。另一項有關入境旅客的抗疫舉措，是為衛生署設立永久性的港口衛生設施，例如在香港國際機場一號客運大樓建造隔離病房。

During the year, we also took on the E&M maintenance of various quarantine facilities such as the Penny's Bay Quarantine Centre, the Heritage Lodge of the Jao Tsung-I Academy and the Chai Wan Lei Yue Mun Park and Holiday Village. In December 2020, the Government introduced the Designated Quarantine Hotel Scheme to prevent the importation of COVID-19 cases and reduce contact between arrivals and the local community, and we helped DH in assessing the ventilation systems in the enlisted hotels to ensure a good level of ventilation to comply with the infection control requirements. Another anti-epidemic initiative on inbound passengers was the establishment of the permanent port health facilities, such as the isolation ward in Terminal One of the Hong Kong International Airport for the DH.

為配合政府於2020年9月推出為期14天的普及社區檢測計劃，我們在三天內為全港200多個普及計劃指定場地（主要為政府體育館和社區會堂）檢查通風系統。我們更於十天內完成中山紀念公園體育館電力供應系統的改裝工作，為臨時氣膜實驗室提供足夠的電力，該實驗室於短時間內大幅提升本港的檢測能力，對推行普及計劃十分關鍵。

To facilitate the Government's 14-day Universal Community Testing Programme (UCTP) launched in September 2020, we inspected the ventilation systems within three days for over 200 venues identified for the UCTP, which were mainly government sports centres and community halls. We also modified, within just ten days, the electricity supply system of Sun Yat Sen Memorial Park Sports Centre to provide sufficient power to the temporary air-inflated laboratory, a facility instrumental in ramping up the testing capacity in a short time for the UCTP.

為支援政府推行2019冠狀病毒病疫苗接種計劃，機電署為教育局九龍塘教育服務中心社區疫苗接種中心安裝綜合疫苗冷藏櫃監察系統，加裝臨時供電系統及為有關設備提供維修保養服務，以確保疫苗接種中心運作順暢。

To support the Government's COVID-19 Vaccination Programme, the EMSD installed the integrated Fridge Monitoring System, added temporary power supply systems and provided maintenance services for the equipment concerned at the Community Vaccination Centre at the Education Bureau Kowloon Tong Education Services Centre, ensuring the smooth operation of the vaccination centre.



2021年2月，政府推行2019冠狀病毒病疫苗接種計劃，免費為全港市民接種疫苗。營運基金團隊即時作出配合，與相關政府部門合作，短時間內在全港18區設立20多個臨時社區疫苗接種中心。我們的工作包括為疫苗接種中心設置機電設施，如電力供應及照明，以及協助採購儲存疫苗的藥用冷藏櫃及相關的不間斷供電系統。為了確保疫苗可以在低溫環境下貯存，我們亦研發和安裝綜合疫苗冷藏櫃監察系統，把實時數據發送至位於機電署總部大樓的客戶服務中心和區域數碼監控中心，以及設於政府總部的區域數碼監控中心儀表板，24小時無間斷監察社區疫苗接種中心內冷藏櫃及其他機電設備的狀況，令疫苗接種工作可以順利進行。

In February 2021, the Government launched the territory-wide COVID-19 Vaccination Programme to offer vaccination free-of-charge to Hong Kong residents. In line with the Programme, the EMSTF teams had already been working with other relevant government departments immediately to set up over 20 temporary Community Vaccination Centres (CVCs) across 18 districts in Hong Kong within a short period of time. We were tasked to set up E&M facilities such as electricity supply and lighting, as well as assisting in the procurement of medical fridges for vaccine storage and associated uninterruptible power supply systems. We also developed and installed an integrated Fridge Monitoring System, which sends real-time data to our Customer Service Centre, our Regional Digital Control Centre (RDCC), both situated at the EMSD Headquarters, as well as our RDCC dashboard in Central Government Offices for round-the-clock monitoring the operating condition of medical fridges and other E&M equipment in the CVCs, ensuring the vaccines can be stored in low temperature and the vaccination programme to be successfully launched.

營運基金團隊亦為客戶部門的辦公室及各公共服務場所加強多方面的防疫設備，當中不少已成為「新常态」下的標準裝備，例如在政府建築物及場所設置的發燒偵測系統、非接觸式升降機按鈕及加強的清潔服務；在街市大樓設置的發燒偵測儀器、空氣冷卻器及紫外光C消毒燈；以及在各懲教院所探訪室和食堂安裝的固定式紫外光C消毒燈等。

The EMSTF teams also strengthened a wide range of anti-epidemic installations at clients' offices and public service venues, many of the installations have become standard features under the "new normal". Examples include the fever screening systems, contactless lift buttons and enhanced cleaning services at government buildings and venues, fever detection devices, air-coolers and ultraviolet-C (UVC) disinfection lamps at market complexes, as well as fixed UVC-lamps for disinfection of visitor rooms and dining halls at various correctional institutions.

(左)機電署為食物環境衛生署轄下保安道街市的自動梯安裝紫外光消毒設施。扶手帶經紫外光燈殺菌處理，有效消滅細菌。

(Left) The EMSD set up escalator ultraviolet light disinfection device at the Po On Road Market for the Food and Environmental Hygiene Department. Handrails are disinfected with UVC-lamps for effective disinfection.

(右)我們已於政府總部安裝非接觸式升降機控制板。該設計應用紅外線感應技術，讓使用者使用升降機時以隔空方式選擇樓層，無需直接接觸升降機控制板，減低人與人之間接觸及病毒傳播風險。

(Right) We have installed contactless lift control panels at the Central Government Offices. The application of infrared sensing technology in the design enables users to select the floors without directly touching the buttons of the lift control panels while using the lift. It minimises person-to-person contact and the risk of virus transmission.



## 營運服務 TRADING SERVICES



我們為食環署轄下室內熟食中心的空調及通風系統進行檢查及維修，以確保熟食中心內空氣流通。

We conducted inspection and maintenance for air-conditioning and ventilation systems at cooked food centres under the FEHD, thereby ensuring good air ventilation in the cooked food centres.



我們為入境事務處轄下32個人事登記辦事處和智能身份證換領中心安裝的人流量統計系統，會繼續長期運作，讓客戶部門在提供必要服務時盡量減低感染風險。我們亦確保食物環境衛生署（食環署）轄下街市及熟食中心，通風系統符合相關要求。

在多個疫情高峰期期間，虛擬會議和在家工作模式成為客戶部門的常態。我們應公務員事務局要求，為客戶部門檢視視像會議設施，確保設施符合政府的保安和其他要求。由於視像會議很可能成為未來工作模式的一部分，我們會繼續協助客戶部門，提升工作效率。

年內，多個2019冠狀病毒病感染羣組相繼出現，例如2021年2月的「食肆羣組」和2021年3月的「健身室羣組」，以及多宗在指定檢疫酒店內出現的懷疑互相感染個案。在有關場所找出感染源頭，對防疫抗疫工作至關重要。作為政府跨部門小組的成員之一，我們協助衛生防護中心進行調查工作，包括了解場地的通風系統及在現場量度換氣量及空氣流向。

The headcount sensor control system installed at 32 Registration of Persons Offices and Smart Identity Card Replacement Centres under the Immigration Department will continue to operate on a long-term basis to minimise the risk of infection during the provision of essential services. We also made sure that wet markets and cooked food centres under the Food and Environmental Hygiene Department (FEHD) meet the ventilation requirements.

Virtual conference meetings and work-from-home became the norm for client departments during the peaks of the epidemic. As requested by the Civil Service Bureau, we conducted a review of video conferencing facilities to ensure compliance with the Government's security and other requirements. As virtual meetings are likely to become part of the working mode in the future, we will continue to assist client departments to enhance work efficiency.

During the year, several COVID-19 clusters occurred, such as the "restaurant cluster" in February 2021 and the "fitness centre cluster" in March 2021, as well as various suspected infection cases in designated hotels. The investigation on the roots of transmission in these venues became crucial in the anti-epidemic work. In the inter-departmental government team to support the investigations conducted by the Centre for Health Protection (CHP), we provided support on investigations in understanding the on-site ventilation system and measuring the air changes and air flow directions.

疫情期間曾出現2019冠狀病毒病感染羣組（例如「安老院舍羣組」、「健身室羣組」及「食肆羣組」），機電署為衛生防護中心、香港大學袁國勇教授團隊、社會福利署及民政事務總署等提供支援，並派員到有關地點進行調查，以找出傳播源頭。

Upon the emergence of COVID-19 infection clusters, such as the "RCHC cluster", "fitness centre cluster" and "restaurant cluster", the EMSD provided support to the CHP, the team of Professor Yuen Kwok-yung of the University of Hong Kong, the SWD and the Home Affairs Department, etc. and deployed staff to conduct investigations at the sites concerned, in order to find out the root causes of transmissions.



在安老院舍方面，我們為社會福利署（社署）及衛生防護中心提供技術意見，並於2020年7月和8月聯同香港大學的袁國勇教授視察八間安老院舍。2020年12月，營運基金團隊就改善通風系統提出多項建議，並編製安老院舍良好通風的實用要訣，供院舍經營者參考。社署其後更委託顧問進行研究，長遠改善全港1 000多間安老院舍的通風狀況。

在全球疫情大流行期間，及時分享知識尤為重要。2020年11月，營運基金與香港工程師學會生物醫學分部合辦生物醫學工程會議2020，主題為「以創新科技對抗2019冠狀病毒病及未來的大流行傳染病」，涵蓋八個創新科技範疇，包括人工智能和機械人技術、醫療儀器及消毒方案等。超過30位本地及海外專家以視像會議形式，向300多位來自不同城市的參加者，分享嶄新的科研成果及創科應用方案。

政務司司長向營運基金多個策略業務單位的百多位同事發出致謝函，感謝他們執行抗疫工作，不遺餘力，而公務員事務局局長也向我們的同事頒發感謝狀。各策略業務單位齊心抗疫，不但有助客戶保護員工，維持必要的公共服務，更為大眾安全作出貢獻。

We assisted the Social Welfare Department (SWD) and the CHP by providing technical advice to residential care homes for the elderly (RCHEs), and inspected eight care homes in July and August 2020 together with Professor Yuen Kwok-yung of the University of Hong Kong. The EMSTF team made several recommendations on ventilation improvements and compiled a set of tips on good ventilation at RCHEs in December 2020 for reference of the operators. The SWD subsequently commissioned a consultancy study to improve the ventilation of over 1 000 RCHEs across the territory in the long run.

Prompt knowledge sharing is important in a global pandemic. In November 2020, the EMSTF co-organised the Biomedical Engineering Conference BME 2020 with the Biomedical Division of the Hong Kong Institution of Engineers under the theme of "Fighting COVID-19 and Future Pandemics with Innovation & Technology", focusing on eight innovation and technology (I&T) areas, such as artificial intelligence and robotics, medical devices and disinfection solutions. Over 30 local and overseas experts presented cutting-edge research and I&T applications at the virtual event to more than 300 participants from different cities.

The Chief Secretary for Administration sent appreciation letters to over 100 EMSTF colleagues of different SBUs to thank them for their services in fighting the virus. The Secretary for Civil Service also sent our colleagues a certificate of appreciation. The concerted effort by our SBUs in fighting the virus not only helped clients protect their staff while maintaining essential public services, but also contributed to the safety of the community.



### 善用機電知識控制感染 Applying E&M Knowledge to Infection Control

為減輕疫情對香港醫療系統的壓力，高級工程師鄭淑芳女士(左四)及施培康先生(右四)與他們的團隊成員，為北大嶼山醫院香港感染控制中心的機電設備提供各項技術支援、測試及調校服務，竭盡全力協助醫院投入運作。

To alleviate the pressure of the epidemic on Hong Kong's healthcare system, senior engineers Ms Cheng Shuk-fong, Justine (4th left) and Mr Sze Pui-hong, Jason (4th right), and members of their teams provided various technical support and testing and commissioning services for the E&M equipment of the NLHHKICC, devoting their best efforts to assist and facilitate the commissioning of the hospital.

2020年年初，2019冠狀病毒病持續爆發，為本港醫療系統帶來巨大壓力。香港特別行政區政府於2020年7月向中央政府請求協助，在赤鱸角迅速建設臨時醫院。這所新建的北大嶼山醫院香港感染控制中心，整座設施均以組裝合成建築法建造。

憑藉處理負壓病房的豐富經驗，衛生工程部高級工程師鄭淑芳女士和施培康先生與機電工程營運基金同事組成團隊，應發展局邀請就香港感染控制中心內有關機電系統設施的設計、安裝及測調提供技術支援，務使香港感染控制中心各系統更加穩定可靠及便於維修。有關工程於2020年9月展開，在同年11月起進行測試和校驗。政府原訂目標是在2021年2月26日接收第一批病人，最終亦順利達標。

鄭女士說：「最緊湊的時間是在2021年1月。期間，我們與承辦商日以繼夜測調各種機電系統和設備，最終成功同步完成安裝、測試和調校工作。為免影響日間的安裝工作，部分測調均在晚上六時後才可進行。」

施先生憶述團隊在1月下旬的一星期內密集地進行兩項綜合測試，涵蓋多種機電系統，包括通風系統、緊急發電機、電力供應、消防系統和升降機。由於測試相當複雜，營運基金共調派逾40位同事參與相關工作。有關綜合測試能驗證各機電系統能否正常運作，以確保香港感染控制中心日後能暢順運作。

對於能夠參與這個項目，團隊成員均感到非常榮幸。鄭女士和施先生衷心感謝團隊各位成員為項目主動多走一步，竭誠盡責，最終在非常短時間內能如期完成項目。

During the waves of COVID-19 outbreak in early 2020, Hong Kong's healthcare system was put under immense pressure. In July 2020, the Government of the Hong Kong Special Administrative Region sought assistance from the Central Government for the rapid construction of a temporary hospital in Chek Lap Kok. The new North Lantau Hospital Hong Kong Infection Control Centre (NLHHKICC) was constructed entirely with the Modular Integrated Construction (MiC) method.

With rich experience in handling matters relating to negative pressure wards, Ms Cheng Shuk-fong, Justine and Mr Sze Pui-hong, Jason, both senior engineers of the Health Sector Division, formed a team with EMSTF colleagues to provide technical support as invited by Development Bureau for the design, installation, testing and commissioning to enhance the reliability and maintainability of various E&M systems at the NLHHKICC. The construction was commenced in September 2020, and the testing and commissioning work was carried out from November 2020 onwards. Aimed at admitting the first batch of patients on 26 February 2021, the Government's target was successfully met.

"In January 2021, we were under great pressure as we worked zealously with the contractors to test and commission the E&M systems and equipment. With the efforts, the installation, testing and commissioning work was eventually completed in a concurrent and timely manner. Some tests were conducted after 6:00 p.m. to avoid disruption to the installation work during the daytime," said Ms Cheng.

Mr Sze recalled that the team performed two highly intensive integrated tests within a week starting in late January 2021, covering a wide range of E&M systems, including ventilation system, emergency generators, electricity supply, fire services installations and lifts. "Over 40 EMSTF colleagues took part in those complex tests. The integrated tests verified that the E&M systems functioned properly with a view to ensuring the smooth running of NLHHKICC in the future.

All team members felt very honoured to be involved in the project. Both Ms Cheng and Mr Sze cordially thanked everyone in the team for proactively going the extra mile to complete the tasks with dedication and within a very short timeframe.

### 深層清潔救護車 Carrying out Deep Cleaning for Ambulances

陳俊斌先生有11年維修保養救護車的經驗。疫情期間，他負責為救護車進行全面清潔消毒及維修保養工作，以保障救護人員及市民的安全。

Mr Chan Chun-bun has 11 years of experience in ambulance maintenance. He is responsible for conducting thorough cleaning and disinfection of ambulances, as well as maintenance work during the epidemic, ensuring the safety of ambulance officers and members of the public.

在疫情下，為救護車進行維修保養屬高風險工作，但車輛工程分部的一級技術員陳俊斌先生並未因此卻步。他擁有11年維修保養救護車的經驗，也曾在機電工程署的汽車維修工場為其他政府車輛進行維修保養。

按照慣例，救護車會在進行維修保養前先接受清潔。陳先生說：「與垃圾車上明顯及容易清除的污漬不同，病毒微小得無法看見，因此清潔救護車比清潔垃圾收集車複雜許多。」作為救護車定期維修保養團隊的成員之一，陳先生在工作時會穿着全套個人防護裝備，使用消毒劑徹底清潔救護車車門、扶手和通風口，並在開始維修保養工作前更換空調過濾網。

陳先生解釋道：「如救護車曾接載2019冠狀病毒病確診或疑似個案患者，我們會進行更嚴格徹底的清潔工作。」團隊會先為空調系統更換過濾網，再啟動放置在救護車車內的臭氧裝置，並關上所有車門消毒約90分鐘，讓裝置釋出濃度充足的臭氧，為救護車徹底消毒，殺滅隱藏在空調系統中的細菌和病毒。完成後，團隊會打開車門，讓臭氧徹底消散後，才進行維修保養工作。

近日團隊還採用了「預防性零部件更換計劃」，提早更換特定零件和組件，進一步避免救護車故障。

陳先生於2007年參加機電署的技術員訓練計劃。由於現時的工作涉及救護車，他非常重視個人防護，並嚴格遵守所有衛生指引。他說：「這樣不但可以保護自己，更可保障家人和同事的安全。」

In the epidemic, ambulance maintenance is considered a high-risk task. However, the heightened risk did not discourage Mr Chan Chun-bun, a technician I of the Vehicle Engineering Sub-division, from performing his duties. He has 11 years of experience in ambulance maintenance and also worked on other government vehicles at the EMSD depot.

As a common practice, ambulances are cleaned before maintenance. "Since viruses are microscopic, cleaning an ambulance is more complicated than cleaning a refuse collection vehicle, for example, where the visible filth can be easily removed," said Mr Chan. Being one of the team members responsible for scheduled maintenance of ambulances, Mr Chan would wear full personal protective equipment at work, use disinfectant to thoroughly clean ambulance doors, handrails and ventilation outlets, and replace the air-conditioning filters before carrying out the maintenance work.

"When an ambulance that had carried a patient of confirmed or suspected COVID-19 case arrives for maintenance, we would carry out a more rigorous cleaning," explained Mr Chan. After replacing all filters in the air-conditioning system with new ones, they would activate an ozone device placed in the ambulance with all vehicle doors shut for about 90 minutes. The device would emit ozone at a density that kills germs and viruses, including those hidden in the air-conditioning system. Upon completion of the process, the vehicle doors would then be opened wide to disperse the ozone thoroughly before carrying out the maintenance work.

Recently, the team adopted the Advance Bulk Replacement Programme, under which specific parts and components are replaced early to better avoid ambulance breakdowns.

Mr Chan joined the EMSD's Technician Training Scheme in 2007. Given his current work on ambulances, he takes personal protection seriously and strictly observes all instructions on hygiene. "This is for the safety of myself, my family and my colleagues," he said.



### 靈活支援普及社區檢測和疫苗接種工作 Providing Dynamic Support for Universal Community Testing and Vaccination Drives

工程師李潔珍女士帶領團隊，支援中山紀念公園體育館臨時氣膜實驗室的電力供應服務。團隊與各部門聯繫合作，運用豐富經驗和專業知識，在極短時間內重新配置場內的掣櫃。

Ms Lee Kit-chun, Cherry, an engineer, led her team to provide power supply for the air-inflated temporary laboratories at the SYSMP Sports Centre. Using their rich experience and expertise, they communicated and collaborated with various departments to complete the re-configurations of the switchboards at the venue in a very short period of time.

市政工程師李潔珍女士帶領機電工程營運基金團隊，支援中山紀念公園體育館的臨時氣膜實驗室。她負責的任務與其他抗疫工作一樣，必須在瞬息萬變的環境中爭分奪秒，快速完成任務。

2020年8月初，李女士接獲通知，為配合政府計劃於9月1日推出的普及社區檢測計劃，她的團隊需在不足兩個星期內改動中山紀念公園體育館的電力系統，以提供足夠電力支援館內16個臨時加置的氣膜實驗室運作。

李女士憶述：「由於時間緊迫，我們的工作必須快而準。」除改動電力裝置外，團隊亦需要馬上檢查體育館的通風系統，以確保適合實驗室的運作。另外，團隊又要為所有選定為普及社區檢測計劃的場地進行通風評估，並分析每個場地是否適合用作為檢測中心。由於項目緊迫，團隊只用了短短三天時間，即由8月18日至20日，走訪和評估了200多個選定場地。9月1日至14日普及社區檢測計劃開展期間，團隊持續監察全部141個社區檢測中心的供電和通風系統，並提供故障檢修服務。

及後中山紀念公園體育館也成為政府2019冠狀病毒疫苗接種計劃的其中一個接種場地，自2021年1月下旬開始，李女士的團隊與其他政府部門和醫院管理局展開籌備工作，設計適合各個社區疫苗接種中心的圖則、人流方向，以至電力供應和線路安排。中山紀念公園體育館是最早改裝完成的社區疫苗接種中心，其設置安排亦成為其他社區疫苗接種中心的參考範本。

李女士感謝所有團隊成員辛勤工作。她說：「我們學會如何有效進行協調工作，又認識了其他部門和政策局的同事，在疫情下為社區提供支援，工作愉快而且別具意義。」

Ms Lee Kit-chun, Cherry, an engineer of the Municipal Sector Division, led the EMSTF team to support the temporary air-inflated laboratory at the Sun Yat Sen Memorial Park (SYSMP) Sports Centre. Challenging yet typical, her task was to complete the anti-epidemic work in a fast-changing environment within a very tight timeframe.

Ms Lee was notified in early August 2020 that in preparation for the Government's Universal Community Testing Programme (UCTP) scheduled for implementation on 1 September, her team had less than two weeks to enhance the electricity system of the SYSMP Sports Centre to ensure sufficient electricity supply to support the operation of 16 additional air-inflated temporary laboratories therein.

"Working under a tight schedule, our co-ordination work had to be done quickly and precisely," Ms Lee recalled. Her team inspected the venue's ventilation system immediately to ensure its reliability for laboratory operations. Apart from modifying the electrical installations, the team conducted ventilation assessment of various potential UCTP venues and analysed their suitability. Tasked to complete this urgent mission, the team visited and assessed over 200 selected venues within only three days from 18 to 20 August. Throughout the implementation of the UCTP from 1 to 14 September, the team continuously monitored the power supply and ventilation systems of all of the 141 UCTP testing centres, and provided troubleshooting services.

The SYSMP Sports Centre also became one of the pilot venues for the Government's COVID-19 Vaccination Programme. Working together with other government departments and the Hospital Authority, Ms Lee's team began the relevant preparatory work in late January 2021 by drawing up the optimal cubicle layouts for the Community Vaccination Centres (CVCs), the traffic flow, as well as the electricity supply and wiring arrangements. The SYSMP Sports Centre was the first sports centre to be converted to a CVC and its set-up later become the template for other CVCs.

Ms Lee thanked all her team members for their hard work. "We have learnt a lot about effective co-ordination work, met colleagues from other departments and bureaux, and helped the community in the epidemic. It was a joyful and meaningful experience," she remarked.



### 改善室內通風 保障市民健康 Enhancing Ventilation to Ensure the Safety of the Community

疫情期間，綜合工程部高級工程師葉學山先生(左)和市政工程師梁志滔先生(右)與他們的團隊，致力檢查不同感染羣組曾經所處場所的通風系統，並提供詳細的改善建議。能參與抗疫工作，為客戶提供支援，他倆感到非常自豪。

During the epidemic, Mr Ip Hok-shan, a senior engineer (left) of the GESD and Mr Leung Chi-to, an engineer (right) of the MunSD and their teams were devoted to investigating the ventilation systems in venues of different COVID-19 clusters, and provided detailed improvement suggestions. Both were proud of being able to contribute to the fight against COVID-19 and provide support to our clients.



年內，本港多間安老院舍、健身室和食肆先後出現2019冠狀病毒病感染羣組。營運基金就改善有關場所的通風狀況，為客戶部門提供技術意見和支援。

為協助社會福利署和衛生防護中心，綜合工程部高級工程師葉學山先生和其團隊，聯同政府顧問袁國勇教授視察爆發疫情的安老院，並檢查有關場所的通風系統。葉先生說：「為評估通風不足會否促使病毒傳播，我們檢視了當時的通風系統數據，檢查設備是否正常運作，並進行煙霧測試，模擬空氣流向和流量。」經參考國際標準後，團隊建議，安老院舍的換氣量應達到每小時至少六次。2020年12月，機電署發布有關安老院舍保持良好通風的指引及要訣。

2021年3月，葉先生獲委派調查「健身室羣組」。他的團隊協助量度和評估涉事健身室的通風效能，並建議全港健身室的換氣量應達到每小時至少六次。

提供堂食的餐飲處所同樣容易爆發疫情，2021年2月底K11人文購物藝術館的一間食肆出現感染羣組便是一例。2021年3月初，市政工程師梁志滔先生獲派聯同袁教授及衛生防護中心人員，協助食物環境衛生署評估該食肆的通風系統。政府同月發布指示，要求所有提供堂食的餐飲處所在2021年4月30日或之前，須確保其換氣量已達每小時至少六次或安裝空氣淨化設備。梁先生和他的團隊隨即展開兩項工作，包括制訂技術指引，闡述每小時換氣量的計算和量度方法，以及提供可作替代方案的空氣淨化機型號清單。

梁先生說：「我們與餐飲業和酒店業代表會面，協助業界了解和遵從每小時換氣量的要求。我們亦以大量時間評估和審視數百個由供應商提交的資料，最終擬定空氣淨化機型號清單，供餐飲處所的負責人使用。」

能在抗疫關鍵時刻出一分力，葉先生和梁先生都感到非常高興。他們感謝前線同事，即使現場環境可能已受病毒感染，他們仍然無畏無懼，竭誠完成工作。

In the wake of the COVID-19 clusters that occurred in residential care homes for the elderly (RCHes), a fitness centre and a restaurant in Hong Kong, the EMSTF provided technical advice and support to clients in enhancing the ventilation of those premises.

Mr Ip Hok-shan, a senior engineer of the General Engineering Services Division (GESD), was part of the team that assisted the Social Welfare Department and the Centre for Health Protection (CHP), alongside Government advisor Professor Yuen Kwok-yung, in checking the ventilation systems of RCHes where outbreaks occurred. "To ascertain whether inadequate ventilation led to the spread of virus, we reviewed the existing ventilation data, checked whether the equipment was working in order, and conducted smoke tests to simulate airflow direction and volume," Mr Ip explained. The team made reference to international standards and recommended that the air change per hour (ACH) of RCHes should reach six. In December 2020, the EMSD issued a set of guidelines and tips on maintaining good ventilation at RCHes.

Mr Ip was also called upon again to look into a major "fitness centre cluster" in March 2021. His team helped measure and assess the ventilation performance of the fitness centre, and advised that the ACH of fitness centres should also reach six.

Dine-in catering premises were also prone to epidemic outbreaks, as was the case of a restaurant in K11 MUSEA in late February 2021. Mr Leung Chi-to, an engineer of the Municipal Sector Division (MunSD), was tasked to assist the Food and Environmental Hygiene Department in assessing the ventilation system of the restaurant in early March, along with Professor Yuen and officers of the CHP. In the same month, the Government issued a direction that required all dine-in catering premises to ensure a minimum of six ACH or install air purifiers on or before 30 April 2021. Mr Leung and his team immediately began to work on two tasks, which were to compile a set of technical guidelines with ACH calculation and measurement methods, and provide a list of suitable air purifier models as an alternative.

"We met with representatives of the catering and hotel trades to help them comply with the requirements on ACH. We also spent a large amount of time evaluating and vetting hundreds of supplier submissions. Eventually, we came up with a list of air purifier models for food premises operators," said Mr Leung.

Both Mr Ip and Mr Leung were glad that they helped fight the virus at a critical time. They thanked frontline colleagues who were undaunted by the risk of infection in potentially contaminated environments and performed their duties with full dedication.



## 營運服務 TRADING SERVICES

### 把握嶄新機遇 滿足服務需求

在疫情下，客戶對若干機電服務的需求大增，且對新構思及項目也普遍持更開放態度，在2021/22年度為營運基金帶來新機遇。許多客戶與我們續簽服務水平協議，反映對我們的服務高度信任。

年內，車輛工程團隊的客戶對車輛維修服務的需求有所增加，例如食物環境衛生署(食環署)、消防處和香港郵政均續簽了年期較長的服務水平協議，分別涵蓋垃圾收集車、救護車/非救護車輛和郵政車輛，而政府產業署和路政署也續簽了服務水平協議。香港警務處(警務處)推出為期三年的保安提升計劃，希望加強警署及其他設施的保安措施，營運基金因此開展新項目和提供維修保養服務。

### CAPTURING NEW OPPORTUNITIES AND MEETING SERVICE DEMAND

During the epidemic, the EMSTF captured new opportunities in 2021/22 as clients' demand for certain E&M services surged and their attitude towards new ideas and projects became more welcoming generally. Many clients renewed their Service Level Agreements (SLAs), indicating a high level of trust in our services.

Our vehicle engineering team, for example, saw the increased demand for vehicle maintenance services during the year. Various clients, including the Food and Environmental Hygiene Department (FEHD), Fire Services Department and Hongkong Post, renewed their SLAs on refuse collection vehicles, ambulances/non-ambulance vehicles and postal vehicles respectively, with longer agreement periods. The Government Property Agency and the Highways Department also renewed their SLAs. The Hong Kong Police Force (HKPF), with its three-year Security Enhancement Programme, planned to step up the security measures at police stations and other facilities, generating new projects and maintenance service business opportunities for the EMSTF.

機電署為香港警務處東九龍總區總部的各項機電設備進行維修保養工作。相關設備包括供工人進行大廈外牆及窗戶清潔的吊船(右)，以及提供鮮風和維持空氣質素的鮮風機組(下)。

The EMSD carried out maintenance work for various E&M equipment at the Kowloon East Regional Headquarters of the HKPF. The relevant equipment included the suspended working platforms which allow workers to work at height to clean the walls and windows of the building (right), as well as the air handling units which provide fresh air and maintain air quality of the venue (bottom).



我們於2021年年初榮獲ISO 13485醫療器材品質管理系統認證，是首個獲得此認證的政府部門，以及本港少數獲得此認證的多品牌醫療儀器「第三方」維修保養服務供應商。

We received ISO 13485 certification for Quality Management System for Medical Devices in early 2021, becoming the first government department and one of the few "third party" maintenance service providers of multi-brand medical devices in Hong Kong to receive the certification.

本港人口持續增長和老化，社會對優質公共醫療服務的需求有增無減。就此，醫院管理局(醫管局)推出兩個十年醫院發展計劃，項目包括現有醫院的重建或擴建工程，以及新醫院的興建工程。我們在2020年4月成立新部別，支援政府和醫管局落實相關發展計劃。此外，機電工程署署長獲邀加入由食物及衛生局(食衛局)領導的十年醫院發展計劃督導委員會，而我們的助理署長/2亦是其附屬技術及設計事宜工作小組的成員。憑藉機電署多年來對醫療衛生處所內機電系統操作與維修保養方面所累積的知識，以及疫情期間的獨到經驗，為計劃提供專業意見。

年內，我們多個公共衛生項目均取得進展。例如就中醫醫院及新政府中藥檢測中心的興建，向食衛局、衛生署及政府化驗所提供項目管理及技術諮詢服務。這兩項新設施擬建於將軍澳，落成啓用後會為我們帶來新商機。

我們與政府化驗所也簽訂了新的五年服務水平協議，此舉在疫情期間意義殊深。營運基金更於2021年年初獲得ISO 13485醫療器材品質管理系統認證，成為本港少數獲得認證的多品牌醫療儀器「第三方」維修保養服務供應商。我們也是首個獲得這項認證的政府部門。

With a growing and aging population, the need for quality public healthcare services will surely increase in Hong Kong. In this respect, the Hospital Authority (HA) launched two Ten-year Hospital Development Plans (HDPs), which cover the redevelopment or expansion of existing hospitals and the construction of new ones. To support the Government and the HA in implementing the HDPs, we set up a new Division in April 2020. Meanwhile, the Director of Electrical and Mechanical Services was invited to join the Steering Committee on Ten-year Hospital Development Plans led by the Food and Health Bureau (FHB), and our Assistant Director/2 also joined the associated Working Group on Technical and Design Issues, in a bid to provide professional advice based on our substantive and insightful experience in relation to the operation and maintenance (O&M) of E&M systems in healthcare premises, especially during the epidemic.

During the year, we have made progress in a variety of public health projects. For example, we provided project management and technical advisory services for the FHB, the Department of Health and the Government Laboratory (GL) on the construction of the Chinese Medicine Hospital and the new Government Chinese Medicines Testing Institute. To be situated in Tseung Kwan O, the two new facilities will bring new business opportunities upon commissioning.

Our SLA with the GL was renewed for five years, bearing great significance at the time of the epidemic. The EMSTF also obtained ISO 13485 certification of Quality Management System for Medical Devices in early 2021, becoming one of the few "third party" multi-brand medical devices maintenance service providers in Hong Kong, and the first government department to attain the certification.

## 營運服務 TRADING SERVICES

疫情亦為政府物聯通的應用帶來新機遇。因應二月的年花銷售活動，我們在兩星期內為食環署設計及部署一套人流監察、輪侯及派籌系統，以維持市民的社交距離，減低活動期間病毒傳播的風險。

我們在全港 15 個年花銷售點安排臨時電力供應和照明，並建立了以雲端系統為基礎的中央人流監察系統。我們在銷售點的各個出入口裝設三套使用不同技術的傳感器，分別點算進出人數，以策萬全。傳感器採集數據供雲端系統運算後，現場的顯示屏會即時亮起綠、黃或紅色燈號，以顯示場內人數水平。

所有年花銷售點均已裝設政府物聯網基站，全面覆蓋場地，以支援人流監察系統。我們亦加裝了後備的流動式基站，增強網絡可靠性。活動得以順利舉行，足證政府物聯網安裝容易，其獨立網絡高度可靠，適合用於大型活動進行人羣管控，而且即使在室外應用也不受影響。

物聯網時鐘是另一個運用政府物聯網的項目，在年內開始向客戶推廣。以往同事經常需要前往不同政府場地，爬往高處以手動方式調校時鐘，涉及工作安全風險。有見及此，同事構思利用政府物聯網網絡通信，並自動與香港天文台的標準時間同步，令物聯網時鐘無需人手調校。我們已為物聯網時鐘取得專利，並已安裝於食環署轄下一個公共辦事處。物聯網時鐘也適用於其他客戶場地，例如渡輪碼頭和體育館等。

The epidemic also brought new opportunities in the application of the Government-Wide Internet of Things Network (GWIN). To reduce the risk of virus spread during the sale event of New Year flowers held in February 2021, we designed and deployed for the FEHD a footfall monitoring, queuing and ticketing system to maintain social distancing within just two weeks.

At the 15 points of sale of New Year flowers across the territory, not only did we arrange for temporary electricity supply and lighting, but we also set up a cloud-based central footfall monitoring system using three sets of sensors with different technologies to count the number of visitors at every entrance and exit point for multiple assurance. After the footfall data collected by the sensors were computed by the cloud-based system, the on-site display panel would issue either a green, amber or red signal in real time to indicate the crowd size.

GWIN gateways were set up to provide coverage for all points of sale to support the footfall system, and additional mobile gateways on stand-by were also included to enhance network reliability. The successful event demonstrated that GWIN was an easy-to-set-up, highly reliable and independent network well suited for crowd control at large-scale events, even used outdoors.

During the year, we also kick-started the promotion for our in-house designed Internet of Things (IoT) Clock, another GWIN initiative. In the past, colleagues were often tasked to climb up to manually adjust clocks at various government venues, resulting in potential safety hazards. The IoT Clock, this new concept provided by our colleagues, using GWIN for network communication; and automatically synchronises with the standard time maintained by the Hong Kong Observatory, thereby eliminating the need for manual adjustment. The IoT Clock, already patented, has been installed at a FEHD public office and can be applied to other client venues, such as ferry terminals and sports grounds.



為使政府場地的時鐘更準確可靠，我們設計了物聯網時鐘並在客戶場地應用。該時鐘，通過政府物聯網定期為物聯網時鐘校準時間。

We designed an IoT Clock and applied it at clients' venues to enhance the accuracy of their clocks. The clock time is regularly synchronised by the Government-Wide IoT Network.

我們的「建築信息模擬 — 資產管理」團隊把握疫情帶來的機遇，加強資產管理數碼化的工作。在疫情導致經濟下行期間，我們聘請額外人手前往遍布全港的客戶場地，檢查和驗證有關機電資產的位置和數據，並為部分合適的設備加裝無線射頻辨識裝置。在完成上述工作後，我們便能建立全面的數據庫，讓我們了解客戶機電資產的最新狀況，以及為客戶的現有建築物建構「建築信息模擬 — 資產管理」模型，以便日後進行維修保養工作。

疫情沒有阻礙我們為文化、康樂及其他政府公共設施進行翻新工程。舉例而言，我們其中一項創新科技試驗項目智能洗手間，已於年內開展，在香港文化中心和荃灣體育館安裝。為節省能源及改善照明效果，我們計劃在城門谷運動場的足球場安裝發光二極管照明系統。另一項目是為康樂及文化事務署（康文署）轄下的體育場館安裝 200 多個電動車充電器，以配合增加本港電動車充電設施的政策。

由於預期新界西和大嶼山的人口會不斷增長，以及區內的市政和康樂設施也會相應增加，我們已重組相關組別，以期更有效地為新界的食環署和康文署場地提供支援。此外，我們將為元朗劇院的吊杆和舞台燈光開展翻新工程，引入最先進的舞台技術。

Our Building Information Modelling-Asset Management (BIM-AM) team seized the opportunity arising from the epidemic to strengthen its asset management digitisation work. During the economic downturn caused by the epidemic, we engaged extra personnel to visit client venues across the territory to check and verify the location as well as the data of their E&M assets and affix Radio Frequency Identification devices on their equipment where appropriate. Upon completion of the project, the valuable and comprehensive database we built will provide us with an up-to-date picture of clients' E&M assets and facilitate our construction of BIM-AM models for clients' existing buildings for future maintenance.

The epidemic did not stop us from renovating various cultural, recreational and other government facilities for the public. An example is the installation of smart toilets, one of our innovation and technology (I&T) trial projects commenced during the year, at the Hong Kong Cultural Centre and Tsuen Wan Sports Centre. To save energy and improve illumination effect, we planned to install Light Emitting Diode lighting system at the soccer pitch of Shing Mun Valley Sports Ground. Another project was to install over 200 electric vehicle (EV) chargers in the Leisure and Cultural Services Department (LCSD) sports venues, to tie in with the government-wide initiative to ramp up EV charging facilities in Hong Kong.

In anticipation of the population growth in New Territories West and Lantau as well as the growing number of municipal and recreational facilities therein, we re-organised our teams to better support FEHD and LCSD venues in the New Territories. In implementing our up-coming major project involving fly bars and stage lighting renovation at Yuen Long Theatre, we will introduce relevant state-of-the-art stage technologies.



就 2021 年年花銷售活動，我們為食環署在 15 個年花銷售點設計及部署以雲端系統為基礎的中央人流監察系統。我們於各個銷售點的出入口裝設三套紅外線傳感器，配合派籌系統及顯示屏，有效監察人流及減低病毒傳播的風險。

For the sale event of New Year flowers held in 2021, we designed and deployed for the FEHD a cloud-based central footfall monitoring system at the 15 points of sale of New Year flower. With three sets of infrared sensors installed at every entrance and exit point, the ticketing systems and display panels in the points of sale, the system effectively monitored the footfall and reduced the risk of virus spread.

## 營運服務 TRADING SERVICES



(左)為提升公共設施的服務質素，我們在香港文化中心增設智能洗手間管理系統。通過物聯網平台和流動應用程式，職員可以獲取洗手間實時環境狀況的資訊，而使用者亦能了解洗手間內空氣質素和排隊等候情況。

(Left) We set up the smart toilet management system at the Hong Kong Cultural Centre to enhance the service quality of public facilities. Real-time environmental condition is provided for staff, while toilet users get to know the indoor air quality and queuing situation for toilets through the IoT platform and mobile applications.

(右)為推廣綠色生活環境，機電署為康文署於各區運動場館增設電動車充電設施，方便電動車駕駛者及促進電動車的普及應用。圖中為設置於深水埗運動場的新電動車充電站。

(Right) In order to promote a green living environment, the EMSD installed EV charging facilities for the LCSO in sports venues of various districts, thereby bringing convenience to EV drivers and facilitating the widespread application of EVs. Picture shows the new EV charger at the Sham Shui Po Sports Ground.

海事處計劃為昂船洲政府船塢進行現代化改善工程，而由營運基金協助指導的相關顧問研究工作進展良好。船塢佔地9.8公頃，設有船舶升降系統及大型修船棚，負責政府船隻的保養維修工作，也是政府船隻的運作基地。是次現代化改善工程的重點，在於運用創新科技提升船塢設施。

For the Government Dockyard modernisation project on Stonecutters Island planned by the Marine Department, the relevant consultancy study, steered by the EMSTF, is in good progress. Occupying a site of 9.8 hectares and equipped with ship lifting hoists and huge repairing sheds, the dockyard is used for the maintenance of vessels owned by the Government and serves as the operational base of such vessels. The focus of the modernisation work is on upgrading the dockyard facilities with I&T applications.

營運基金致力提升機電業的作業水平和技術專長。經過數載籌備，以及與業界進行多次商討，我們已編修並於2021年年初在網上發布四本有關不同機電範疇的優良操作和維修作業守則，所涵蓋範疇與營運基金、承辦商、客戶和其他持份者息息相關，包括暖氣通風及空調裝置、升降機及自動梯裝置、電力裝置，以及消防裝置。

The EMSTF attaches great importance to boosting the E&M trade's best practices and technical expertise. After years of preparation and discussion with the trade, we had edited and published online in early 2021 four operation and maintenance best practices booklets, covering topics highly relevant to the EMSTF, its contractors, clients and other stakeholders, including heating, ventilation and air conditioning installations; lift and escalator installations; electrical installations; and fire service installations.

我們透過分享有關操作和維修的經驗及優良作業方式，致力提升業界水平。這四本作業守則順利出版，是營運基金的重要里程碑。

The publication of these booklets marked a milestone in our quest to raise the trades' standards by sharing our O&M experiences and best practices.

2021年是營運基金成立25周年。我們以「同·創·傳·期」為主題，籌備一系列慶祝活動，與客戶、業界和市民大眾一起慶賀這個別具意義的時刻。我們希望藉此銀禧慶典回顧過去，並與所有持份者共創未來。

The year 2021 marks the 25th anniversary of the EMSTF. Under the theme of "Co-innovate and Co-create Our Future", we prepare a series of events for clients, the trade and the public. The Silver Jubilee is a great occasion to reflect on the past and create our future in collaboration with our stakeholders.

## 節慶活動安排得當 妥善保障 公眾健康

### Safeguarding Public Health during Traditional Festivities

數碼科技部團隊為2021年年花銷售點設計及安裝中央人流監察系統。儘管面對技術問題兼且準備時間緊迫，有關人員成功克服挑戰，展現出色的團隊精神。The DTD team designed and installed the central footfall monitoring system for the points of sale of New Year flowers in 2021. The team successfully overcame the challenges involving technical issues and tight preparation time, demonstrating excellent team spirit.



今年年初，營運基金為全港15個年花銷售點安裝以雲端系統為基礎的中央人流監察系統。我們的團隊作出適切安排，讓市民在疫情期間仍能參加這個傳統節慶活動，團隊成員一致同意這次服務「經驗難逢，十分愉快」。在為期六天的活動中，各銷售點秩序井然，共接待訪客約87萬人次。

Members of the team that implemented the cloud-based central footfall monitoring system at the 15 points of sale of New Year flowers in early 2021 unanimously agreed that it was "an enjoyable experience" in providing services to enable the public to enjoy the traditional event in the epidemic. During the six-day event, the points of sale received about 870 000 visitors in an orderly manner.

在2021年年初疫情反覆，當政府最終決定舉辦年花銷售活動時，營運基金只有兩個星期時間為活動作準備。我們的其中一項主要任務是控制人流，減低病毒傳播風險。數碼科技部高級工程師陳賀賢先生帶領團隊，設計和部署人流監察、輪候及派籌系統。有關系統以雲端為基礎，並使用政府物聯網網絡及4G網絡。陳先生說：「由於我們從未把人流監察系統應用於年宵花市，因此必須迅速靈活地解決多項技術問題。」猶幸數碼科技部快速動員超過160名同事進行相關工作，包括系統設計、採購、現場操作、後勤資訊科技支援及整體工程監察，讓計劃順利推進。

When the Government gave the go-ahead for the sale event of New Year flowers in early 2021 upon considering the fluctuating epidemic situation, we had only two weeks for the preparation work. One of our key tasks was to control the number of visitors to minimise the risk of infection transmission. Mr Chan Hor-yin, a senior engineer of the Digitalisation and Technology Division (DTD), headed the team that was responsible for the design and deployment of the footfall monitoring, queuing and ticketing system. All relevant systems were cloud-based, operating on both GWIN and 4G networks. "As we had never applied a footfall system to Lunar New Year fairs before, we had to creatively resolve a number of technical issues in a highly efficient manner," said Mr Chan. Fortunately, the DTD promptly mobilised over 160 colleagues to share the work, including system design, procurement, on-site operation, back-end information technology (IT) support, and overall monitoring, enabling the smooth progress of our project.

團隊於各年花銷售點的各個出入口裝設三套採用不同技術的傳感器。以雲端計算場內人流數據後，顯示屏會即時顯示紅、黃或綠色燈號。當紅燈亮起時，會場會暫停讓訪客入場。

Every entrance and exit of the points of sale was equipped with three sets of sensors using different technology. After the footfall data was computed by the cloud-based system, the on-site display panel would issue either a green, amber or red signal in real time. Admission would be suspended when the red signal was issued.

數碼科技部團隊的另一位高級工程師陳斯諾先生則談到其他運作上的挑戰，例如由於天氣惡劣，曾有安裝了傳感器的水馬被強風吹倒。他說：「同事必須馬上重新安裝和測試傳感器，確保系統恢復正常運作。」

Mr Chan Sze-nok, another senior engineer of the DTD, shared other operational challenges. For example, under adverse weather condition, some water barriers with sensors installed had been brought down by strong wind. "Our colleagues had to immediately re-install and test the sensors to ensure proper operation of the system," he recalled.

團隊的一位工程師黃偉達先生表示，是次活動「匯聚了營運基金數代的資訊科技專才，承傳了我們竭盡所能服務市民的傳統。」陳賀賢先生總結指，這次活動證明了人流監察系統和政府物聯網網絡均能有效地於戶外應用，也讓團隊比較三種傳感器技術的成效，對營運基金的未來工作意義重大。

Mr Wong Wai-tat, Timothy, an engineer of the team, said that the event "brought together our different generations of IT professionals and passed on the EMSTF's legacy of serving the public with dedication". Mr Chan Hor-yin concluded that the fairs proved the effectiveness of the footfall system and GWIN in outdoor applications and allowed the team to compare the effectiveness of three sensor technologies, providing valuable reference for the EMSTF's future work.

創新環保科技 打造智慧城市

作為政府的「創新促成者」，機電工程署繼續向客戶、機電業界和公營機構推廣廣泛應用創新科技(創科)，包括綠色環保科技，促使香港轉型成為在2020年12月公布的《香港智慧城市藍圖2.0》(《藍圖2.0》)所描繪的智慧城市。

近年，我們一直與初創企業和科研機構合作，開發各種創科試驗項目，其中多個項目已在客戶場地成功應用。2021年3月，機電署多個創科項目更在日內瓦國際發明展囊括八個獎項，包括四金四銀，寫下歷史一頁。該展覽是全球發明界的年度盛事之一。受疫情影響，今年活動改以線上形式舉行，吸引了來自20多個國家和地區的600多個發明項目競逐。

LEVERAGING INNOVATION AND GREEN TECHNOLOGIES TO BUILD A SMART CITY

As the Government's Innovation Facilitator, the EMSD continued to promote among clients, the E&M trade and the public sector, the wider use of innovation and technology (I&T), including the use of green technologies, with the aim of transforming Hong Kong into a smart city as outlined in the Hong Kong Smart City Blueprint 2.0 (Blueprint 2.0) published in December 2020.

In recent years, we have been collaborating with start-ups and research institutions on various I&T trial projects, and several successful ones were already applied at client venues. A milestone was marked in March 2021 when the EMSD's I&T projects won eight medals, four gold and four silver, at the International Exhibition of Inventions of Geneva, one of the most significant annual global events of inventions. Due to the epidemic, the event was held online and evaluated more than 600 inventions from over 20 countries/regions.

我們的創科項目於2021年日內瓦國際發明展贏得八個獎項，包括四項金獎及四項銀獎，成績優異。

Our I&T projects achieved excellent results at the International Exhibition of Inventions of Geneva 2021, winning a total of eight medals, including four Gold Medals and four Silver Medals.



機電署四個榮獲金獎的項目為實時升降機預測保養系統、智能自動梯實時監測系統、建築語義人工智能系統，以及物聯網智能馬桶清潔系統。

The EMSD won four Gold Medals for the projects including a Cloud-based Predictive Maintenance System for Real-time Lift Monitoring; Artificial Intelligent Nylon Optical Fibre Sensing Escalator Combs; Building Semantic Artificial Intelligence; and an Internet of Things (IoT)-enabled Smart Toilet Bowl Cleaning System.

我們研發的物聯網智能馬桶清潔系統在日內瓦國際發明展奪得金獎。清潔機械人以影像分析馬桶的清潔狀況，並利用內置刷頭執行不同程度的清潔工作，確保洗手間清潔衛生，同時減低清潔人員接觸病毒的風險。

The IoT-enabled Smart Toilet Bowl Cleaning System we developed won a Gold Medal in the International Exhibition of Inventions of Geneva. The cleaning robot can analyse the cleanliness of the toilet bowl with video analytic technology and perform different cleaning tasks with its built-in brush, ensuring the cleanliness and hygiene of the toilet and minimising the cleaning workers' risk of contracting virus.



我們透過光纖溫度傳感系統監測高壓電纜的溫度變化。該系統在偵測到異常情況時，例如高壓電纜溫度過高，會即時發出預警，通知有關人員立即進行所需維修以維持正常和穩定的供電。

We monitor the temperature changes of high voltage cables through the Fibre Optic Temperature Sensing System. When it detects abnormalities, such as overheating of high voltage cables, an alert will be sent immediately to inform us to conduct the necessary maintenance promptly to maintain normal and stable electricity supply.



至於四個榮獲銀獎的項目包括利用智能節能空氣過濾器技術的空氣過濾器2.0、以光纖溫度傳感系統為配電網進行預測監察、非侵入式升降機智能狀態監測數據分析系統，以及用於智慧監獄的影像分析及監察系統。我們取得的優秀成績，足證我們與客戶及合作伙伴在廣闊的創科應用範疇攜手努力的成果，亦有助鼓勵更多客戶採用創科方案。

Our winning projects for the four Silver Medals were Air Filter 2.0 — Energy Saving Smart Air Filter Technology; Fibre Optic Temperature Sensing System for Predictive Monitoring of Electrical Distribution Network; Non-intrusive Data Analytics System for Adaptive Intelligent Condition Monitoring of Lifts; and Smart Prison — Video Analytic Monitoring System. The excellent results testify to our successful joint effort with clients and collaboration partners in a wide array of I&T application areas and will encourage more clients to adopt I&T.

此外，我們也樂見智慧監獄項目再次獲獎。早於2019年，智慧監獄的另一個研發項目，即移動及位置監察系統和維生指標監察系統，也於同一發明展勇奪金獎。

We are glad to see the Smart Prison projects being recognised for a second time. Back in 2019, another Smart Prison project on Passage Surveillance System (or later referred as Movement and Location Monitoring System) and Health Signs Monitoring System also won a Gold Medal in the same event.

在日常運作方面，我們的員工正運用更多創科方案 and 流動應用程式，為客戶處理服務預約、更新工作進度和管理承辦商服務。舉例而言，車輛工程團隊建立了一個全新的網上「故障處理服務系統」，讓拖車承辦商可通過流動應用程式接收工作指示並記錄出勤資料，而客戶則可輕鬆遙距查閱相關工作狀況和記錄。與多個操作及維修承辦商合作的市政工程團隊，現正測試名為「HEARTS」的應用程式，用以記錄承辦商個別工作人員在特定地點的出勤和維修工作詳情。

On a day-to-day level, our staff are using more I&T solutions and mobile applications (apps) for service bookings, job status updates and contractor management. The vehicle engineering team, for example, built a new online Fault Call Attendance System, on which our towing contractors could receive job requests and record their attendance information using a mobile app while clients could remotely access the related job status and records with ease. The municipal sector team, which works with many contractors in O&M operations, has been trialling a "HEARTS" app which records the attendance and work details of individual contractor workers at specific locations.

我們為懲教署研發影像分析及監察系統。系統使用實時影像比對，自動檢測和識別在囚人士的異常行為，例如打架和可疑的人羣聚集等。若偵測到異常行為，系統會提示值班職員採取適當行動。

We developed the Video Analytic Monitoring System for the Correctional Services Department. By real-time comparison of CCTV images, the system automatically detects abnormal behaviours of the persons in custody, such as fighting and suspicious gathering. If abnormal behaviours are detected, the system will notify the duty officers to take corresponding actions.



## 營運服務 TRADING SERVICES



我們為運輸署在中環耀星街安裝了新一代停車收費錶，該系統除了支援不同電子支付工具外，亦配備車位傳感器，偵測車位是否已被佔用，以提供實時信息，協助駕駛者尋找空置停車位，更可配合流動應用程式「入錶易」遙距繳付泊車費。

A new-generation parking meter has been installed for the TD at Yiu Sing Street in Central. The new parking meter system which supports multiple e-payment means, is also equipped with occupancy sensors for detecting whether parking spaces are occupied so as to provide real-time information to assist motorists in finding vacant parking spaces. Moreover, it supports payment of parking fees by remote payment through the mobile app HKeMeter.

年內，我們為客戶開展了多個大型創科項目，其中最矚目的是2021年1月正式推出的新一代路旁停車收費錶。作為運輸署的技術顧問，我們以專業創科知識協助署方落實「智慧出行」措施。

全新的智能停車收費錶提供更便捷的泊車和支付設施，收費錶接受多種方式繳付泊車費，並設有「入錶易」流動應用程式，方便駕駛者在現場繳費或遙距付款延長泊車時間。新收費錶配備了車位傳感器，以毫米波雷達技術偵測停車位是否已被佔用，系統會據此為駕駛者提供實時信息。預計至2021年年中，約有5 000個新停車收費錶投入服務。這個嶄新項目勢將徹底改變路旁停車收費錶的面貌，系統未來也可增添更多智能功能。

另一個取得良好進展的運輸署項目是停車位指引及車輛搜尋系統，其項目管理服務亦由我們負責。該系統將安裝在十個現有的多層公眾停車場，利用傳感器收集實時空置停車位資訊並傳送給駕駛者，指引他們前往空置停車位；系統的車輛搜尋功能則可指示駕駛者前往其車輛停泊的準確位置。項目預計於2022年第二季完成，屬《藍圖2.0》另一項「智慧出行」措施，定能提高公眾停車場的效率。

除了近年在市政街市等場地陸續安裝綜合樓宇管理系統，以便更有效監察升降機和自動梯等機電系統外，我們也為政府飛行服務隊總部、香港國際機場一號客運大樓的入境事務處辦事處、亞洲空運中心的香港海關辦事處、東涌游泳池及東涌市政大樓等場地的機電和空調設施，完成與綜合樓宇管理系統相關的數碼化工作，以提高系統監察的效率及加快維修保養的工作。

The year under review saw several major I&T projects launched for clients, most notable being the new generation of on-street parking meters officially, rolled out in January 2021. As the technical advisor to the Transport Department (TD), we leveraged our I&T expertise to support the TD to achieve the “Smart Mobility” initiatives.

The new system provides more convenient parking and payment facilities, including meters accepting payment of the parking fees by multiple means and a mobile app called HKeMeter that supports on-site payment of parking fees and parking time extensions by remote payment. The new meters are equipped with sensors using millimetre wave radar technology which can detect whether parking spaces are occupied, and the system could provide real-time information to motorists. It is estimated that about 5 000 new parking meters will be put into operation by mid-2021. This exciting project will give a facelift to the on-street parking meters, and additional smart features will potentially be incorporated in the future.

Another TD project that made good headway was the Bay Guidance and Car Searching System, for which we provided project management services. The systems will be installed in ten existing multi-storey public car parks. Using sensors to collect real-time occupancy information, the system has the bay guidance function to disseminate information to guide motorists to vacant parking spaces, and the car searching function to advise motorists where to find their parked vehicles. Scheduled for completion by the second quarter of 2022, this project being another “Smart Mobility” initiative in the Blueprint 2.0 will definitely enhance the efficiency of public car parks.

Further to our efforts in recent years to install integrated Building Management Systems (iBMS) at venues such as municipal markets to better monitor E&M systems such as lifts and escalators, we have completed the iBMS digitisation of E&M and air-conditioning facilities at venues such as Government Flying Service Headquarters, the office of the Immigration Department at Terminal 1 of the Hong Kong International Airport, the office of the Customs and Excise Department at Asia Airfreight Terminal, Tung Chung Swimming Pool and Tung Chung Municipal Services Building. Digitised iBMS enhance the efficiency of system monitoring and speed up maintenance works.

我們在大潭峽懲教所裝設綜合智能通訊系統，供在囚人士致電指定人士。有別於傳統電話，系統透過語音生物特徵識別功能及智慧手帶核實在囚人士的身分，並會自動為通話計時。

The Integrated Intelligent Communication System installed by the EMSD at TGCI allows PICs to call registered contacts. Unlike traditional phones, this system can verify the identity of the PICs with its voice biometrics identification feature and the smart wristbands, and time the calls automatically.



營運基金與懲教署攜手合作發展的智慧監獄，不但屢獲獎項，更為各種創科項目的應用奠定基礎。我們在多個懲教院所，已就不同創科項目完成40多次實地測試，包括移動及位置監察系統、維生指標監察系統、綜合智能通訊系統及巡邏機械人等。年內的重點是為稍後於2021年正式啓用的香港第一所智慧監獄——大潭峽懲教所做好籌備工作。

我們為智慧監獄開發的最新創科系統，包括獲獎的移動及位置監察系統、維生指標監察系統，以及影像分析及監察系統。影像分析及監察系統運用以骨架為參考基礎的演算法，能更快捷有效地偵測閉路電視所拍攝到在囚人士的異常行為，例如自殘、打架和擅進禁區，有助提升保安及運作效率。大潭峽懲教所安裝了電子儲物櫃，方便在囚人士使用。此外，我們在歌連臣角懲教所測試了無人機偵測系統，在懲教所的周邊範圍進行自動化空中巡邏。

The EMSTF's collaboration with the Correctional Services Department (CSD) on its Smart Prison initiative has not only won awards but also set the stage for real-life launch of the various I&T projects. After more than 40 trials of different systems such as Movement and Location Monitoring System, Health Signs Monitoring System, Integrated Intelligent Communication System and patrol robots at various correctional institutions, our focus during the year was the preparation for the official opening of Tai Tam Gap Correctional Institution (TGCI), the first Smart Prison of Hong Kong later in 2021.

The latest additions to the Smart Prison I&T systems included the award-winning Movement and Location Monitoring System, Health Signs Monitoring System and Video Analytic Monitoring System. Using a skeleton-based algorithm, the Video Analytic Monitoring System can detect abnormal behaviours, such as self-harm, fighting and entering prohibited areas, of persons in custody (PICs) captured on CCTV cameras more efficiently, enhancing security and operation efficiency. E-lockers have been deployed at the TGCI for PICs' convenience. At the Cape Collinson Correctional Institution, an Unmanned Aircraft Detection System has been piloted for automatic boundary aerial inspections.



我們為懲教署大潭峽懲教所設置電子儲物櫃系統，讓在囚人士妥善存放個人物品。在囚人士可透過智慧手帶開啓電子儲物櫃。

To allow PICs to store their belongings properly, we installed the PICs e-locker system at TGCI for the CSD. The PICs can unlock the e-lockers with their smart wristbands.

## 營運服務 TRADING SERVICES

我們為渠務署在昂船洲污水處理廠設置洞穴式自動虛擬環境系統，讓訪客以虛擬方式參觀廠內不同設施，360度體驗污水處理流程，為他們帶來全新體驗。該系統亦可作為員工內部安全訓練之用。

We deployed the CAVE system at the Stonecutters Island Sewage Treatment Works for the DSD, providing brand-new experience for visitors who can virtually visit different facilities and experience the sewage treatment process with a 360-degree view. The system also facilitates safety training for staff internally.



渠務署是營運基金另一個長期合作夥伴。該署的昂船洲污水處理資訊中心引進了洞穴式自動虛擬環境技術，讓參觀人士以虛擬方式親身體驗污水處理流程。我們利用無人航拍機，拍攝整個污水處理廠鳥瞰景象及沉澱池池底的环境，製成虛擬場景。這類虛擬現實和擴增實境技術，不僅為訪客帶來全新有趣的體驗，更可供內部培訓之用。

Our another long-time partner is the Drainage Services Department (DSD) which has deployed the Cave Automatic Virtual Environment (CAVE) technology at the information centre of its Stonecutters Island Sewage Treatment Works. This technology allows visitors to have an immersive virtual experience of the sewage treatment process. To accomplish the virtual environment, we used camera drones to capture full aerial views of the entire facility as well as the condition at the bottom of the sedimentation tanks. The virtual reality and augmented reality experience is not only interesting for visitors but also applicable for the DSD's internal training.

年內，渠務署的「智慧渠務—防洪監察系統」，也進一步發展。繼在2019/20年度於13個地點安裝了物聯網水位傳感器後，我們在2020/21年度於另外40多個地點，同樣安裝了傳感器。物聯網傳感器網絡擴展後，增強了署方實時監測風暴潮水位的能力，並可監測地勢險要的位置。

The DSD's Smart Drainage — Flood Monitoring System made further progress during the year, as we installed IoT water level sensors at more than 40 sites, in addition to 13 sites in 2019/20. The extended network of IoT sensors has enhanced the DSD's capacity to monitor real-time storm surge levels, even on difficult terrain.

為配合《藍圖2.0》的「精明規管」計劃，營運基金一直為客戶部門和機電署規管服務提供創科支援，推動政府牌照申請服務流程電子化，包括提供電子申請、電子支付和電子發牌服務，讓用戶以安全方便的線上方式申請牌照。政府物聯網的建設工程也取得良好進展，沙田和東九龍的網絡工程已完成，而港島的政府物聯網基站建設工程現正進行。我們還為發展局的智慧工地安全項目提供政府物聯網網絡支援。

To support the "Be the Smart Regulator" programme in the Blueprint 2.0, the EMSTF has been providing I&T support to client departments and the EMSD's Regulatory Services for digitising government licensing processes, including e-submission, e-payment and e-licensing, in a secure and user-friendly manner. Construction of the Government-Wide IoT Network (GWIN) also saw good progress, with network coverage completed for Sha Tin and East Kowloon and the rollout of the GWIN gateway to Hong Kong Island underway. We also provided the GWIN network to support the Development Bureau's smart construction site safety projects.



我們為渠務署於多個地點安裝「智慧渠務—防洪監察系統」，利用物聯網技術及新型傳感器，實時監測水位高度的變化和相關數據，有助在颱風季節及早實施應急措施。

We installed the Smart Drainage – Flood Monitoring System in various sites for the DSD. Using IoT technology and a new type of sensor, the system can monitor in real-time the changes in water levels and relevant data to facilitate early implementation of contingency measures during typhoon season.

為解決鼠患，我們研發了嶄新的智慧捕鼠系統。我們先在老鼠出沒的地點設置傳感器，收集牠們活動路線的資訊，再於相關位置安裝智慧捕鼠籠以捕捉老鼠。

We developed a brand new Smart Mouse Trap System to address rodent infestation. After installing IoT sensors at places with rodent problems to collect information on their routes, smart mouse traps were set at those areas to catch the rodents.



我們許多創科項目都與市民生活息息相關。以防控鼠患為例，我們進行了測試，在捕鼠籠上加設物聯網動態傳感器，以協助客戶部門捕鼠。為了更準確偵測老鼠出沒位置，我們設置熱能探測攝錄機和具備人工智能的物聯網傳感器網絡，以監測和分析老鼠的活動情況，分析結果會以地圖形式傳送給客戶，用於防治鼠患。該系統將於2021年年中在荃灣楊屋道街市進行測試。

Many of our I&T projects are closely related to the people's daily life. Take rodent control as an example, to help clients capture rodents, we conducted a trial where IoT motion sensors were put on rodent traps. To locate the rodents more precisely, we set up thermal imaging cameras and a network of IoT sensors with artificial intelligence to monitor and analyse rodent activities. The results, in the form of a map, would be provided to the client for rodent control actions. The system was scheduled for testing in the Yeung Uk Road Market in Tsuen Wan in mid-2021.

為預防登革熱爆發，我們研發了三款噴霧器機械人，協助食物環境衛生署的滅蚊工作。機械人的概念原型設計，備有多種防蟲噴霧器，可配合不同地形環境使用。

To prevent dengue fever outbreak, we developed three types of robotics foggers to help the FEHD's mosquito control work. The prototypes have been designed to suit different operating terrain condition with a variety of pest control applicators.

我們亦積極應用機械人技術，持續改善公共服務，例如運用機械人清潔馬桶、清潔及檢查蒸氣鍋爐火管等。政府資訊科技總監辦公室於2020年6月推出「敢想·共創」創科推廣活動，設有「促進機械人科技應用」創新比賽，旨在推動公共服務注入更多創新意念，機電署共有五個方案入圍。

We are also active in applying robotics technologies to continuously improve public services such as cleaning toilet bowls, cleaning and inspecting steam boilers' fire tubes, etc. Five EMSD proposals have been shortlisted in the Leading Towards Robotics Technologies competition in the Catch the Innovation Campaign, which aimed to inspire innovative applications in public services, launched in June 2020 by the Office of the Government Chief Information Officer.

## 營運服務 TRADING SERVICES



疫情期間，為減少人與人接觸，我們為客戶引入具備各種功能的機械人，包括消毒機械人(左)、體溫探測機械人(中)及派送機械人(右)，以協助客戶執行不同任務，舒緩前線人員的工作負擔。

To reduce social contact in the epidemic, we introduced to our clients robots with various functions, e.g. disinfection robot (left), fever screening robot (middle) and delivery robot (right), to assist them in performing different tasks and alleviate the workload of their frontline staff.

此外，我們開展了一項測試計劃，研究運用物聯網技術保障遠足人士的安全。有關系統的儀器具備定位和緊急求救功能，方便救援隊伍在微弱或全無流動電話網絡覆蓋的偏遠地區，追蹤急需援助的遠足人士位置。相關儀器的原型設計合約已於2021年1月批出。

營運基金一向支持政府的節能措施。為響應2019年《施政報告》提出的「綠色能源目標」措施，我們已於2020年10月成立能源管理小組，為大約250幢政府建築物，統籌在2020/21至2022/23年度期間的能源審核和碳排放審計。該措施旨在減少政府的能源消耗量，目標是以2018/19年度為基準，在2020/21至2024/25年度把能源消耗量進一步減少6%。

截至2021年3月，數份能源審核和碳排放審計顧問合約的工作已經展開，涵蓋123幢政府建築物。當我們為建築物物色到能源管理機會後，便會協助客戶部門申請撥款，以落實相關的節能項目。同時，營運基金在2020/21至2025/26年度會繼續協助客戶進行節能項目，進一步擴展綠色項目服務範圍，例如更換照明和空調系統，以及研究安裝太陽能板和其他可再生能源系統的可行性。

Moreover, a trial scheme was launched to explore IoT technology for enhancing hiker safety. Equipped with positioning and SOS features, the system would help rescue teams track distressed hikers' location in remote areas of weak or no mobile network coverage. The device prototype design contract was awarded in January 2021.

The EMSTF has always supported the Government's energy-saving initiatives. In response to the "Green Energy Target" initiative introduced in the 2019 Policy Address, in October 2020, we set up an energy management team to co-ordinate and conduct energy audits and carbon audits for about 250 government buildings from 2020/21 to 2022/23. This initiative seeks to further reduce energy consumption within the Government by 6% for the period from 2020/21 to 2024/25, using 2018/19 as the baseline.

As at end March 2021, our work under several consultancy contracts for energy audits and carbon audits covering 123 government buildings have commenced. When energy management opportunities (EMOs) are identified, we shall assist clients in bidding funds to implement energy-saving projects arising from the EMOs. Meanwhile, the EMSTF continues to help our clients carry out energy-saving projects from 2020/21 to 2025/26, further expanding our green projects portfolio such as lighting and air-conditioning system replacements, and explore the feasibility of photovoltaic panel and other renewable energy system installation works.



於2021年年初完成翻新的機電署總部露天廣場設有各類綠化設施，例如新穎的園藝設計、太陽能樹及太陽能水耕種植花園等，讓同事和市民能享受更舒適的綠化休憩環境。

The piazza at the EMSD Headquarters, refurbished in early 2021, features various green facilities, such as novel landscape design, a solar tree and a solar-powered hydroponic garden, etc., thereby enabling colleagues and the public to enjoy a more comfortable, green and relaxing environment.

我們的車輛工程服務也為低碳時代作好準備。政府的電動車隊以轎車為主，現正不斷擴充。為滿足電動車的維修保養需求，我們會增強相關的新技術知識和添置新設備，例如電動車故障診斷工具等，以確保我們負責維修保養的電動車在路上行駛時安全兼且性能良好。目前政府車隊約有160輛電動車，預計未來五年電動車的數目會有所增加。

此外，為慶祝機電署總部大樓的露天廣場翻新工程完成，我們於2021年3月舉行了開幕典禮。我們一直致力將機電署總部大樓打造成展示節能和綠色科技的模範建築，此項翻新工程正是其中一個例子。全新的露天廣場為訪客和市民提供優美舒適的公共空間，也是我們展開各種創科技術試驗的場地。位於露天廣場旁邊新落成的「機電創科廊」，展示各種創科項目，稍後將向公眾開放。我們希望總部大樓這些新落成的設施能帶來示範作用，啟發客戶和公眾發揮可持續發展的創意理念。

Our vehicle engineering services are also preparing for a low-carbon age. To meet the maintenance needs of a growing government electric vehicles (EVs) fleet which mainly consists of saloon cars, new technological know-how and equipment such as fault diagnosis tools will be stepped up to ensure the safety and roadworthiness of the EVs under our maintenance. With about 160 EVs currently, the number of government EVs is expected to increase in the next five years.

Celebrating the completion of the piazza refurbishment of our Headquarters, we held an opening ceremony in March 2021. The project is part of our continued effort to make the EMSD Headquarters a model building applying energy-saving and green technologies. Providing a pleasant public space for visitors and the community, the piazza is where some of our I&T technical trials took place. Adjacent to the piazza is our newly completed E&M InnoFoyer which displays various I&T projects and will be opened to the public soon. With these facilities, we hope our Headquarters will become an ever more inspiring sustainability showcase for our clients and the public.



位於機電署總部大樓地下的「機電創科廊」，展示不同的多媒體互動展品，包括部門的創科成果及應用，例如智能應急照明系統及物聯網時鐘等。

The E&M InnoFoyer located at the ground floor of the EMSD Headquarters, showcased various multimedia exhibits, including the EMSD's I&T projects and applications, such as the Smart Emergency Lighting System, IoT Clock, etc.



### 第一所智慧監獄的幕後功臣 The Team behind Hong Kong's First Smart Prison

同屬保安及車輛工程部的工程師劉宏業先生及許詠然女士積極協助懲教署建設智慧監獄。他們表示，創新科技對懲教院所提升運作效率及保安水平方面有巨大潛力，將協助智慧監獄的發展邁出一大步。

Mr Lau Wang-yip, Martin and Ms Hui Wing-yin, Bertha, both engineers from the Security and Vehicle Services Division, actively supported the CSD in the development of Smart Prison. They remarked that I&T had enormous potential in upgrading the operational efficiency and security level of correctional institutions, enabling a big step forward for Hong Kong's Smart Prison development.

對保安及車輛工程部的青年工程師劉宏業先生和許詠然女士來說，過去一年尤其充實。他們為協助懲教署建設智慧監獄，開發了多項數碼技術方案，而全港第一所智慧監獄——大潭峽懲教所為本港智慧監獄的發展開拓新里程。

許女士和劉先生近年積極參與懲教署發展智慧監獄方案的工作，通過應用獲獎的創科解決方案，提升懲教署的運作效率，推動以人性化的方式管理在囚人士。

劉先生特別提到大潭峽懲教所的影像分析及監察系統和綜合智能通訊系統。這套最新的影像分析及監察系統汲取了以往寶貴的測試經驗，運用優化的電腦演算法和火柴人視像分析法，識別幾種異常情況，包括打架、聚集、攀爬等。如發生任何一種情況，系統會即時通知懲教人員採取行動保護在囚人士。至於綜合智能通訊系統，許女士解釋說：「該系統能讓在囚人士使用個人登入密碼和電話卡，在電話亭自行撥打電話。系統使用生物識別和相關技術，支援所有通訊保安措施。在囚人士不需要懲教人員在場才能撥打電話，可讓署方騰出寶貴的人力資源，執行其他職務。」

至於大潭峽懲教所的其他優化創科方案，包括應用解像度更高的閉路電視鏡頭，以支援影像分析及監察系統的影像分析功能，以及為新一代智慧手帶選取更合適的用料。如在囚人士心跳偏離正常標準或他們進入禁區，經優化的智慧手帶會向懲教人員發出警報。劉先生和許女士都認為人工智能在智慧監獄發展方面有巨大潛力，而在汲取實際測試經驗後再持續調整創科方案也很重要。

The past year was particularly fulfilling for our young engineers Mr Lau Wang-yip, Martin and Ms Hui Wing-yin, Bertha of the Security and Vehicle Services Division. They exerted great efforts in developing various digital solutions for the Smart Prison initiative under the Correctional Services Department (CSD), Hong Kong's first Smart Prison, Tai Tam Gap Correctional Institution (TGCI), marked the new chapter of the development of smart prisons in the territory.

Both Ms Hui and Mr Lau have been deeply involved in deploying award-winning innovation and technology (I&T) solutions for the CSD's Smart Prison protocol in recent years. The new developments aim to enhance the client's operational efficiency and to promote the humanised management of persons in custody (PICs).

Mr Lau highlighted TGCI's Video Analytic Monitoring System (VAMS) and Integrated Intelligent Communication System (IICS). The latest version of VAMS, drawing on previous valuable trial experience, uses enhanced algorithms and stick-figure visualisation analytics to identify several abnormal situations, namely fighting, aggregation, reaching high, etc. Once any of such situations are identified, the system will immediately alert CSD officers so they can take action to better protect PICs. For the IICS, Ms Hui explained, "PICs may now make calls at a phone booth using a personalised log-in and phone card, with all security measures fully supported by the system's biometrics and related technologies. The system allows PICs to make calls without having a CSD officer present, releasing precious manpower for other duties."

Other improvements included the use of CCTV cameras of higher resolution to support the VAMS's visual analytics function, as well as using better materials for a new generation of smart wristbands. The improved wristband will send an alarm to CSD staff if a PIC's heartbeat deviates from the normal range or if they enter a restricted area. Both Mr Lau and Ms Hui agreed that artificial intelligence had great potential for Smart Prison development, and that continuous fine-tuning of I&T solutions after real-life trials was important, too.

### 升降機預測保養金獎方案 A Gold-medal Solution to Predictive Lift Maintenance

機電署光纖傳感升降機監測系統的設計及研發團隊，致力開發升降機預測保養技術，工程師梁建峰先生(右一)為成員之一。該系統贏得2021年日內瓦國際發明展金獎。

Mr Leung Kin-fung (1st right), an engineer, is a member of the EMSD optical fibre sensing lift monitoring system design and development team, which endeavoured to develop the predictive lift maintenance technology. The system developed won a Gold Medal at the International Exhibition of Inventions of Geneva 2021.



綜合工程部工程師梁建峰先生時常有個想法，如果能找到一個準確預測和預防升降機故障的方案，必定很棒。他負責營運基金各客戶大樓和場地3 000多部升降機的維修保養的工作，所以十分明白這樣一個解決方案，可為他的團隊、升降機維修業、物管經理以至廣大市民帶來極大裨益。

2019年，梁先生的團隊開始研究運用光纖技術開發創新科技方案。團隊利用光纖光柵傳感器和電子傳感器，收集升降機主要組件的實時數據。

「這項技術讓我們能夠在升降機運行期間，實時監察組件的狀況，並識別運行模式。使用人工智能技術分析數據，從而預測故障，便能在最佳時機，即故障發生之前，進行適當的維修保養工作。」

實時升降機預測保養系統屬非侵入式系統，由營運基金與本地初創公司共同研發，並在享譽全球的2021年日內瓦國際發明展獲得金獎。梁先生指出，這也是本港首次將光纖傳感技術應用於升降機維修保養工作。該系統於2019年年底首次在四部政府升降機試用，其後更在不同政府場地共十部升降機試用。

談及遇到的挑戰，梁先生憶述項目研發初期，最大困難是選定可準確預測故障的主要升降機組件。經過多次測試後，團隊終於確定牽引摩打、制動臂、鋼纜和升降機門是安裝傳感器的最佳位置。機電署現已為該系統制訂標準化設計，並陸續與業界分享。

Mr Leung Kin-fung, an engineer working in the General Engineering Services Division, has often thought how wonderful it would be if one could accurately predict and prevent lift faults. Being responsible for the maintenance work of more than 3 000 lifts in the EMSTF's various client buildings and venues, Mr Leung appreciated the enormous value such a solution would bring to his team and the lift maintenance trade, as well as to building managers and the public they serve.

In 2019, Mr Leung's team started developing an innovation and technology solution with the application of optical fibre technology. The team's novel predictive maintenance system uses both Fibre Bragg grating sensors and electronic sensors to gather real-time data on major lift components.

"This technology allows us to monitor the condition of the components during lift operation in real time, and recognise operational patterns. We use artificial intelligence technologies to analyse the data collected, and predict faults, so that appropriate maintenance can be carried out at the right time, that is, before faults occur."

The non-intrusive system, namely Cloud-based Predictive Maintenance System for Real-Time Lift Monitoring, that we jointly developed with a local start-up, won a Gold Medal in the world-renowned International Exhibition of Inventions of Geneva 2021. Mr Leung remarked that this was the first time that the optical fibre sensing technology was applied to lift maintenance in Hong Kong. After the first trial on four government lifts in late 2019, the system has since been trialled on a total of ten lifts at different government venues.

Talking about the challenges encountered, Mr Leung recalled initial difficulties in determining the major lift components for fault prediction. After repeated experimentation, the traction motor, brake arms, steel ropes and lift doors were the components identified as the best locations for the sensors. A standardised design was developed for the system and shared with the trade progressively.



## 營運服務 TRADING SERVICES

### 支持公共基建發展

基建發展與香港的經濟增長息息相關。營運基金多年來一直支持本港的公共基礎設施發展及其機電設施的維修保養工作，服務涵蓋多個領域，包括道路與航空交通、邊境管制口岸、公共衛生、政府數據中心、公共大樓和設施，甚至應對氣候變化問題。

### SUPPORTING PUBLIC INFRASTRUCTURE DEVELOPMENT

Infrastructure development is closely related to Hong Kong's economic growth. The EMSTF has long been playing a role in supporting the city's public infrastructure development programmes and maintaining their E&M facilities, covering diverse areas such as road and air transport, boundary control points, public health, government data centres, public buildings and facilities and even combating climate change.

屯門-赤鱗角隧道  
TUEN MUN-CHEK LAP KOK TUNNEL

為確保屯赤隧道能順利啟用，我們積極協助運輸署進行通車籌備工作，為各項機電設施進行技術評估和檢查，包括在隧道內及控制室裝設的發光二極管照明系統。

To ensure the smooth opening of the TM-CLK Tunnel, we actively assisted the TD in the preparatory work for the commissioning and conducted technical assessment and inspection on various E&M facilities, including the Light Emitting Diode lighting system installed inside the tunnel and the control room.

屯門至赤鱗角連接路已於年內竣工，其中包括全港最長的海底行車隧道——屯門-赤鱗角隧道(屯赤隧道)。該隧道已於2020年12月通車，現為連接新界西北和北大嶼山的主要通道，有助應付預期會大幅增加的區內運輸需求。

The past year saw the completion of the Tuen Mun-Chek Lap Kok (TM-CLK) Link, with the TM-CLK Tunnel, Hong Kong's longest sub-sea tunnel. The TM-CLK Tunnel, opened in December 2020, provides a strategic link connecting Northwest New Territories and North Lantau to meet anticipated huge traffic demand.

在屯門至赤鱗角連接路的工程階段，營運基金為其機電系統提供諮詢服務。該連接路啟用後，我們負責其機電、屋宇裝備、交通管制及監察系統方面的管理、操作和維修保養合約監督工作。

The EMSTF provided E&M system advisory services for the TM-CLK Link during the project stage. After project commissioning, we have taken on the monitoring of the management, operation and maintenance contracts regarding the E&M, building services, and traffic control and surveillance system of the TM-CLK Link.

兩年多前，我們協助運輸署進行籌備工作，為開通屯赤隧道提供專業和技術支援。營運基金為隧道各項機電設備及系統進行技術評估，並監督青嶼幹線豁免收費安排的技術調整工作，確保屯赤隧道能夠順利通車，並同步落實青嶼幹線豁免收費安排。

More than two years ago, we assisted the Transport Department (TD) in the preparatory work, and offered professional and technical support for the commissioning of the TM-CLK Tunnel. The EMSTF conducted technical assessments on various E&M equipment and systems of the tunnel and oversaw the technical adjustments of the toll waiver system of the Lantau Link, ensuring smooth commissioning of the TM-CLK Tunnel and the implementation of the Lantau Link toll waiver.

此外，香園圍邊境管制站的貨檢設施已於2020年8月啟用，大大縮短了香港與深圳東地區之間的行車時間，令跨境物流更暢順便利。營運基金為香港海關(海關)和入境事務處(入境處)等客戶部門安裝各種機電及電子系統，並負責系統的機電維修保養工作。

Moreover, the cargo clearance facilities of the Heung Yuen Wai Boundary Control Point was commissioned in August 2020, greatly shortening the travelling time between Hong Kong and eastern Shenzhen, and facilitating cross-border logistics. The EMSTF installed various E&M and electronic systems for client departments such as the Customs and Excise Department (C&ED) and the Immigration Department (ImmD), and has taken up the E&M maintenance work for the systems.

其他陸路運輸基建項目的工程正在進行。將軍澳-藍田隧道預計於2022年通車。屬六號幹線中段部分的T2主幹路及茶果嶺隧道，將會連接中九龍幹線及將軍澳-藍田隧道，暫定於2026年通車。我們一直為這些項目提供技術顧問服務。

Other land transport infrastructures are in progress. The Tseung Kwan O-Lam Tin (TKO-LT) Tunnel is expected to commence operation in 2022. Trunk Road T2 and Cha Kwo Ling Tunnel, which together will constitute the middle section of Route 6 connecting the Central Kowloon Route and TKO-LT Tunnel, is tentatively scheduled to be commissioned in 2026. We have been providing technical consultancy services for these projects.

航空運輸設施方面，海關、入境處和衛生署等客戶部門會在香港國際機場即將落成的多式聯運中轉客運大樓(中轉大樓)增設新的邊境管制機電設施和電子系統，我們繼續就此為他們提供諮詢和項目管理服務。中轉大樓由香港機場管理局(機管局)發展，預計於2022年年底啟用，設有一條封閉行車橋，接駁直通港珠澳大橋的香港口岸設施，為雙向陸空轉乘的旅客提供輕鬆便捷的全新轉乘體驗。

On air transport related facilities, we continued to provide consultancy and project services to clients such as the C&ED, ImmD and Department of Health (DH) for their new boundary control E&M facilities and electronic systems at the upcoming Intermodal Transfer Terminal (ITT). Developed by the Airport Authority Hong Kong (AAHK) and scheduled for commissioning in end 2022, the ITT will have a bonded vehicular bridge linking up the Hong Kong Boundary Crossing Facilities of the Hong Kong-Zhuhai-Macao Bridge with the Hong Kong International Airport (HKIA), thus providing new hassle-free travelling experience for bridge-to-air/air-to-bridge transfer passengers.

此外，我們將於香港國際機場設立全新車輛維修工場，為因應三跑道系統而新增和現有的飛機救援車及消防車提供維修保養服務。去年，營運基金與機場相關的客戶部門，包括民航處、海關及機管局，簽訂了新的長期服務水平協議，既加強了伙伴關係，更顯示客戶對我們服務的信任。以與機管局新簽訂的七年定期合約為例，機管局委託我們負責維修保養助航燈系統的工作。該系統是極為專門的範疇，我們在這方面提供首屈一指的專業技術和可靠服務。

Also, we will establish a new vehicle maintenance workshop at the HKIA for maintaining new and existing aircraft rescue and fire fighting vehicles for the Three-runway System. Our partnerships with airport-related clients also received a boost last year as the Civil Aviation Department, C&ED and AAHK signed long-term new Service Level Agreements with the EMSTF, signifying their trust in our services. The seven-year new term contract with the AAHK, for example, commissions us to provide the maintenance of the Airfield Ground Lighting System, a highly specialised area where our expertise and reliability are unrivalled in Hong Kong.

一如以往數年，我們的機場團隊在機管局2019/20機場安全嘉許計劃中獲得多個獎項，包括最優秀安全督導員、良好安全建議和模範安全行為獎項。此外，我們一位同事因在管理交通燈緊急維修方面表現出色，榮獲2020年申訴專員嘉許獎。

As in the past years, our airport team was awarded several awards, including the Best Safety Supervisor, Good Safety Suggestion and Role Model in Safety Behaviour, in the AAHK's 2019/20 Airport Safety Recognition Scheme. One of our colleagues also won the Ombudsman's Awards 2020 for his outstanding performance in managing traffic light emergency repairs.

對車主而言，位於青衣的運輸署多層車輛檢驗綜合大樓(驗車大樓)落成開放是重要的發展項目。驗車大樓將於2021年4月分階段啟用，樓高三層，共配備30條驗車線和輔助設施，可為不同類型的車輛進行檢驗。現有的三個政府驗車中心將分階段重置到新驗車大樓。與其他運輸基礎設施一樣，我們在工程項目階段負責提供技術諮詢，在項目落成後，則提供大樓的機電維修保養。

An important development for vehicle owners was the opening of the newly completed multi-storey TD Vehicle Examination Complex in Tsing Yi, which will commence operation in phases in April 2021. The complex is equipped with 30 inspection lanes in total and auxiliary facilities on three floors for examinations and inspections of various vehicles. Services provided by the three existing government vehicle examination centres will be reprovisioned to the new complex in phases. As for other transport infrastructures, we provided technical advice in the project stage and have taken up the E&M maintenance services of the complex upon its opening.

我們為新落成的青衣運輸署車輛檢驗綜合大樓設計及安裝先進的驗車設備及電子控制系統，大幅提升驗車服務效率及質素。我們在設計過程中更應用了建築信息模擬技術，為日後的實時數據設施故障分析做好準備。

We have designed and installed advanced examination equipment and an electronic control system for the newly built Transport Department Vehicle Examination Complex in Tsing Yi, which will greatly improve the service quality and efficiency of vehicle examination. Building Information Modelling technology has also been applied in the design process to prepare for real-time data analysis of facility faults in future.



## 營運服務 TRADING SERVICES



我們為公共衛生檢測中心安裝智能照明系統，利用「ZigBee」技術無線控制電力供應及記錄用電量。當該系統透過紅外線傳感器偵測到有人經過時，便會自動把燈光調節至適當光度，以節省用電。

We installed the smart lighting system at the Public Health Laboratory Centre and wirelessly control power supply and record power consumption using the "ZigBee" technology. When the infrared sensor detects people passing by, the system will automatically adjust the light to the desired luminance to save electricity.

支援香港公共衛生基建設施是我們其中一項工作，例如支援醫院管理局（醫管局）進行屯門醫院手術室大樓擴建計劃、威爾斯親王醫院住院新翼大樓建設、擴建北區醫院、醫管局支援服務中心及北區社區健康中心等項目。此外，我們為公共衛生檢測中心安裝智能照明系統，並為北區醫院安裝智能緊急照明系統，使系統操作更靈活，並便利客戶定期測試電池操作的照明裝置。

此外，我們一直為衛生署重置沙田富山公眾殮房提供技術意見，並就部分傢俱及設備提供項目管理服務。重置項目預計於2021/22年度落成。

社會福利署的小欖綜合康復服務大樓是社會服務界的重點項目。該綜合大樓將提供約1 150個住宿照顧服務名額及550個日間訓練名額。我們與客戶緊密合作，為大樓在2021/22年啟用時接手機電設施的維修保養服務作好準備。

政府數據中心是提供本港公共服務和發展智慧城市的重要基建設施。政府資訊科技總監辦公室（資科辦）正在長沙灣建造政府數據中心大樓，我們就此提供技術意見和支援。該大樓是資科辦首幢專為數據中心而興建的獨立大樓，會支援各決策局及部門為市民提供便利可靠的電子政府服務。新數據中心將會配備高度靈活且節能的供電和冷卻系統，以便數據中心發揮最佳功能，提升能源效益。

氣候變化及其影響已成為加強基建設施工作日益重要的考慮因素。近年像山竹的超強颱風，對本港設施造成嚴重破壞。例如沿海的泵房的基建在颱風襲港期間一旦受到破壞，可引致停電或其他重大事故。機電署作為政府跨部門代表組成的氣候變化督導委員會（督導委員會）成員之一，在年內成立了一個團隊，專門負責協調營運基金在督導委員會的工作。

土木工程拓展署向督導委員會提交「提升基建抗逆力計劃」後，我們隨即與多個客戶部門聯絡，就營運基金負責保養的重要沿岸基建設施，馬上進行檢視和落實相關的改善工程。

Supporting Hong Kong's public health infrastructures is part of our work, such as supporting the Hospital Authority (HA) on the Extension of the Operating Theatre Block for Tuen Mun Hospital, new In-patient Extension Block of Prince of Wales Hospital, the Extension of North District Hospital, Hospital Authority Supporting Services Centre, and North District Community Health Centre. Also, the installation of smart lighting system at the Public Health Laboratory Centre and the smart emergency lighting system at the North District Hospital helped improve operational flexibility and facilitate periodic tests of battery-operated lightings for clients.

Moreover, we have been providing project management services on selected Furniture and Equipment items and giving technical advice to the DH on the reprovisioning of Fu Shan Public Mortuary at Sha Tin, scheduled for completion in 2021/22.

A major project for the social services sector is the Siu Lam Integrated Rehabilitation Services Complex of the Social Welfare Department. It will provide about 1 150 residential care places and 550 day training places. We have been working with the client to prepare for taking up the facility's E&M maintenance services when it commences operation in 2021/22.

Government data centres are critical infrastructures for public services and smart city development. We have been providing technical advice and support to the Office of the Government Chief Information Officer (OGCIO) on developing a government data centre complex in Cheung Sha Wan. Being OGCIO's first purpose-built, standalone data centre building, it will support bureaux and departments in the provision of reliable and convenient e-Government services. The new data centre will be equipped with resilient and energy-efficient power supply and cooling systems for optimal performance and energy efficiency.

Climate change and its impact have become an increasingly important consideration in infrastructure enhancement. In recent years, super typhoons like Mangkhut have brought extensive damage to our city's facilities, including coastal infrastructure such as pump houses which could lead to power outages or major incidents. As a member of the Government's Steering Committee on Climate Change (SCCC) which comprises representatives of different government departments, we set up a team to co-ordinate the work of the EMSTF during the year.

Following the submission of an Infrastructure Resilience Enhancement Plan to the SCCC by the Civil Engineering and Development Department, we have liaised with various clients to review and implement the enhancement measures for critical coastal infrastructures under the EMSTF's maintenance.

## 為先進的驗車大樓做好準備 Gearing up for the State-of-the-Art Vehicle Examination Complex

高級工程師李雨華先生表示，熟悉驗車流程對新車輛檢驗綜合大樓項目的準備工作十分重要，所以他安排團隊成員接受專業的驗車工作培訓，確保驗車大樓落成後能暢順運作。

Mr Lee Yue-wah, Ellis, a senior engineer, remarked that a good understanding of the vehicle examination process was vital to the preparation work of the new VEC project. He therefore arranged his team members to undergo professional vehicle examination work training, ensuring the smooth operation of the VEC upon commissioning.

青衣多層車輛檢驗綜合大樓（驗車大樓）第一期將於2021年4月啟用，標誌運輸署邁進新里程。驗車大樓全面投入運作後，將取代運輸署現有有三個政府驗車中心。

邊境及運輸工程高級工程師李雨華先生於2018年開始參與該項目，當時團隊面對的首項挑戰，就是要在短時間內熟習驗車流程。李先生需要確保團隊成員透過向運輸署驗車主任和工作人員了解，認識不同車種的驗車流程，又安排中國內地製造商的專家為團隊的同事提供培訓，以便他們更深入了解驗車工作。

驗車大樓是本港首幢多層綜合車輛檢驗大樓，配備全面的先進設備。大樓由一座樓高七層的辦公大樓和三層驗車大堂組成，共設有30條驗車線和檢驗不同類型車輛的輔助設施。驗車設備和電子系統的設計採用了建築信息模擬技術，可提供詳細的數碼記錄，方便日後進行數據分析，有助提升各系統的維修保養工作。

李先生解釋說：「驗車大樓大部分系統均採用最先進的技術，因此測試需時。」舉例來說，驗車大樓設有為雙層巴士進行安全測試的傾斜測試台，以及其他輔助設施為車輛進行測試。車輛必須接受測試證明運作安全，才獲批在路上行駛。

李先生說：「我們訂立了極高的測試標準，亦會密切監察系統，讓運輸署人員及其客戶體驗順暢的驗車流程。」行文之際，大樓地下和一樓的驗車線已投入服務，而二樓的設備測試也進展順利，預備今年稍後正式啟用。李先生總結說：「驗車大樓是大型項目，亦帶來獨特的挑戰。我們很高興能跟客戶一起解決難題。」

The opening of the first phase of the multi-storey Vehicle Examination Complex (VEC) in Tsing Yi in April 2021 will mark a new milestone for the Transport Department (TD). Upon its full operation, the VEC will replace all three existing TD vehicle examination centres.

Mr Lee Yue-wah, Ellis, a senior engineer in the Boundary Crossing Facilities and Transport Services Division, joined the project in 2018. One of the first challenges his team facing was to quickly ramp up their knowledge of the vehicle examination workflow. Mr Lee made sure that his team members spent time with the TD's vehicle examination officers to familiarise themselves with the examination workflow for different types of vehicles. Training by experts from manufacturers in the Mainland of China was also arranged for the team to gain insights into vehicle examination works.

As the first facility of its kind in Hong Kong, the VEC is a comprehensive and state-of-the-art multi-storey vehicle examination centre adopting new technologies. It comprises a seven-storey office tower and a three-storey inspection hall with a total of 30 inspection lanes and auxiliary facilities for examining various types of vehicles. Building Information Modelling was used in the design of vehicle examination equipment and electronic systems, providing a detailed digital record that can be analysed in the future for the improvement of the maintenance process.

"Most VEC systems are cutting-edge, so testing takes time," Mr Lee explained. For example, the VEC features a tilt test platform for double-decker bus safety testing and auxiliary facilities that evaluate the reliability of vehicles before the tested vehicles are permitted to operate on roads.

"We set very high testing standards and monitor the systems closely to provide a smooth vehicle examination process for TD officers and their customers," Mr Lee said. At the time of writing, examination lanes on the ground and first floors are already in service, while equipment testing is proceeding well in preparation for the opening of the second floor later this year. "The VEC is a large project and poses a unique challenge. We are glad to have overcome difficulties together with the client," Mr Lee concluded.

# 企業管理 CORPORATE STEWARDSHIP

2020/21 年度，2019 冠狀病毒病疫情席捲全球，改變了大家的工作方式和生活習慣。我們的企業單位面對各種挑戰，仍繼續為各策略業務單位、機電業界、機電署同事，以及廣大市民提供強大支援，致力實現「透過與不同持份者的伙伴關係，創造公眾價值及改善社會」的企業目標。

近年，營運基金的策略重點為機電數碼化及創新科技（創科）。雖然過去一年充滿挑戰，但我們的策略發揮成效，成功協助客戶及其他持份者維持正常服務和把握新機遇。我們的重點工作如下。

## 全天候支援客戶、承辦商和機電業界

### 訂定業務延續計劃 為感染控制提供指引

我們的業務延續計劃為部門提供指引，讓我們在疫情期間繼續維持核心運作和必要的客戶服務。計劃於 2020 年年初推出，並定期進行更新。2020 年 5 月，我們進行防疫演習，透過模擬各項業務延續過程，尤其是相關感染控制，讓我們檢視防疫表現，尋求可予改善之處。演習過後，我們再次修訂業務延續計劃。現時的業務延續計劃為第 13 版，是我們應對各種疫情狀況的首要參考文件。

2020/21 saw the Coronavirus Disease 2019 (COVID-19) epidemic changed the way we work and live. Despite the challenges, our corporate units continued to render dedicated support to all Strategic Business Units (SBUs), the E&M trade, our fellow EMSD colleagues and the community in moving towards the EMSTF's corporate goal of "creating public value for community betterment through partnership with different stakeholders".

The EMSTF's strategic focus on E&M digitisation and Innovation and Technology (I&T) in recent years paid off in enabling our clients and other stakeholders to maintain services and seize new opportunities during the challenging year of 2020/21. The following are the highlights of our work.

## SUPPORTING CLIENTS, CONTRACTORS AND THE E&M TRADE AT ALL TIMES

### Formulating Business Continuity Plan to Provide Guidelines on Infection Control Measures

Our Business Continuity Plan (BCP) provides us with guidelines for maintaining the Department's core operations and essential client services during the epidemic. First introduced in early 2020 and updated on a regular basis, our BCP was further revised in May 2020 following a drill that allowed us to simulate various BCP processes, in particular the infection control, and review our performance to identify possible improvements. Now in its 13th version, the BCP has become our main reference in handling various epidemic situations.



機電工程署總部大樓採用了多款非接觸式升降機按鈕方案，例如「無觸按鈕」(「kNOw Touch」)非接觸式升降機控制面板、運用全息影像技術的懸浮式樓層按鈕、掃描二維碼選擇樓層，以及 iLED 免觸電梯按鈕，以減低病毒傳播風險。

The EMSD Headquarters Building has adopted various contactless lift button solutions to reduce the risk of virus spread, for instance "kNOw Touch" contactless lift control panel, floating floor button with the application of holographic technology, QR code scanning for selection of floors, and iLED touchless lift button.

2020/21 財政年度關鍵績效指標成績及表現承諾

Key Performance Indicator Results and Performance Pledges in Financial Year 2020/21

耗電量<sup>1</sup>(千瓦小時) [機電署總部大樓、企業數據中心及各策略業務單位主要場地]

**Electricity Consumption<sup>1</sup> (kWh)**  
[EMSD Headquarters Building, Corporate Data Centre and all SBUs Major Venues]

目標 **8 785 700** 成績 **8 698 778**  
Target Result

新業務及業務增長 (百萬元)

**New Business and Growth of Business (\$M)**

目標 **621.5** 成績 **695.9**  
Target Result

員工建議計劃書<sup>1</sup> (份)

**Staff Suggestion Proposal<sup>1</sup> (no.)**

目標 **75** 成績 **128**  
Target Result

員工滿意度指數<sup>1</sup> [以 10 分為滿分計]

**Staff Satisfaction Rating<sup>1</sup> [on a 10-point scale]**

目標 **6.8** 成績 **不適用<sup>2</sup>**  
Target Result **N/A<sup>2</sup>**

每月電話調查客戶滿意度 (%)

**Percentage of Satisfaction Level Based on Monthly Customer Feedback (%)**

目標 **99** 成績 **99.89**  
Target Result

客戶滿意指數 [以 8 分為滿分計]

**Customer Satisfaction Index [on an 8-point scale]**

目標 **6.6** 成績 **6.83<sup>3</sup>**  
Target Result

違反法例次數 (宗)

**Statutory Non-compliance (no.)**

目標 **0** 成績 **0**  
Target Result

營運基金員工的訓練日數 (每名員工接受訓練的日數)

**Training Days of EMSTF Staff (no. of training days per staff member)**

目標 **4.5** 成績 **4.86**  
Target Result

達到服務水平協議所訂的表現目標 (%)

**Percentage of Service Level Agreement (SLA) Service Performance Target Compliance (%)**

目標 **99** 成績 **99.99**  
Target Result

每千名營運基金員工須呈報的累積意外宗數 (每千人計算)

**Accumulated Reportable Accidents per 1 000 EMSTF Staff (no. per 1 000 staff)**

目標 **5.0<sup>4</sup>** 成績 **2.26**  
Target Result

收入回報率 (%)

**Return on Revenue (%)**

目標 **5.5** 成績 **2.3<sup>5</sup>**  
Target Result

年內續訂的服務水平協議 (%)

**Percentage of SLA Renewed during the Year (%)**

目標 **95** 成績 **100**  
Target Result

<sup>1</sup> 此項目適用於機電工程署整個部門，其他項目只適用於機電工程營運基金。

<sup>2</sup> 下一次調查將於 2021 年進行。

<sup>3</sup> 數字為 2020 年的調查結果。

<sup>4</sup> 此為警戒水平，並非目標。

<sup>5</sup> 機電工程營運基金於上年度創造約 1 500 個有時限的職位，以應對 2019 冠狀病毒病疫情對本港經濟構成的嚴重打擊。因此，實際成績與預算目標的差異相對較大。

<sup>1</sup> This item applies to the EMSD as a whole. Other items apply to the EMSTF only.

<sup>2</sup> The next survey will be conducted in 2021.

<sup>3</sup> Result from the survey conducted in 2020.

<sup>4</sup> This is an alert level, not a target.

<sup>5</sup> The EMSTF created about 1 500 time-limited posts during the year in response to the severe blow of the COVID-19 epidemic to economic activities in Hong Kong. Therefore, there is a relatively large difference between actual results and the anticipated target.

## 企業管理 CORPORATE STEWARDSHIP



疫情期間，機電工程署總部大樓除了公用地方及設施會進行定期清潔及消毒外，大樓內指定地點亦會按需要進行消毒，藉此預防交叉感染。

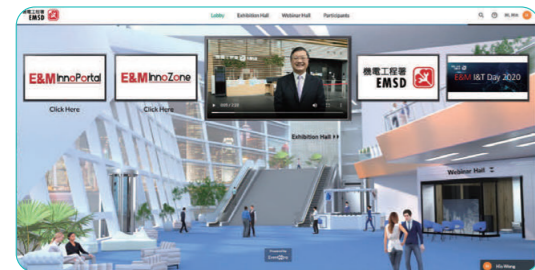
During the epidemic, apart from regular cleaning and disinfection of the common areas and facilities of the EMSD Headquarters Building, disinfection of designated locations of the building was also conducted as needed to prevent the risk of cross-contamination.

我們的業務延續計劃列出一系列抗疫指引和感染控制措施，包括為所有策略業務單位維持穩定的個人保護裝備供應，例如外科口罩、N95口罩和消毒搓手液；監察前線員工的2019冠狀病毒病檢測結果；為所有感染個案的工作場所消毒；管理員工輪值系統；利用資訊科技方便員工在家工作；確保工作場所清潔安全，以及為策略業務單位提供必要備用零部件，以確保他們在物流中斷的情況下仍能繼續為客戶提供服務。我們也繼續引入創科抗疫方案，例如在機電署總部大樓採用最新的消毒機械人和免觸式升降機按鈕等。

### 支援業界

因應社交距離措施，許多活動需改為線上進行。2020年8月下旬至9月初，我們舉辦了首個虛擬「機電創科日」，協助客戶和業界尋找創科方案。活動吸引超過40家參展商展示了50多項創科方案。我們亦舉辦逾40場線上研討會和講座，並安排參加者以360度全方位虛擬形式參觀我們的「機電創科專區」。逾450位業界和客戶代表透過線上形式遙距參與活動。此外，我們分別於2020年11月和2021年3月在線上舉辦商研討論會，涵蓋了多個主題，包括工作場所的衛生情況、防疫措施、安全作業以及合約和招標事宜等，合共吸引超過530位同業參加。

為協助機電業在疫情期間維持正常運作，我們為機電署的「機電行業通」流動應用程式增添多項新功能，包括讓註冊車輛維修工場的負責人以電子方式申請「防疫抗疫基金」。為紓緩業界的經營壓力，政府更推出了寬減註冊電業工程人員註冊費用的安排。合資格的註冊電業工程人員/註冊電業承辦商可透過「機電行業通」流動應用程式申請註冊費退款。



Our BCP laid down a number of anti-epidemic guidelines and infection control measures, including maintaining stable supply of personal protective equipment such as surgical masks, N95 masks and hand sanitisers for all SBUs, monitoring the COVID-19 test results of frontline staff, disinfecting the workplaces of all reported infection cases, managing staff rostering system, harnessing information technology to facilitate work-from-home arrangements, ensuring clean and safe workplaces, and providing essential spare parts to SBUs to help them continue to serve the clients despite logistics disruptions. We also continued to deploy I&T solutions to fight the virus. For examples, we adopted the latest disinfection robots and contactless lift buttons at the EMSD Headquarters.

### Supporting the Trade

Due to the social distancing measures, many events went online. We held the first virtual E&M I&T Day from late August to early September 2020 to assist clients and the trade in exploring I&T solutions. Featuring more than 50 I&T solutions from over 40 exhibitors, more than 40 webinars and talks, as well as a 360-degree virtual tour of our E&M InnoZone, the event attracted over 450 trade and client representatives, all of which participated in the event remotely. Covering diverse topics such as workplace hygiene, anti-virus measures, safety practices, as well as contract and tendering matters, our EMSD Contractors Forums held online in November 2020 and March 2021 respectively attracted a total of over 530 trade practitioners.

To help the E&M trade operate as usual during the epidemic, we added new features to the EMSD's E&M Trade App, such as enabling the persons-in-charge registered vehicle maintenance workshops to submit electronic applications for the Anti-epidemic Fund. The E&M Trade App also allowed eligible Registered Electrical Workers/Registered Electrical Contractors to apply online for refund of application fee under the fee concessions arrangements, another relief measure introduced by the Government to alleviate the operating pressure of the trade.

為協助業界尋找創科方案，機電署首次以虛擬方式舉行創科展覽活動「機電創科日2020」，吸引逾40個參展商展出50多項創科方案，並舉辦了逾40場線上研討會及講座。

To assist the trade in exploring I&T solutions, the EMSD launched the E&M I&T Day 2020 in the form of virtual exhibition for the first time, featuring over 50 I&T solutions from more than 40 exhibitors and over 40 webinars and talks.

我們繼續致力協助業界招募年輕人投身機電行業。2020年10月，我們為一眾生力軍舉辦「機電·啓航2020」迎新典禮，並邀請了政務司司長及其他嘉賓在機電署總部大樓主持開幕儀式。活動以混合模式進行，約800名來自主要公私營機構的年輕機電學員透過線上直播參與互動活動。我們今年更特別攝製微電影，通過探索創新的預防性維修概念，闡述機電業的未來發展。

### 跨境人才培育

我們於2018年與廣州市人力資源和社會保障局(人社局)簽訂有關機電人才發展的合作備忘錄，在「世界技能大賽」的聯合集訓和機電業界的交流連繫方面取得成果。機電署與人社局於2020年12月再次簽訂備忘錄，進一步深化雙方在提升技術員培訓和「世界技能大賽」培訓的合作。是次簽署儀式成功以跨境線上形式進行，機電署、人社局、中央人民政府駐香港特別行政區聯絡辦公室、本地機電業聯會及廣州市人民政府港澳事務辦公室的代表，均在線上共同見證了是次簽署儀式。

轉移到跨境線上培訓是另一相關的發展趨勢。我們與中國內地(內地)多個機構簽訂了合作備忘錄，但受疫情影響，備忘錄所載的主要活動亦須暫停，儘管如此，不少線上培訓試點項目卻成功舉行。舉例來說，廣州市技師學院為我們的20名電氣見習技術員提供了為期五天的線上培訓課程，於2020年年底和2021年初舉行。廣州市工貿技師學院亦於2021年3月12日為我們的20名空調見習技術員舉辦了為期半天的線上培訓課程。

Our efforts to help the trade recruit young talent continued as well. The "E&M GO! 2020" Orientation Ceremony for new recruits was held in October 2020 in a hybrid format. Officiated by the Chief Secretary for Administration and other guests at the EMSD Headquarters, the event was attended by about 800 young E&M trainees from major public and private organisations through live streaming with interactive activities. A special mini-movie was also produced this year to depict the future of the E&M trade with the exploration of innovative preventive maintenance concepts.

### Cross-border Talent Development

Our Memorandum of Co-operation (MoC) signed in 2018 with the Guangzhou Municipal Human Resources and Social Security Bureau (HRSSGZ) on E&M talent development has already borne fruit in joint training for WorldSkills competitions and networking among E&M trades. EMSD and the HRSSGZ signed another MoC in December 2020 to further deepen the collaboration in boosting technician training and strengthening the WorldSkills competitions training. The signing ceremony was witnessed by representatives from the EMSD, the HRSSGZ, the Liaison Office of the Central People's Government in the Hong Kong Special Administrative Region, local E&M trade associations and the Hong Kong and Macao Affairs Office of Guangzhou Municipal Government at a successful cross-border web event.

A related development was the shift to cross-border online training. Though major activities planned under the various MoCs with entities in the Mainland of China (Mainland) were suspended due to COVID-19, online training was successfully held for various pilot programmes. The Guangzhou Technician College delivered a five-day online training programme, held in late 2020 and early 2021, for 20 of our Electrical Technician Trainees (TTs). The Guangzhou Industry and Trade Technician College also held a half-day training session online for 20 of our Air-conditioning TTs on 12 March 2021.



由機電署與廣州市技師學院聯合舉辦的首個見習技術員線上培訓課程已順利舉行。

The first online training programme for technician trainees jointly organised by the EMSD and the Guangzhou Technician College was held successfully.

## 企業管理 CORPORATE STEWARDSHIP

(左上)機電署署長彭耀雄先生於2020年9月為第二屆「Inno@E&M 創新科技挑戰賽」頒獎典禮暨分享會致歡迎辭。

(Top left) Mr Pang Yiu-hung, Director of Electrical and Mechanical Services, delivered the opening speech at the award presentation ceremony cum sharing session of the second Inno@E&M Challenge held in September 2020.

(右下)成功晉身比賽另一階段的「創新小隊」將進一步實踐他們的創科方案。

(Bottom right) The InnoTeams advanced to the second stage of the competition would further implement their I&T solutions.



不論是部門的本地課程，還是與內地城市合辦的課程，在當下充滿挑戰的世代，線上培訓模式已行之有效，勢將大行其道。

Online training, whether our local courses or joint programmes with the Mainland cities, has been highly effective in these challenging times and are becoming a trend in the future.

### 內部支援及流程改善

由2020年10月起，我們為即將畢業的見習技術員安排綜合樓宇管理系統培訓，日後並會為前線員工提供同類培訓，以進一步推動營運基金的數碼化工作。

### Internal Support and Process Improvements

We have been providing our final-year TTs with integrated Building Management System training since October 2020. These will be made available to current frontline staff in due course to further promote EMSTF's ongoing digitisation.

我們還一直探討物流自動化，例如研究在倉庫試用自動導引車、移動式貨架和智能櫃，以提升物料管理效率。

We have also been exploring logistics automation, such as trialling automatic guided vehicles, moveable shelves and e-lockers in our warehouses for more efficient management.

為推動在各個營運層面採用創科及培養創科文化，部門分別於2018年及2019年舉辦第一及第二屆「Inno@E&M 創新科技挑戰賽」，鼓勵員工提出創科解決方案，滿足客戶的需要及部門的內部需求。第二屆「Inno@E&M 創新科技挑戰賽」的得獎項目亦正落實推行。此外，機電署於11月參與合辦的生物醫學工程會議2020，正是推動創科的另一例子，活動雲集業界專家，分享各種創科抗疫方案的見解和心得。

To promote the adoption of I&T in all aspects of our operation and foster the I&T culture, the first and second Inno@E&M Challenge were held in 2018 and 2019 respectively to encourage staff proposals of I&T solutions which address clients' requests and our internal needs. The winning projects of the second Inno@E&M Challenge have been under implementation. Another example was the Biomedical Engineering Conference BME 2020 co-organised by the EMSD in November, in which experts gathered to share insights on anti-epidemic I&T solutions.

承辦商的表現是確保我們服務質素的另一重要環節。我們於2020年7月在「顧客為本電子平台」推出了維修表現儀表板，方便同事分析維修服務數據，從而更有效監察承辦商的表現。

Contractor performance is another vital element in our service quality. We launched a corrective maintenance performance dashboard on our "Customer Centric e-Platform" in July 2020, allowing us to analyse maintenance service data for more effective monitoring of contractor performance.



機電署與香港工程師學會生物醫學分部聯合舉辦生物醫學工程會議2020，活動旨在匯聚世界各地專家為長遠抗疫需要集思廣益，並讓業界加強聯繫，分享專業見解。

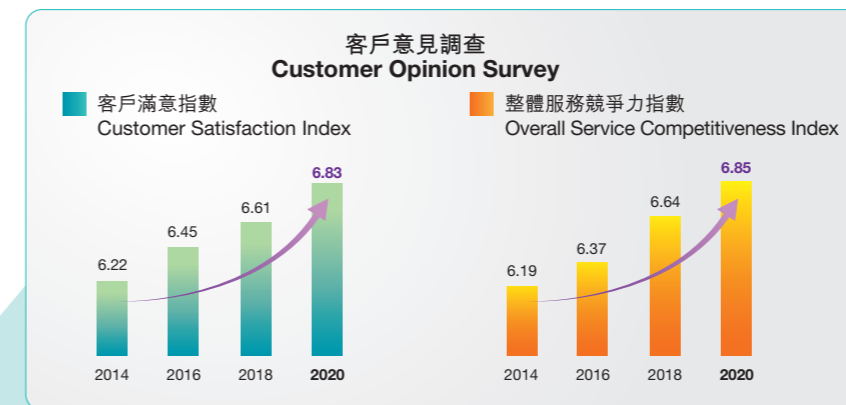
The EMSD co-organised the Biomedical Engineering Conference BME 2020 with the Biomedical Division of the Hong Kong Institution of Engineers. The event facilitated exchange of ideas among experts from around the world on the long-term anti-epidemic solutions, promoted networking among trade practitioners, and shared their professional insights.

招標文件的質素和招標過程的效率，對管理承辦商而言，是不太為人所知卻又相當重要的環節。部門的招標文件彙編先導計劃於年內繼續推行，目的是讓各個策略業務單位在處理超過140萬元的維修保養合約時，可更簡單便捷地擬備和編製合適的招標文件。

A less visible but nonetheless important aspect of contractor management is the quality of tender documents and efficiency of the tendering process. The Compilation of Tender Documents Pilot Scheme continued during the year with the aim of allowing SBUs to prepare appropriate tender documents for maintenance term contracts over \$1.4 million more easily and quickly.

此外，我們已於2021年2月開發並試用智慧標書系統，該系統旨在進一步協助策略業務單位的人員，以簡單程序擬備標準招標文件。該系統的軟件設計完善，可把項目工程師擬備標準招標文件的過程自動化，有助節省時間並確保招標文件的質素。當成功開發整套系統後，部門的標準機電工程招標文件便可全部自動編製而成。

In addition, a Smart Tender Document System (STDS) was developed and soft-launched in February 2021 to further help SBUs' staff compile standard tender documents in one single step. STDS is a sophisticated software dedicated to automating the compilation process of standard tender documents for project engineers, saving time and ensuring the quality of tender documents issued. Upon successful development of the entire STDS, all standard tender documents for our electrical and mechanical works will be generated automatically.



在客戶部門的支持下，機電署於2020年客戶意見調查中，整體客戶滿意指數及整體服務競爭力指數分別取得6.83分及6.85分（以8分為滿分計），兩者均創歷史新高。

Thanks to client departments' support, the EMSD scored 6.83 and 6.85 (on an 8-point scale) respectively in the Customer Satisfaction Index and Overall Service Competitiveness Index in the Customer Opinion Survey 2020, both reaching a record high level.

### 客戶滿意指數再創新高

為進一步改善營運基金的服務，我們於2020年10月和11月，以及2021年3月和4月，分別為策略業務單位的人員試辦了數次「優質客戶服務工作坊」。工作坊是根據各策略業務單位不同客戶的個別需求而特別設計，深受好評。

### Record High Customer Satisfaction Index

To further improve EMSTF services, we held several pilot customer service workshops for our SBU colleagues in October and November 2020 and in March and April 2021. Tailored for various SBUs according to their specific client needs, these workshops were well received.

我們為提升客戶體驗而作出的整體努力也有目共睹。由2020年11月中旬至12月進行的最新客戶意見調查所得結果令人鼓舞。我們的客戶滿意指數達6.83分（以8分為滿分計），整體服務競爭力指數為6.85分，兩者均創歷史新高。這次意見調查的客戶部門回覆率甚高，反應熱烈，為我們提供了寶貴及可行的建議，有助優化營運服務的策略。

Our concerted efforts to enhance the customer experience has paid off, as clearly reflected in the very encouraging results of the latest Customer Opinion Survey, conducted from mid-November to December in 2020. We scored 6.83 out of 8 on the Customer Satisfaction Index and 6.85 on the Overall Service Competitiveness Index, both being record highs. Thanks to the high response rate and valuable feedback from client departments, the survey has provided valuable and actionable insights for the enhancement of our strategies.

機電署為各部別舉辦「優質客戶服務工作坊」，藉不同的模擬個案和角色扮演練習，協助同事掌握客戶服務的技巧，以提升團隊合作、工作效率及提供更優質的客戶服務。

The EMSD organised customer service workshops for various divisions, where different simulated cases and role-playing exercises were used to help colleagues master the techniques of customer service to enhance teamwork, improve work efficiency and provide better customer service.



# 企業管理 CORPORATE STEWARDSHIP

## 時刻關懷員工

### 幫助員工在疫情期間保持健康

保障同事免受病毒感染是我們的首要任務，也是部門業務延續計劃的重點工作。我們除了為機電署總部提供各種防疫設施及方案，包括裝設發燒偵測系統連體溫檢查站、免觸式消毒站、腳踏式開門器、免觸式升降機按鈕、透明間隔板和使用消毒機械人等之外，還因應疫情的變化而不時修訂有關員工和訪客進入總部大樓的防控政策。

每當機電署有員工確診或疑似感染2019冠狀病毒病時，我們會立即在所有受影響的辦公室範圍進行全面消毒。另外，整幢大樓的日常清潔亦已加強，在2020/21年度合共進行了158次此類即時消毒工作。

疫情帶來各種困擾和變數，對許多同事構成很大壓力，而多年來一直由政府機構為部門所有員工提供的輔導諮詢服務，此時此刻更形重要。年內，我們舉辦了五場線上輔導研討會，幫助員工在這個非常時期保持身心健康。

疫情期間，前線員工日以繼夜協助客戶抗疫，並維持主要公共服務，我們的高層管理團隊積極表達對員工的讚賞。例如管理層於2020年4月進行特別的「親善大使探訪」，走訪了30家醫院的機電工場為員工打氣，表達他們對員工的關懷和讚賞。

## ALWAYS CARE FOR OUR STAFF

### Helping Staff Stay Healthy in the Epidemic

Keeping our colleagues safe from the virus is our top priority and a pillar of our BCP. Apart from equipping the EMSD Headquarters with various epidemic control solutions, including fever screening systems with body temperature checkpoints, touchless sanitising stations, foot-operated door openers, touchless lift buttons, transparent barriers and disinfection robots, the admission policy for staff and visitors was also revised from time to time as the epidemic situation evolves.

Whenever a colleague was suspected or confirmed to have COVID-19 infection, thorough disinfection of all affected office areas was promptly carried out. A total of 158 times of such ad-hoc disinfection were carried out in 2020/21, on top of stepped-up daily cleaning service for the entire building.

With much disruptions and uncertainties, the epidemic has been highly stressful for many colleagues. Our counselling services for all staff, provided by non-governmental organisations, have continued and proved particularly valuable. During the year, five online counselling webinars were held to help staff maintain their mental and physical health during these unusual times.

During the epidemic, our senior management has been active in expressing our gratitude to frontline staff who devoted themselves round-the-clock to help clients fight the virus and maintain essential services for the public. For example, a special round of Ambassador Visits was made to EMSTF workshops in 30 hospitals in April 2020 to boost staff morale and show top management's support and appreciation.



機電署舉辦「親善大使探訪」活動，關懷前線員工的工作情況，感謝同事對2019冠狀病毒病抗疫工作的努力和貢獻，以及為同事打氣。

The EMSD conducted Ambassador Visits to show care for our frontline staff, recognise their hard work and contributions in the fight against COVID-19, and encourage them to keep up the good work.



機電署推出名為「[員]來關你事」的嶄新項目，為員工提供工作環境及設施、工作流程、職業前景等方面的最新資訊，從而培養員工的歸屬感。

The EMSD launched a new project "All You Need to Know!" to provide the latest updates on working environment and facilities, workflow, career prospects, etc. for staff to cultivate their sense of belonging.



### 員工活動多姿多采

年內，我們也舉辦了首屆「E&M 抗疫好『煮』意比賽」，讓同事一展廚藝。為了進一步提高員工士氣，我們發起了「由心連起『打氣』短片大募集」活動，邀請所有同事製作短片，分享大家積極應對疫情的正能量。我們還鼓勵同事在家鍛鍊體魄，並重點鼓勵員工進行伸展和帶氧運動，又推出「機電喜動吧！」一分鐘自我挑戰賽和「健康達人」比賽，廣受同事歡迎。

我們以創新方法幫助大家保持活力及正向思維，讓同事及其家人積極參與活動。我們的旗艦線上活動「同您ZOOM-ZOOM」系列，內容包括瑜伽、辦公室運動、傳統中醫、收納及斷捨離技巧、烘焙和咖啡拉花、親子關係、精神健康等課程，吸引了超過2,000人踴躍參加。

另外，我們於2021年年初推出名為「[員]來關你事」的全新項目，為員工提供有關機電署的最新資訊，包括優化工作環境、提升工作流程的安排，以及與員工息息相關的事宜，從而培養員工的歸屬感。此外，近年多個部別已逐步進行翻新工程，使設施與時並進，並改善內部溝通、工作流程和程序。翻新後的辦公室更添活力和色彩，提供大量相連的開放空間供同事交流協作，在當今數碼年代至為重要。

為促進同事的工作與生活平衡，機電署員工康樂會舉辦了一系列名為「同您ZOOM-ZOOM」的線上活動，分享主題包括以瑜伽、中醫養生、辦公室收納、親子關係、精神健康等。

To promote work-life balance for colleagues, the EMSD Staff Club held a series of online activities called "ZOOM with You", with themes such as yoga, Chinese medicine, office storage, parent-child relationship, mental health, etc. for sharing.

### Rich and Colourful Staff Engagement Events

Moreover, we organised the first "E&M Cooking Contest" to showcase colleagues' cooking talent during the year. To further keep up the staff spirits, we initiated a "Call for Cheer" campaign that invited all colleagues to make short videos to share their positive vibes in the face of the epidemic. Encouraging our colleagues to keep fit at home, focusing on stretching and aerobics workouts, we introduced the "E&M Move!" one-minute challenge competition and the "Health Master Competition", which were both well received.

To keep our colleagues and their families engaged, we employed innovative ways to help everyone stay positive and energetic. Our flagship online event was the "ZOOM with You" series, with sessions on yoga, office workouts, traditional Chinese medicine, storage and decluttering skills, bakery and latte art, parent-child relationship, mental health, etc., attracted over 2,000 participants.

Besides, a new project named "All You Need to Know!" was launched in early 2021 to provide staff with the latest updates on the EMSD's work environment improvement, workflow enhancement and staff related matters in order to cultivate a sense of belonging. Moreover, refurbishment works have been taking place at different divisions one after another in recent years, with the aim of bringing our facilities up-to-date to improve internal communication, workflow and procedures. The refurbished offices are more dynamic and colourful, with plenty of connected open spaces for discussion and collaboration, which are vital in this digital age.

為建立更佳的工作環境以促進員工之間的交流，市政工程部的辦公室內採用創新設計元素，色彩明亮，並提供更多共享空間。

To provide a better working environment for facilitating staff communication, the new office of the Municipal Sector Division adopted innovative design features with bright colours and more connecting space.



## 企業管理 CORPORATE STEWARDSHIP

利用網上平台與員工溝通是另一項相關的發展，2019年員工滿意度調查正是其中一例。以10分為滿分計，調查所得的員工滿意度指數為6.8分，而顧問公司更於2020年4月舉辦了兩場線上直播，向全體員工公布調查結果。至於2020年署長簡報會，除了安排小部分同事到場出席外，大會也在約60個場地，包括總部以外的多個辦公室和工場，進行視像直播，讓同事實時參與。這項線上直播安排可方便更多員工出席簡報會，參加人數勝過往年。

2021年年中是營運基金的銀禧紀念。為籌備誌慶工作，我們特別邀請所有員工投票選出大家最喜愛的25周年標誌。員工反應熱烈，銀禧紀念標誌已順利誕生。

A related development was the use of online platforms for staff communication. A case in point was the 2019 Staff Satisfaction Survey, which returned a satisfaction level of 6.8 on a scale of 10. The survey findings were presented by the consultant via online broadcast in two sessions in April 2020. The 2020 DEMS Briefing was conducted at the presence of a small face-to-face audience and broadcast live via audio-visual equipment in some 60 outstation offices and workshops. This arrangement enabled more staff to attend than had been possible in previous year.

To prepare for EMSTF's silver jubilee celebration in mid-2021, we invited all staff to vote for their favourite 25th anniversary logo. Response was enthusiastic, and the jubilee logo has been launched.



疫情期間，2020年署長簡報會首次於60多個場地同步直播，並設有線上問答環節，讓同事直接向管理層表達意見。

During the epidemic, the 2020 DEMS Briefing was held via live broadcast at over 60 venues for the first time, allowing colleagues to express their views directly to the senior management during online question and answer sessions.

### 線上招聘新進展

繼在2019/20年度開創以視像會議形式為見習工程師訓練計劃的第四百多名申請人進行首輪面試後，我們於2020/21年度再次為該計劃五百多名申請人，以視像會議形式進行面試。我們的視像會議系統裝置、程序和保安，均獲政府資訊科技總監辦公室認可。

機電署的招聘面試和遴選電子平台，是政府首個線上面試和記錄系統。我們的資料庫載有一百多條面試題目，而系統既可在面試過程中為申請人隨機揀選面試題目，節省大量人工工序和時間，又可檢索申請人的錄像簡報短片，方便進行詳細評估。

### New Progress on Online Recruitment

Further to our breakthrough in 2019/20 to use video conferencing for the first-round interviews of over 400 candidates for the Engineering Graduate Training Scheme, we held online video interviews for over 500 candidates for the Scheme in 2020/21. The set-up, procedures and security of our video conference system have been endorsed by the Office of the Government Chief Information Officer.

Our e-Platform for Recruitment Interview and Selection is the first online interview and recording system in the Government. With a database containing over 100 interview questions, the system can generate questions at random for candidates during the interview, saving much staff time and manual work. Video clips of candidates' presentations can also be retrieved for detailed assessment.

「品質及安全日2020」以「2019冠狀病毒病下的職安健挑戰」為主題，於2021年2月以線上直播形式舉行，得獎團隊即場介紹獲獎個案。

With the theme of "Occupational Safety and Health Challenges under COVID-19", the Quality and Safety Day 2020 was held in February 2021 via online live broadcast. The winning teams presented their winning projects on-site.



### 部門內外獎項嘉許表現

一年一度的「品質及安全日」已於2021年2月以線上形式舉行，參加者透過視像會議軟件參與活動，而獲獎者、主講嘉賓和其他嘉賓則到現場出席。「品質及安全日」旨在表揚同事對培養營運基金持續改善的文化所作的貢獻，當日頒發「最佳改善個案獎」、「最佳職安健改善個案獎」和「最佳環保個案獎」，冠軍團隊亦即場與同事分享獲獎心得和良好作業方式。

在疫情下，我們仍續創佳績。我們的員工揚威於2020年10月舉行的「世界技能大賽香港代表選拔賽」，在「空調及製冷」項目勇奪首四個獎項，另有四名員工在「電氣安裝」項目獲獎。機電署參賽員工表現出色，將代表香港參加於2021年在成都舉行的穗港澳蓉青年技能競賽，以及於2022年在上海舉行的世界技能大賽。

與此同時，機電署三名同事在11月舉行的2020年公務員事務局局長嘉許狀頒發典禮上獲頒獎狀。得獎者是兩位管理值班工程師和一位一級監工，他們多年來竭誠服務表現出色，獲嘉許表揚。

### Recognition from Internal and External Awards

The annual Quality and Safety Day was held online in February 2021, with participants attending via video conference software and awardees, speakers and guests taking part on-site. The event recognised colleagues who have contributed to the EMSTF's continuous improvement culture and presented the Best Improvement Project Awards, Best Occupational Health and Safety Enhancement Project Awards, and Best Green Project Awards, with each champion team sharing best practices to inspire us all.

It is worth noting that COVID-19 has not stopped the EMSTF from winning awards. Our candidates won the top four places in the Refrigerant and Air-conditioning trade of the WorldSkills Hong Kong Competition in October 2020, while four candidates won in the Electrical Installations trade. Our outstanding candidates will be the representatives of Hong Kong in the Guangzhou/Hong Kong/Macao/Chengdu Youth Skills Competition in Chengdu in 2021, and the WorldSkills Competition to be taken place in Shanghai in 2022.

Meanwhile, three EMSD colleagues received the Secretary for the Civil Service's Commendation Award 2020 at a presentation ceremony held in November. The two shift charge engineers and one works supervisor won recognition for their outstanding services over the years.



機電署三位同事於2020年獲頒公務員事務局局長嘉許狀，以表揚他們盡心竭力服務市民，專業幹練，表現出色。

In 2020, three EMSD colleagues were awarded the Secretary for the Civil Service's Commendation in recognition of their outstanding performance and professionalism in serving the public with dedication.

## 服務社羣

### 支援政府抗疫

2019 冠狀病毒病疫情為社會各界帶來各種困難，部門同事積極參與政府的抗疫工作，在極短時間內成立了支援隊伍，協助政府推行 2019 冠狀病毒病特定羣組檢測計劃，並協助營運社區疫苗接種中心，發揮竭誠服務社羣的精神。

### 應用技術專長於公共服務

機電署再次參加「樂齡科技博覽暨高峰會 2020」，展示各種可用於長者護理行業的抗疫創科解決方案。機電署還在活動中頒發獎項予「樂齡科技顯愛心 2019」青年挑戰賽的優勝者。我們與香港社會服務聯會合辦該項樂齡科技比賽，旨在鼓勵中小學生運用創科提升長者的生活質素。

至於發展局與建造業議會合辦的第 26 屆公德地盤嘉許計劃，共有 18 項由機電署監督的合約獲提名，並贏得一項銀獎、兩項銅獎及三項優異獎。我們希望藉此為社區樹立榜樣，推廣地盤公德、工地安全及健康和環保的良好作業方法。

## SERVING THE COMMUNITY

### Supporting the Government's Fight-the-Virus Efforts

The COVID-19 epidemic has brought hardships to the community and we have contributed to the Government's efforts in fighting the virus together for the community. We formed support teams at very short notice to help implement the Government's COVID-19 Targeted Group Testing Scheme and assist to operate a Community Vaccination Centre, demonstrating our spirit of serving the community with great dedication.

### Applying our Technical Expertise to Public Services

Once again the EMSD took part in the Gerontech and Innovation Expo cum Summit 2020, showcasing our various anti-epidemic I&T solutions applicable in the elderly care sector. The EMSD also presented awards to the winners of the Gerontech Youth Challenge 2019 at the event. The Challenge, a gerontechnology competition that we co-organised with the Hong Kong Council of Social Service, encouraged primary and secondary students to apply I&T to improve the elderly's quality of living.

A total of 18 EMSD contracts were nominated in the 26th Considerate Contractors Site Award Scheme jointly organised by the Development Bureau and Construction Industry Council (CIC), winning one Silver Award, two Bronze Awards and three Merit Awards. By setting an example for the community, we promoted a considerate attitude and good site safety, health and environmental practices for work sites.



機電署署長及管理團隊到訪龍琛路體育館社區疫苗接種中心，視察中心運作情況，以及由本署設計和安裝的綜合疫苗冷藏櫃監察系統。

The Director of Electrical and Mechanical Services and the EMSD's management team visit the Community Vaccination Centre at Lung Sum Avenue Sports Centre to inspect the centre's operation and the integrated Fridge Monitoring System designed and installed by the EMSD.



機電署的新吉祥物「機智啤啤」和「智析寶寶」擔當親善大使，協助宣傳工作，並以生動有趣的方式，向公眾推廣機電安全、能源效益及創新科技。

As the ambassadors of the EMSD, Witty Bear and KnowBot, our new mascots, assist in publicity campaigns to promote E&M safety, energy efficiency and innovation and technology to the public in a lively and interesting manner.

### 關心社會及弱勢社羣

為推動機電署的宣傳工作，我們創作了兩個新吉祥物，以助加強與公眾的互動。我們邀請員工為新吉祥物命名，最後選出了「機智啤啤」和「智析寶寶」作為吉祥物的名字。

我們繼續推行「好人好事嘉許計劃」，表揚同事熱心為社區及部門服務的好人好事。嘉許計劃有助我們建立一支用心工作、服務市民的關愛團隊。

員工也熱心參與「公益金線上百萬行」及線上「保良局慈善步行」等慈善活動。此外，我們十分感謝同事的慷慨捐助及無私奉獻，於 2020 年 11 月建造業議會的「建造業魯班飯行動」中擔當義工，向弱勢社羣免費派發熱食，並參與包裝和分發飯盒的工作。我們的義工還參加了建造業議會的其他慈善活動，當中包括準備「長者關愛包」和參加「海岸清潔日」等。

年內，我們與客戶攜手參與社區服務項目，例如協助運輸署於上水一家由非政府機構營運的導盲犬訓練學校安裝交通燈，讓導盲犬能在高度像真的環境下，學習如何帶領失明人士過馬路。

總部大樓可為鄰近社區創造公眾價值，尤其大樓的露天廣場，更是深受行人和訪客歡迎的公共空間。露天廣場的改善工程於 2019 年動工，2021 年年初順利完成，並於同年 3 月舉行開幕儀式。廣場配備了創新設計的園景、特色水景和太陽能水耕種植花園，全部均採用環保物料建造，充分體現綠色生活和可持續發展的理念，提供出色的示範空間，適合進行各種社區參與和公眾教育活動。

### Reaching Out to the Community and the Needy

To promote the EMSD's publicity work, we have created two new mascots to help us engage with the public. Staff were invited to name the new mascots, and their names were finalised as Witty Bear and KnowBot.

We have continued to implement the "Good People, Good Deeds Commendation Scheme", under which awards were given to colleagues who have provided attentive services to the community and the Department. It helped to nurture a caring team dedicated to serving the public.

Staff also participated in charitable activities such as the Community Chest Virtual Walk for Millions and the online Po Leung Kuk Charity Walk. Also, thanks to our colleagues' generous donations and voluntary efforts in packing and distribution, we contributed to CIC's Construction Industry Lo Pan Rice Campaign in November 2020 to provide free hot meals to the needy. Our volunteers also helped in other CIC activities, like preparing "Elderly Caring Packs" and taking part in the "Shorelines Cleanup Day".

We joined hands with clients in community-oriented projects during the year. Our team helped the Transport Department install traffic lights in a guide dog training school, a facility operated by a non-governmental organisation in Sheung Shui, so that the guide dogs could learn how to guide the visually impaired to cross the roads in a highly realistic setting.

We are always mindful of the public value our headquarters building creates for the neighbouring community, in particular our piazza, which is a public space much enjoyed by pedestrians and visitors. The piazza refurbishment works that began in 2019 have been completed in early 2021, and its opening ceremony was held in March 2021. With an innovative landscape design, stylish water features and a solar-powered hydroponic garden, all built with eco-friendly materials, the new piazza is a spectacular showcase of green living and sustainability fit for community engagement and public education activities.

機電工程署總部大樓露天廣場翻新後於 2021 年 3 月舉行開幕典禮。舒適優美的綠化環境為露天廣場增添活力，亦為訪客提供一個公共空間。

The opening ceremony of the newly refurbished piazza of the EMSD Headquarters Building was held in March 2021. A comfortable and beautiful green environment adds vitality to the piazza and provides a public space to visitors.





# 審計署署長報告

## REPORT OF THE DIRECTOR OF AUDIT



香港特別行政區政府  
審計署

### 獨立審計師報告

#### 致立法會

##### 意見

茲證明我已審核及審計列載於第65至91頁機電工程營運基金的財務報表，該等財務報表包括於2021年3月31日的財務狀況表與截至該日止年度的全面收益表、權益變動表和現金流量表，以及財務報表的附註，包括主要會計政策概要。

我認為，該等財務報表已按照香港會計師公會頒布的《香港財務報告準則》真實而中肯地反映機電工程營運基金於2021年3月31日的狀況及截至該日止年度的運作成果及現金流量，並已按照《營運基金條例》(第430章)第7(4)條所規定的方式妥為擬備。

##### 意見的基礎

我已按照《營運基金條例》第7(5)條及審計署的審計準則進行審計。我根據該等準則而須承擔的責任，詳載於本報告「審計師就財務報表審計而須承擔的責任」部分。根據該等準則，我獨立於機電工程營運基金，並已按該等準則履行其他道德責任。我相信，我所獲得的審計憑證是充足和適當地為我的審計意見提供基礎。

##### 機電工程營運基金總經理就財務報表須承擔的責任

機電工程營運基金總經理須負責按照香港會計師公會頒布的《香港財務報告準則》及《營運基金條例》第7(4)條擬備真實而中肯的財務報表，及落實其認為必要的內部控制，使財務報表不存有因欺詐或錯誤而導致的重大錯誤陳述。

## Audit Commission The Government of the Hong Kong Special Administrative Region

### INDEPENDENT AUDITOR'S REPORT

#### To the Legislative Council

##### Opinion

I certify that I have examined and audited the financial statements of the Electrical and Mechanical Services Trading Fund set out on pages 65 to 91, which comprise the statement of financial position as at 31 March 2021, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In my opinion, the financial statements give a true and fair view of the state of affairs of the Electrical and Mechanical Services Trading Fund as at 31 March 2021, and of its results of operations and cash flows for the year then ended in accordance with Hong Kong Financial Reporting Standards ("HKFRSs") issued by the Hong Kong Institute of Certified Public Accountants ("HKICPA") and have been properly prepared in accordance with the manner provided in section 7(4) of the Trading Funds Ordinance (Cap. 430).

##### Basis for opinion

I conducted my audit in accordance with section 7(5) of the Trading Funds Ordinance and the Audit Commission auditing standards. My responsibilities under those standards are further described in the *Auditor's responsibilities for the audit of the financial statements* section of my report. I am independent of the Electrical and Mechanical Services Trading Fund in accordance with those standards, and I have fulfilled my other ethical responsibilities in accordance with those standards. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

##### Responsibilities of the General Manager, Electrical and Mechanical Services Trading Fund for the financial statements

The General Manager, Electrical and Mechanical Services Trading Fund is responsible for the preparation of financial statements that give a true and fair view in accordance with HKFRSs issued by the HKICPA and section 7(4) of the Trading Funds Ordinance, and for such internal control as the General Manager, Electrical and Mechanical Services Trading Fund determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

# 審計署署長報告

## Report of the Director of Audit

### 機電工程營運基金總經理就財務報表須承擔的責任 (續)

在擬備財務報表時，機電工程營運基金總經理須負責評估機電工程營運基金持續經營的能力，以及在適用情況下披露與持續經營有關的事項，並以持續經營作為會計基礎。

### 審計師就財務報表審計而須承擔的責任

我的目標是就整體財務報表是否不存有任何因欺詐或錯誤而導致的重大錯誤陳述取得合理保證，並發出包括我意見的審計師報告。合理保證是高水平的保證，但不能確保按審計署審計準則進行的審計定能發現所存有的任何重大錯誤陳述。錯誤陳述可以由欺詐或錯誤引起，如果合理預期它們個別或滙總起來可能影響財務報表使用者所作出的經濟決定，則會被視作重大錯誤陳述。

在根據審計署審計準則進行審計的過程中，我會運用專業判斷並秉持專業懷疑態度。我亦會：

- 識別和評估因欺詐或錯誤而導致財務報表存有重大錯誤陳述的風險；設計及執行審計程序以應對這些風險；以及取得充足和適當的審計憑證，作為我意見的基礎。由於欺詐可能涉及串謀、偽造、蓄意遺漏、虛假陳述，或凌駕內部控制的情況，因此未能發現因欺詐而導致重大錯誤陳述的風險，較未能發現因錯誤而導致者為高；
- 了解與審計相關的內部控制，以設計適當的審計程序。然而，此舉並非旨在對機電工程營運基金內部控制的有效性發表意見；
- 評價機電工程營運基金總經理所採用的會計政策是否恰當，以及其作出的會計估計和相關資料披露是否合理；

### Responsibilities of the General Manager, Electrical and Mechanical Services Trading Fund for the financial statements (continued)

In preparing the financial statements, the General Manager, Electrical and Mechanical Services Trading Fund is responsible for assessing the Electrical and Mechanical Services Trading Fund's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting.

### Auditor's responsibilities for the audit of the financial statements

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

As part of an audit in accordance with the Audit Commission auditing standards, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Electrical and Mechanical Services Trading Fund's internal control;
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the General Manager, Electrical and Mechanical Services Trading Fund;

## 審計師就財務報表審計而須承擔的責任(續)

- 判定機電工程營運基金總經理以持續經營作為會計基礎的做法是否恰當，並根據所得的審計憑證，判定是否存在與事件或情況有關，而且可能對機電工程營運基金持續經營的能力構成重大疑慮的重大不確定性。如果我認為存在重大不確定性，則有必要在審計師報告中請使用者留意財務報表中的相關資料披露。假若所披露的相關資料不足，我便須發出非無保留意見的審計師報告。我的結論是基於截至審計師報告日止所取得的審計憑證。然而，未來事件或情況可能導致機電工程營運基金不能繼續持續經營；及
- 評價財務報表的整體列報方式、結構和內容，包括披露資料，以及財務報表是否中肯反映交易和事項。

## Auditor's responsibilities for the audit of the financial statements (continued)

- conclude on the appropriateness of the General Manager, Electrical and Mechanical Services Trading Fund'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 Electrical and Mechanical Services Trading Fund's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Electrical and Mechanical Services Trading Fund to cease to continue as a going concern; and
- 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.

審計署署長  
(審計署助理署長陳瑞蘭  
代行)

審計署  
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Hildy Chan  
Assistant Director of Audit  
for Director of Audit

Audit Commission  
26th Floor  
Immigration Tower  
7 Gloucester Road  
Wanchai, Hong Kong

2021年9月23日

23 September 2021

## 全面收益表

## STATEMENT OF COMPREHENSIVE INCOME

截至2021年3月31日止年度  
(以港幣千元位列示)

for the year ended 31 March 2021  
(Expressed in thousands of Hong Kong dollars)

	附註 Note	2021	2020
來自客戶合約之收入	(4)	<b>8,577,821</b>	8,087,215
運作成本	(5)	<b>(8,378,799)</b>	(7,593,562)
運作盈利		<b>199,022</b>	493,653
其他收入	(6)	<b>219,541</b>	223,927
年度盈利		<b>418,563</b>	717,580
其他全面收益		-	-
年度總全面收益		<b>418,563</b>	717,580
固定資產回報率	(7)	<b>15.4%</b>	43.8%

第70至91頁的附註為  
本財務報表的一部分。

The notes on pages 70 to 91 form part of these financial statements.

# 財務狀況表

## STATEMENT OF FINANCIAL POSITION

於2021年3月31日  
(以港幣千元位列示)

as at 31 March 2021  
(Expressed in thousands of Hong Kong dollars)

		附註 Note	2021	2020
<b>非流動資產</b>	<b>Non-current assets</b>			
物業、設備及器材	Property, plant and equipment	(8)	1,252,845	1,142,348
使用權資產	Right-of-use assets	(9(a))	52,380	37,324
無形資產	Intangible assets	(10)	110,716	83,090
外匯基金存款	Placement with the Exchange Fund	(11)	5,000,000	3,000,000
			<b>6,415,941</b>	4,262,762
<b>流動資產</b>	<b>Current assets</b>			
存貨	Inventories		65,639	67,860
外匯基金存款	Placement with the Exchange Fund	(11)	1,156,188	1,006,141
應收帳款及其他應收款項	Trade and other receivables	(12), (13(a))	73,891	52,714
應收關連人士帳款	Amounts due from related parties	(13(a)), (21)	370,278	388,550
銀行存款	Bank deposits		2,590,000	5,375,000
現金及銀行結餘	Cash and bank balances		12,948	14,421
			<b>4,268,944</b>	6,904,686
<b>流動負債</b>	<b>Current liabilities</b>			
客戶按金	Customers' deposits	(14)	(1,552,553)	(1,590,209)
應付帳款及其他應付款項	Trade and other payables		(978,591)	(1,208,606)
應付關連人士帳款	Amounts due to related parties	(21)	(203,262)	(304,102)
租賃負債	Lease liabilities	(9(b))	(13,090)	(9,221)
僱員福利撥備	Provision for employee benefits	(15)	(83,543)	(85,172)
遞延收入	Deferred revenue	(13(b))	(844,196)	(1,141,195)
應付政府法定回報	Statutory return payable to the Government		-	(185,892)
			<b>(3,675,235)</b>	(4,524,397)
<b>流動資產淨額</b>	<b>Net current assets</b>		<b>593,709</b>	2,380,289
<b>總資產減去流動負債</b>	<b>Total assets less current liabilities</b>		<b>7,009,650</b>	6,643,051
<b>非流動負債</b>	<b>Non-current liabilities</b>			
租賃負債	Lease liabilities	(9(b))	(39,771)	(28,628)
僱員福利撥備	Provision for employee benefits	(15)	(486,600)	(476,216)
			<b>(526,371)</b>	(504,844)
<b>資產淨額</b>	<b>NET ASSETS</b>		<b>6,483,279</b>	6,138,207

# 財務狀況表

## Statement of Financial Position

於2021年3月31日  
(以港幣千元位列示)

as at 31 March 2021  
(Expressed in thousands of Hong Kong dollars)

		附註 Note	2021	2020
<b>資本及儲備</b>	<b>CAPITAL AND RESERVES</b>			
營運基金資本	Trading fund capital	(16)	706,600	706,600
保留盈利	Retained earnings	(17)	5,776,679	5,431,607
			<b>6,483,279</b>	6,138,207

第70至91頁的附註為  
本財務報表的一部分。

The notes on pages 70 to 91 form part of these financial statements.

彭耀雄  
總經理  
機電工程營運基金

PANG YIU HUNG  
General Manager  
Electrical and Mechanical Services Trading Fund

2021年9月23日

23 September 2021

## 權益變動表 STATEMENT OF CHANGES IN EQUITY

截至2021年3月31日止年度  
(以港幣千元位列示)

for the year ended 31 March 2021  
(Expressed in thousands of Hong Kong dollars)

	附註 Note	2021	2020
<b>在年初的結餘</b>		<b>6,138,207</b>	5,606,519
年度總全面收益		<b>418,563</b>	717,580
政府法定回報	(17)	<b>(73,491)</b>	(185,892)
<b>在年終的結餘</b>		<b>6,483,279</b>	6,138,207

第70至91頁的附註為  
本財務報表的一部分。

The notes on pages 70 to 91 form part of these financial statements.

## 現金流量表 STATEMENT OF CASH FLOWS

截至2021年3月31日止年度  
(以港幣千元位列示)

for the year ended 31 March 2021  
(Expressed in thousands of Hong Kong dollars)

	附註 Note	2021	2020
<b>營運活動的現金流量</b>			
運作盈利		<b>199,022</b>	493,653
折舊及攤銷		<b>165,401</b>	115,514
租賃負債的利息支出		<b>541</b>	594
出售物業、設備及器材的收益		<b>(64)</b>	(189)
存貨的減少/(增加)		<b>2,221</b>	(12,414)
應收帳款及其他應收款項的 增加		<b>(962)</b>	(578)
應收關連人士帳款的 減少/(增加)		<b>18,272</b>	(37,819)
客戶按金的(減少)/增加		<b>(37,656)</b>	53,346
應付帳款及其他應付款項的 (減少)/增加		<b>(230,015)</b>	118,365
應付關連人士帳款的 (減少)/增加		<b>(100,840)</b>	111,456
僱員福利撥備的增加		<b>8,755</b>	8,620
遞延收入的減少		<b>(296,999)</b>	(377,754)
<b>(用於)/來自營運活動的 現金淨額</b>		<b>(272,324)</b>	472,794
<b>投資活動的現金流量</b>			
原有期限為3個月以上的 銀行存款的減少		<b>3,730,000</b>	305,000
購買物業、設備及器材和 無形資產		<b>(292,121)</b>	(260,979)
出售物業、設備及器材所得		<b>101</b>	189
外匯基金存款的增加		<b>(2,150,047)</b>	(112,904)
已收利息		<b>199,326</b>	204,648
<b>來自投資活動的現金淨額</b>		<b>1,487,259</b>	135,954
<b>融資活動的現金流量</b>			
已付政府法定回報		<b>(259,383)</b>	-
租賃款項	(9(b))	<b>(12,025)</b>	(8,895)
<b>用於融資活動的現金淨額</b>		<b>(271,408)</b>	(8,895)
<b>現金及等同現金的增加淨額</b>		<b>943,527</b>	599,853
<b>在年初的現金及等同現金</b>		<b>979,421</b>	379,568
<b>在年終的現金及等同現金</b>	(18)	<b>1,922,948</b>	979,421

第70至91頁的附註為  
本財務報表的一部分。

The notes on pages 70 to 91 form part of these financial statements.

# 財務報表附註

## NOTES TO THE FINANCIAL STATEMENTS

(除另有註明外，所有金額均以港幣千元位列示)

### 1 總論

前立法局在1996年6月26日根據《營運基金條例》(第430章)第3、4及6條通過決議，在1996年8月1日成立機電工程營運基金(「基金」)，為客戶提供全面的機電及電子工程服務、車輛工程服務，以及工程及顧問服務。

政府各決策局、各部門及各自主機構均可自由選擇採用本基金或其他服務機構的服務，以切合他們部分或全部的機電服務需要。

### 2 主要會計政策

#### 2.1 符合準則聲明

本財務報表是按照香港公認的會計原則及香港財務報告準則(此詞是統稱，當中包括香港會計師公會頒布的所有適用的個別香港財務報告準則、香港會計準則及詮釋)編製。基金採納的主要會計政策摘要如下。

香港會計師公會頒布了若干新增或經修訂的香港財務報告準則並於基金的本會計期首次生效或可供提前採納。基金因首度採納其中適用的準則而引致本會計期及前會計期的會計政策改變(如有)已反映在本財務報表，有關資料載於附註3。

#### 2.2 編製財務報表的基準

本財務報表的編製基準均以原值成本法計量。

編製符合香港財務報告準則的財務報表需要管理層作出判斷、估計及假設。該等判斷、估計及假設會影響會計政策的實施，以及資產與負債和收入與支出的呈報款額。該等估計及相關的假設，均按以往經驗及其他在有關情況下被認為合適的因素而制訂。倘若沒有其他現成數據可供參考，則會採用該等估計及假設作為判斷有關資產及負債的帳面值的基準。估計結果或會與實際價值有所不同。

(Amounts expressed in thousands of Hong Kong dollars, unless otherwise stated)

### GENERAL

The Electrical and Mechanical Services Trading Fund (the Fund) was established on 1 August 1996 under the Legislative Council Resolution passed on 26 June 1996 pursuant to sections 3, 4 and 6 of the Trading Funds Ordinance (Cap. 430) to provide comprehensive electrical, mechanical and electronic services, vehicle services, and project and consultancy services to clients.

Government bureaux, departments and autonomous bodies have the freedom to use the services of the Fund or to choose alternative service providers to meet part or all of their electrical and mechanical service needs.

### SIGNIFICANT ACCOUNTING POLICIES

#### Statement of compliance

These financial statements have been prepared in accordance with accounting principles generally accepted in Hong Kong and Hong Kong Financial Reporting Standards (HKFRSs), a collective term which includes all applicable individual HKFRSs, Hong Kong Accounting Standards and Interpretations issued by the Hong Kong Institute of Certified Public Accountants (HKICPA). A summary of the significant accounting policies adopted by the Fund is set out below.

The HKICPA has issued certain new or revised HKFRSs that are first effective or available for early adoption for the current accounting period of the Fund. Note 3 provides information on the changes, if any, in accounting policies resulting from initial application of these developments to the extent that they are relevant to the Fund for the current and prior accounting periods reflected in these financial statements.

#### Basis of preparation of the financial statements

The measurement basis used in the preparation of these financial statements is historical cost.

The preparation of financial statements in conformity with HKFRSs requires management to make judgements, estimates and assumptions that affect the application of policies and reported amounts of assets and liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

# 財務報表附註

## Notes to the Financial Statements

### 2 主要會計政策(續)

#### 2.2 編製財務報表的基準(續)

該等估計及其所依據的假設會作持續檢討。如修訂會計估計只影響修訂期，有關修訂會在該修訂期內確認；如修訂影響本會計期及未來的會計期，則會在修訂期及未來的會計期內確認。

基金在實施會計政策方面並不涉及任何關鍵的會計判斷。無論對未來作出的假設，或在報告日估計過程中所存在的不明朗因素，皆不足以構成重大風險，導致資產和負債的帳面金額在來年大幅修訂。

#### 2.3 金融資產及金融負債

##### 2.3.1 初始確認及計量

基金的金融資產包括外匯基金存款、應收帳款及其他應收款項、應收關連人士帳款、銀行存款，以及現金及銀行結餘。

基金的金融負債包括客戶按金、應付帳款及其他應付款項、應付關連人士帳款、租賃負債，以及僱員福利撥備。

基金在成為有關金融工具的合約其中一方之日確認有關金融資產及金融負債。於初始確認時，金融資產及金融負債按公平值計量，再加上或減去因收購該等金融資產或發行該等金融負債而直接引致的交易成本。

### SIGNIFICANT ACCOUNTING POLICIES (continued)

#### Basis of preparation of the financial statements (continued)

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

There are no critical accounting judgements involved in the application of the Fund's accounting policies. There are also no key assumptions concerning the future, or other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities in the next year.

#### Financial assets and financial liabilities

##### Initial recognition and measurement

The Fund's financial assets comprise placement with the Exchange Fund, trade and other receivables, amounts due from related parties, bank deposits, and cash and bank balances.

The Fund's financial liabilities comprise customers' deposits, trade and other payables, amounts due to related parties, lease liabilities and provision for employee benefits.

The Fund recognises financial assets and financial liabilities on the date it becomes a party to the contractual provisions of the instrument. At initial recognition, financial assets and financial liabilities are measured at fair value plus or minus transaction costs that are directly attributable to the acquisition of the financial assets or the issue of the financial liabilities.

## 2 主要會計政策 (續)

### 2.3 金融資產及金融負債 (續)

#### 2.3.2 分類及其後計量

基金將其所有金融資產分類為其後以實際利率法按攤銷成本值計量，因為有關金融資產以收取合約現金流為目的業務模式而持有，且合約現金流僅為所支付的本金及利息。金融資產的虧損準備根據附註 2.3.4 所述的預期信用虧損模型計量。

實際利率法是計算金融資產或金融負債的攤銷成本值，以及攤分及確認有關期間的利息收入或支出的方法。實際利率是指可將該金融資產或金融負債在有效期間內的預計現金收支，折現成該金融資產的帳面總值或該金融負債的攤銷成本值所適用的貼現率。基金在計算實際利率時，會考慮該金融工具的所有合約條款以估計現金流量，但不會計及預期信用虧損。有關計算包括與實際利率相關的所有收取自或支付予合約各方的費用、交易成本及所有其他溢價或折讓。

基金將其所有金融負債分類為其後以實際利率法按攤銷成本值計量。

基金僅在管理某金融資產的業務模式出現變動時，才將有關資產重新分類。金融負債不作重新分類。

#### 2.3.3 註銷確認

當從金融資產收取現金流量的合約權利屆滿時，或該金融資產連同擁有權的絕大部分風險及回報已轉讓時，該金融資產會被註銷確認。

當合約指明的債務被解除或取消，或到期時，該金融負債會被註銷確認。

## SIGNIFICANT ACCOUNTING POLICIES (continued)

### Financial assets and financial liabilities (continued)

#### Classification and subsequent measurement

The Fund classifies all financial assets as subsequently measured at amortised cost using the effective interest method, on the basis that they are held within a business model whose objective is to hold them for collection of contractual cash flows and the contractual cash flows represent solely payments of principal and interest. The measurement of loss allowances for financial assets is based on the expected credit loss model as described in note 2.3.4.

The effective interest method is a method of calculating the amortised cost of a financial asset or a financial liability and of allocating and recognising the interest income or interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash receipts or payments through the expected life of the financial asset or financial liability to the gross carrying amount of the financial asset or to the amortised cost of the financial liability. When calculating the effective interest rate, the Fund estimates the expected cash flows by considering all contractual terms of the financial instrument but does not consider the expected credit losses. The calculation includes all fees received or paid between parties to the contract that are an integral part of the effective interest rate, transaction costs and all other premiums or discounts.

The Fund classifies all financial liabilities as subsequently measured at amortised cost using the effective interest method.

The Fund reclassifies a financial asset when and only when it changes its business model for managing the asset. A financial liability is not reclassified.

#### Derecognition

A financial asset is derecognised when the contractual rights to receive the cash flows from the financial asset expire, or where the financial asset together with substantially all the risks and rewards of ownership have been transferred.

A financial liability is derecognised when the obligation specified in the contract is discharged or cancelled, or when it expires.

## 2 主要會計政策 (續)

### 2.3 金融資產及金融負債 (續)

#### 2.3.4 金融資產減值

基金就按攤銷成本值計量的金融資產(應收帳款除外)採用由3個階段組成的方法計量預期信用虧損及確認相應的虧損準備及減值虧損或回撥，預期信用虧損的計量基礎取決於自初始確認以來的信用風險變化：

第1階段：12個月的預期信用虧損

若自初始確認以來，金融工具的信用風險並無大幅增加，全期預期信用虧損中反映在報告日後12個月內可能發生的違約事件引致的預期信用虧損的部分予以確認。

第2階段：全期預期信用虧損 — 非信用減值

若自初始確認以來，金融工具的信用風險大幅增加，但並非信用減值，全期預期信用虧損(反映在金融工具的預期有效期內所有可能出現的違約事件引致的預期信用虧損)予以確認。

第3階段：全期預期信用虧損 — 信用減值

若金融工具已視作信用減值，會確認全期預期信用虧損，利息收入則應用實際利率計入攤銷成本值而非帳面值總額計算。

應收帳款的虧損準備一直按相等於全期預期信用虧損的金額計量。

## SIGNIFICANT ACCOUNTING POLICIES (continued)

### Financial assets and financial liabilities (continued)

#### Impairment of financial assets

The Fund applies a three-stage approach to measure expected credit losses on financial assets (other than trade receivables) measured at amortised cost and to recognise the corresponding loss allowances and impairment losses or reversals, with the change in credit risk since initial recognition determining the measurement bases for expected credit losses:

Stage 1: 12-month expected credit losses

For financial instruments for which there has not been a significant increase in credit risk since initial recognition, the portion of the lifetime expected credit losses that represent the expected credit losses that result from default events that are possible within the 12 months after the reporting date are recognised.

Stage 2: Lifetime expected credit losses — not credit impaired

For financial instruments for which there has been a significant increase in credit risk since initial recognition but that are not credit impaired, lifetime expected credit losses representing the expected credit losses that result from all possible default events over the expected life of the financial instruments are recognised.

Stage 3: Lifetime expected credit losses — credit impaired

For financial instruments that have become credit impaired, lifetime expected credit losses are recognised and interest income is calculated by applying the effective interest rate to the amortised cost rather than the gross carrying amount.

Loss allowances for trade receivables are always measured at an amount equal to lifetime expected credit losses.

2 主要會計政策(續)

2.3 金融資產及金融負債(續)

2.3.4 金融資產減值(續)

如何釐定信用風險大幅增加

在每個報告日，基金藉比較金融工具於報告日及於初始確認日期在餘下的預期有效期內出現違約的風險，以評估金融工具的信用風險有否大幅增加。有關評估會考慮數量及質量歷史資料，以及具前瞻性的資料。若發生一項或多於一項對某金融資產的估計未來現金流量有不利影響的事件，該金融資產會被評定為信用減值。

基金在個別或綜合基準上評估自初始確認以來信用風險有否大幅增加。就綜合評估而言，金融工具按共同信用風險特質的基準歸類，並考慮投資類別、信用風險評級及其他相關因素。

外部信用評級為投資級別的銀行存款被視為屬低信用風險。其他金融工具若其違約風險低，且交易對手或借款人具備雄厚實力在短期內履行其合約現金流量責任，會被視為屬低信用風險。此等金融工具的信用風險會被評定為自初始確認以來並無大幅增加。

若金融資產無法收回，該金融資產會與相關虧損準備撇銷。該等資產在完成所有必要程序及釐定虧損金額後撇銷。其後收回先前的被撇銷的金額會在全面收益表內確認。

SIGNIFICANT ACCOUNTING POLICIES (continued)

Financial assets and financial liabilities (continued)

Impairment of financial assets (continued)

Determining significant increases in credit risk

At each reporting date, the Fund assesses whether there has been a significant increase in credit risk for financial instruments since initial recognition by comparing the risk of default occurring over the remaining expected life as at the reporting date with that as at the date of initial recognition. The assessment considers quantitative and qualitative historical information as well as forward-looking information. A financial asset is assessed to be credit impaired when one or more events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred.

The Fund assesses whether there has been a significant increase in credit risk since initial recognition on an individual or collective basis. For collective assessment, financial instruments are grouped on the basis of shared credit risk characteristics, taking into account investment type, credit risk ratings and other relevant factors.

Placements with banks with an external credit rating of investment grade are considered to have a low credit risk. Other financial instruments are considered to have a low credit risk if they have a low risk of default and the counterparty or borrower has a strong capacity to meet its contractual cash flow obligations in the near term. The credit risk on these financial instruments is assessed as not having increased significantly since initial recognition.

When a financial asset is uncollectible, it is written off against the related loss allowance. Such assets are written off after all the necessary procedures have been completed and the amount of the loss has been determined. Subsequent recoveries of amounts previously written off are recognised in the statement of comprehensive income.

2 主要會計政策(續)

2.3 金融資產及金融負債(續)

2.3.4 金融資產減值(續)

計量預期信用虧損

金融工具的預期信用虧損是對該金融工具在預期有效期內的公平及經概率加權估計的信用虧損(即所有短缺現金的現值)。短缺現金為按照合約應付予基金的現金流量與基金預期會收到的現金流量兩者間的差距。若金融資產在報告日視作信用減值，基金根據該資產的帳面值總額與以折現方式按該資產的原訂實際利率計算的估計未來現金流量的現值兩者間的差距計量預期信用虧損。

2.4 物業、設備及器材

於1996年8月1日撥歸基金的物業、設備及器材，最初的成本值是按前立法局所通過成立基金的決議中所列的估值入帳。自1996年8月1日起購置的物業、設備及器材均按購入價入帳。

以下物業、設備及器材以成本值扣除累計折舊及任何減值虧損列帳(附註2.7)：

- 建築物；以及
- 設備及器材，包括電腦器材、車輛、傢具及固定裝置，以及其他器材。

折舊是按照物業、設備及器材的估計可使用年期，以直線法攤銷扣除估計剩餘價值後的成本值。有關的估計可使用年期如下：

- 建築物	10 - 35年
- 電腦器材	4 - 20年
- 車輛	5 - 9年
- 傢具及固定裝置	5 - 7年
- 其他器材	5 - 20年

基金的建築物所在的土地視為非折舊資產。

出售物業、設備及器材的損益以出售所得淨額與資產的帳面值之間的差額來決定，並在出售日於全面收益表內確認。

SIGNIFICANT ACCOUNTING POLICIES (continued)

Financial assets and financial liabilities (continued)

Impairment of financial assets (continued)

Measurement of expected credit losses

Expected credit losses of a financial instrument are an unbiased and probability-weighted estimate of credit losses (i.e. the present value of all cash shortfalls) over the expected life of the financial instrument. A cash shortfall is the difference between the cash flows due to the Fund in accordance with the contract and the cash flows that the Fund expects to receive. For a financial asset that is credit impaired at the reporting date, the Fund measures the expected credit losses as the difference between the asset's gross carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate.

Property, plant and equipment

Property, plant and equipment appropriated to the Fund on 1 August 1996 were measured initially at deemed cost equal to the value contained in the Legislative Council Resolution for the setting up of the Fund. Property, plant and equipment acquired since 1 August 1996 are capitalised at their costs of acquisition.

The following property, plant and equipment are stated at cost less accumulated depreciation and any impairment losses (note 2.7):

- buildings; and
- plant and equipment, including computer equipment, motor vehicles, furniture and fixtures, and other equipment.

Depreciation is calculated to write off the cost of property, plant and equipment, less their estimated residual value, on a straight-line basis over their estimated useful lives as follows:

- Buildings	10 - 35 years
- Computer equipment	4 - 20 years
- Motor vehicles	5 - 9 years
- Furniture and fixtures	5 - 7 years
- Other equipment	5 - 20 years

The land on which the Fund's buildings are situated is regarded as a non-depreciating asset.

Gains or losses arising from the disposal of property, plant and equipment are determined as the difference between the net disposal proceeds and the carrying amount of the asset, and are recognised in the statement of comprehensive income on the date of disposal.

**2 主要會計政策(續)****2.5 租賃**

租賃會於其生效日在財務狀況表內確認為使用權資產及相應的租賃負債，惟可變租賃款項、涉及租賃期為12個月或以下的短期租賃及低價值資產租賃的相關款項會在租賃期內以直線法計入全面收益表。

使用權資產會按成本值扣除累計折舊及減值虧損計量(附註2.7)。該使用權資產按租賃期及資產的估計可使用年期兩者中的較短者以直線法折舊。

租賃負債按在租賃期應支付的租賃款項的現值計量，並以租賃隱含利率折現，或如該利率未能確定，則以基金的遞增借款利率折現。租賃負債其後按租賃負債計提的利息與所支付的租賃款項作調整。

若基金改變其對會否行使延長租賃或終止租賃選擇權的評估，租賃負債將重新計量。在重新計量租賃負債時，有關使用權資產的帳面值會作出相應調整，或若使用權資產的帳面值已減少至零，則有關調整會列入全面收益表。

**2.6 無形資產**

無形資產包括購入的電腦軟件牌照及已資本化的電腦軟件程式開發成本值。若電腦軟件程式在技術上可行，而基金有足夠資源及有意完成開發工作，有關的開發費用會被資本化。無形資產按成本值扣除累計攤銷及任何減值虧損列帳(附註2.7)。

無形資產的攤銷按估計可使用年期(4至20年)以直線法列入全面收益表。

**SIGNIFICANT ACCOUNTING POLICIES (continued)****Leases**

A lease is recognised in the statement of financial position as a right-of-use asset with a corresponding lease liability at the lease commencement date, except that variable lease payments and payments associated with short-term leases having a lease term of 12 months or less and leases of low-value assets are charged to the statement of comprehensive income on a straight-line basis over the lease term.

A right-of-use asset is measured at cost less accumulated depreciation and impairment losses (note 2.7). The right-of-use asset is depreciated on a straight-line basis over the shorter of the lease term and the asset's estimated useful life.

The lease liability is measured at the present value of the lease payments payable over the lease term, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Fund's incremental borrowing rate. The lease liability is subsequently adjusted by the effect of the interest on and the settlement of the lease liability.

The lease liability is remeasured if the Fund changes its assessment of whether it will exercise an extension or termination option. When the lease liability is remeasured, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in the statement of comprehensive income if the carrying amount of the right-of-use asset has been reduced to zero.

**Intangible assets**

Intangible assets include acquired computer software licences and capitalised development costs of computer software programmes. Expenditure on development of computer software programmes is capitalised if the programmes are technically feasible and the Fund has sufficient resources and the intention to complete development. Intangible assets are stated at cost less accumulated amortisation and any impairment losses (note 2.7).

Amortisation of intangible assets is charged to the statement of comprehensive income on a straight-line basis over the assets' estimated useful lives of 4 to 20 years.

**2 主要會計政策(續)****2.7 非金融資產的減值**

非金融資產(包括物業、設備及器材、使用權資產和無形資產)的帳面值在每個報告日評估，以確定有否出現減值跡象。若有減值跡象而資產的帳面值高於其可收回數額時，則有關減值虧損會在全面收益表內確認。資產的可收回數額為其公平值減出售成本與使用值兩者中的較高者。

**2.8 存貨**

存貨是提供服務所需的材料。它們是以成本值與可實現淨值之中較低者列出，成本值是以加權平均成本法計算。所有存貨虧損及撇帳至可實現淨值的虧損會在虧損發生時確認為當期的一項開支。

提供服務時被支用的存貨，其帳面值會於確認其相關收入的同一期間確認為一項開支。

**2.9 等同現金**

等同現金指短期及流通性高的投資，該等項目在購入時距期滿日不超過3個月，並隨時可轉換為已知數額的現金，而其價值變動的風險不大。

**2.10 遞延收入**

在基金移轉服務予客戶前，若客戶支付代價，或基金具有無條件限制的代價收款權，基金會將其合約負債確認為遞延收入。基金在移轉服務以履行其履約責任時，會註銷確認遞延收入，並就收入加以確認。

**SIGNIFICANT ACCOUNTING POLICIES (continued)****Impairment of non-financial assets**

The carrying amounts of non-financial assets, including property, plant and equipment, right-of-use assets and intangible assets, are reviewed at each reporting date to identify any indication of impairment. If there is an indication of impairment, an impairment loss is recognised in the statement of comprehensive income whenever the carrying amount of an asset exceeds its recoverable amount. The recoverable amount of an asset is the higher of its fair value less costs of disposal and value in use.

**Inventories**

Inventories are materials to be consumed in the rendering of services. They are stated at the lower of cost and net realisable value, cost being determined using the weighted average cost method. The amount of any write-down of inventories to net realisable value and all losses of inventories are recognised as an expense in the period in which the write-down or loss occurs.

When inventories are consumed in the rendering of services, the carrying amount of those inventories is recognised as an expense in the period in which the related revenue is recognised.

**Cash equivalents**

Cash equivalents are short-term highly liquid investments that are readily convertible to known amounts of cash and subject to an insignificant risk of changes in value, having been within three months of maturity at the date of acquisition.

**Deferred revenue**

If a customer pays consideration, or the Fund has an unconditional right to consideration, before the Fund transfers a service to the customer, the Fund recognises its contract liability as deferred revenue. The Fund derecognises the deferred revenue and recognises revenue when the Fund transfers the service and, therefore, satisfies its performance obligation.



**2 主要會計政策 (續)****2.11 僱員福利**

基金的僱員包括公務員及合約員工。薪金、約滿酬金及年假開支均在僱員提供有關服務所在年度以應計基準確認入帳。就公務員而言，僱員附帶福利開支包括香港特別行政區政府（「政府」）給予僱員的退休金及房屋福利，均在僱員提供有關服務所在年度支銷。

就按可享退休金條款受聘的公務員的長俸負債已包括於支付予政府有關附帶福利開支中。就其他員工向強制性公積金計劃的供款於全面收益表內支銷。

**2.12 收入的確認**

基金會在向客戶移轉所承諾的服務以履行其履約責任時，按基金預期就交換該項服務所應得代價的金額，確認客戶合約的收入。

利息收入按實際利率法以應計方式確認。

**2.13 外幣換算**

本年度外幣交易，按交易當日的匯率換算為港元。以非港幣計算的貨幣資產及負債，均按報告日的收市匯率換算為港元。外匯換算產生的匯兌收益及虧損，會在全面收益表中確認。

**SIGNIFICANT ACCOUNTING POLICIES (continued)****Employee benefits**

The employees of the Fund comprise civil servants and contract staff. Salaries, staff gratuities and annual leave entitlements are accrued and recognised as expenditure in the year in which the associated services are rendered by the staff. For civil servants, staff on-costs, including pensions and housing benefits provided to the staff by the Government of the Hong Kong Special Administrative Region (the Government), are charged as expenditure in the year in which the associated services are rendered.

For civil servants employed on pensionable terms, their pension liabilities are discharged by reimbursement of the staff on-costs charged by the Government. For other staff, contributions to the Mandatory Provident Fund Scheme are charged to the statement of comprehensive income as incurred.

**Revenue recognition**

The Fund recognises revenue from contracts with customers when it satisfies a performance obligation by transferring a promised service to a customer, at the amount of consideration to which the Fund expects to be entitled in exchange for the service.

Interest income is recognised as it accrues using the effective interest method.

**Foreign currency translation**

Foreign currency transactions during the year are translated into Hong Kong dollars using the spot exchange rates at the transaction dates. Monetary assets and liabilities denominated in currencies other than Hong Kong dollars are translated into Hong Kong dollars using the closing exchange rate at the reporting date. Exchange gains and losses are recognised in the statement of comprehensive income.

**2 主要會計政策 (續)****2.14 撥備及或有負債**

如基金須就已發生的事件承擔法律或推定責任，而又可能需要付出經濟代價以履行該項責任，基金會在能夠可靠地估計涉及的金額時，為該項在時間上或金額上尚未確定的責任撥備。如金錢的時間價值重大，則會按預計履行該項責任所需開支的現值作出撥備。

若承擔有關責任可能無須付出經濟代價或是無法可靠地估計涉及的金額，該責任便會以或有負債的形式披露，除非須付出經濟代價的可能性極低。至於只能由日後是否發生某宗或多宗事件才確定會否出現的或然責任，亦會以或有負債的形式披露，除非須付出經濟代價的可能性極低。

**2.15 關連人士**

基金是根據《營運基金條例》成立，並屬政府轄下的一個獨立會計單位。年內，基金在日常業務中曾與各關連人士進行交易。這些關連人士包括政府各決策局及部門、其他營運基金，以及受政府所管制或政府對其有重大影響力的財政自主機構。

**SIGNIFICANT ACCOUNTING POLICIES (continued)****Provisions and contingent liabilities**

Provisions are recognised for liabilities of uncertain timing or amount when the Fund has a legal or constructive obligation arising as a result of a past event, it is probable that an outflow of economic benefits will be required to settle the obligation and a reliable estimate can be made. Where the time value of money is material, provisions are stated at the present value of the expenditure expected to settle the obligation.

Where it is not probable that an outflow of economic benefits will be required, or the amount cannot be estimated reliably, the obligation is disclosed as a contingent liability, unless the probability of outflow of economic benefits is remote. Possible obligations, whose existence will only be confirmed by the occurrence or non-occurrence of one or more future events, are also disclosed as contingent liabilities unless the probability of outflow of economic benefits is remote.

**Related parties**

The Fund is a separate accounting entity within the Government established under the Trading Funds Ordinance. During the year, the Fund has entered into transactions with various related parties, including government bureaux and departments, other trading funds and financially autonomous bodies controlled or significantly influenced by the Government, in the ordinary course of its business.

### 3 會計政策改變

香港會計師公會頒布了若干新增或經修訂的香港財務報告準則並於基金的本會計期首次生效。該等新準則或修訂對基金的會計政策並沒有影響。因此並未為會計政策帶來任何改變。

基金並沒有採納在本會計期尚未生效的任何新準則或詮釋(附註23)。

### CHANGES IN ACCOUNTING POLICIES

The HKICPA has issued certain new or revised HKFRSs that are first effective for the current accounting period of the Fund. None of them has impact on the accounting policies of the Fund. As such, there is no change to the accounting policies.

The Fund has not applied any new standard or interpretation that is not yet effective for the current accounting period (note 23).

### 4 來自客戶合約之收入

### REVENUE FROM CONTRACTS WITH CUSTOMERS

		2021	2020
機電及電子工程服務	Electrical, mechanical and electronic services	7,538,132	7,214,777
車輛工程服務	Vehicle services	431,033	391,925
工程及顧問服務	Project and consultancy services	563,896	443,748
其他	Others	44,760	36,765
<b>總額</b>	<b>Total</b>	<b>8,577,821</b>	8,087,215

基金在客戶合約方面的履約責任，主要涉及向客戶提供全面的機電及電子工程服務，車輛工程服務，以及工程及顧問服務。就按服務水平協議提供的服務而言，客戶須就每項服務按季預繳固定金額的服務費。基金是在提供服務的同時履行履約責任，並隨時間移轉按直線法確認收費。至於按其他合約提供的服務，基金是在提供服務的同時履行履約責任，並按成本比例法確認服務費。

The Fund's performance obligations in contracts with customers mainly involve providing comprehensive electrical, mechanical and electronic services, vehicle services, and project and consultancy services to the customers. For provision of services under service level agreements, a customer is required to pay a fixed amount of service fee quarterly for each service in advance. The Fund satisfies its performance obligation as the service is rendered and recognises the fee over time on a straight-line basis. For provision of services under other contracts, the Fund satisfies its performance obligation as the service is rendered and recognises a service fee based on a cost-to-cost method.

### 5 運作成本

### OPERATING COSTS

		2021	2020
員工費用	Staff costs	2,948,271	2,833,621
材料	Materials	543,616	515,322
承辦商費用	Contractors cost	4,336,782	3,788,219
租金及管理費用	Rental and management charges	36,514	34,235
一般運作及行政開支	General operating and administration expenses	346,155	306,037
折舊及攤銷	Depreciation and amortisation	165,401	115,514
審計費用	Audit fees	2,060	614
<b>總額</b>	<b>Total</b>	<b>8,378,799</b>	7,593,562

### 6 其他收入

### OTHER INCOME

		2021	2020
銀行存款利息	Interest income from bank deposits	35,004	92,853
外匯基金存款利息	Interest income from placement with the Exchange Fund	184,537	121,919
退還法定收費	Refund of statutory charges	-	9,155
<b>總額</b>	<b>Total</b>	<b>219,541</b>	223,927

自2017年5月起，基金為其辦公場地就《區域供冷服務條例》(第624章)下所享有的區域供冷服務被政府徵收費用。根據法律建議，基金作為在政府內設立的一個會計單位並無獨立法律地位，因此基金無須支付《區域供冷服務條例》下的法定收費。

相應地，基金無須再就區域供冷服務被政府徵收法定收費。而政府亦同意退還基金於2017年5月至2019年3月期間所支付的920萬港元法定收費，而相關款項已在截至2020年3月31日止年度的全面收益表中確認為其他收入。

The Fund had been charged for the district cooling services for its office premises under the District Cooling Services Ordinance (Cap. 624) since May 2017. According to the legal advice, the Fund is an accounting entity within the Government not having a separate legal existence and hence the statutory charges under the District Cooling Services Ordinance is not payable from the Fund.

Accordingly, the Fund is no longer charged for the statutory charges of district cooling services. The Government agreed to refund the statutory charges paid by the Fund for the period from May 2017 to March 2019 of HK\$9.2 million, which was recognised as other income in the statement of comprehensive income for the year ended 31 March 2020.

### 7 固定資產回報率

### RATE OF RETURN ON FIXED ASSETS

固定資產回報率(其產生辦法與採納香港財務報告準則第16號「租賃」(見附註2.5)前相同，以便比較)是以總全面收益(不包括利息收入)除以固定資產平均淨值計算，並以百分比的方式表達。固定資產只包括物業、設備及器材和無形資產。預期基金可以達到由財政司司長釐定的每年固定資產目標回報率為6.4%(2020: 6.4%)。

The rate of return on fixed assets, the derivation of which is consistent with that before the adoption of HKFRS 16 "Leases" (see note 2.5) to achieve comparability, is calculated as total comprehensive income (excluding interest income) divided by average net fixed assets, and expressed as a percentage. Fixed assets include property, plant and equipment, and intangible assets only. The Fund is expected to meet a target rate of return on fixed assets of 6.4% (2020: 6.4%) per year as determined by the Financial Secretary.

8 物業、設備及器材

PROPERTY, PLANT AND EQUIPMENT

		土地及 建築物	電腦器材	車輛	傢具及 固定裝置 Furniture and fixtures	其他器材	總額
		Land and buildings	Computer equipment	Motor vehicles	Other equipment		Total
<b>成本</b>	<b>Cost</b>						
在2019年4月1日	At 1 April 2019	950,100	162,372	57,970	206,937	128,897	1,506,276
添置	Additions	-	43,373	6,594	119,101	54,051	223,119
出售	Disposals	-	-	(1,462)	(9,322)	(1,048)	(11,832)
在2020年3月31日	At 31 March 2020	950,100	205,745	63,102	316,716	181,900	1,717,563
在2020年4月1日	At 1 April 2020	<b>950,100</b>	<b>205,745</b>	<b>63,102</b>	<b>316,716</b>	<b>181,900</b>	<b>1,717,563</b>
添置	Additions	-	<b>62,339</b>	<b>5,927</b>	<b>90,310</b>	<b>77,364</b>	<b>235,940</b>
出售	Disposals	-	<b>(2,747)</b>	<b>(1,381)</b>	<b>(2,576)</b>	<b>(248)</b>	<b>(6,952)</b>
在2021年3月31日	At 31 March 2021	<b>950,100</b>	<b>265,337</b>	<b>67,648</b>	<b>404,450</b>	<b>259,016</b>	<b>1,946,551</b>
<b>累計折舊</b>	<b>Accumulated depreciation</b>						
在2019年4月1日	At 1 April 2019	231,477	92,348	39,755	92,177	40,668	496,425
年內費用	Charge for the year	7,778	25,536	7,344	35,273	14,691	90,622
出售	Disposals	-	-	(1,462)	(9,322)	(1,048)	(11,832)
在2020年3月31日	At 31 March 2020	239,255	117,884	45,637	118,128	54,311	575,215
在2020年4月1日	At 1 April 2020	<b>239,255</b>	<b>117,884</b>	<b>45,637</b>	<b>118,128</b>	<b>54,311</b>	<b>575,215</b>
年內費用	Charge for the year	<b>7,777</b>	<b>33,561</b>	<b>7,524</b>	<b>52,601</b>	<b>23,943</b>	<b>125,406</b>
出售	Disposals	-	<b>(2,747)</b>	<b>(1,381)</b>	<b>(2,576)</b>	<b>(211)</b>	<b>(6,915)</b>
在2021年3月31日	At 31 March 2021	<b>247,032</b>	<b>148,698</b>	<b>51,780</b>	<b>168,153</b>	<b>78,043</b>	<b>693,706</b>
<b>帳面淨值</b>	<b>Net book value</b>						
在2021年3月31日	At 31 March 2021	<b>703,068</b>	<b>116,639</b>	<b>15,868</b>	<b>236,297</b>	<b>180,973</b>	<b>1,252,845</b>
在2020年3月31日	At 31 March 2020	710,845	87,861	17,465	198,588	127,589	1,142,348

9 租賃

LEASES

(a) 使用權資產

Right-of-use assets

		2021	2020
<b>成本</b>	<b>Cost</b>		
在年初	At beginning of year	<b>46,150</b>	31,659
添置	Additions	<b>26,496</b>	14,491
在年終	At end of year	<b>72,646</b>	46,150
<b>累計折舊</b>	<b>Accumulated depreciation</b>		
在年初	At beginning of year	<b>8,826</b>	-
年內費用	Charge for the year	<b>11,440</b>	8,826
在年終	At end of year	<b>20,266</b>	8,826
<b>帳面淨值</b>	<b>Net book value</b>		
在年終	At end of year	<b>52,380</b>	37,324

(b) 租賃負債

Lease liabilities

		2021	2020
流動	Current	<b>13,090</b>	9,221
非流動	Non-current	<b>39,771</b>	28,628
<b>總額</b>	<b>Total</b>	<b>52,861</b>	37,849

下表顯示租賃負債的變動，包括現金及非現金變動。

The table below shows changes in lease liabilities, including both cash and non-cash changes.

		2021	2020
在年初	At beginning of year	<b>37,849</b>	31,659
來自融資現金流量的變動：	Changes from financing cash flows:		
租賃款項	Lease payments	<b>(12,025)</b>	(8,895)
非現金變動：	Non-cash changes:		
租賃負債的利息支出	Interest expense on lease liabilities	<b>541</b>	594
與新租賃相關的租賃負債增加	Increase in lease liabilities relating to new leases	<b>26,496</b>	14,491
在年終	At end of year	<b>52,861</b>	37,849

9 租賃(續)

LEASES (continued)

(b) 租賃負債(續)

租賃負債的剩餘合約期限列載如下，有關資料是根據合約未貼現的現金流量列出：

		2021	2020
1年內	Within one year	13,519	9,730
1年後至2年內	After one year but within two years	11,376	9,093
2年後至5年內	After two years but within five years	27,017	18,858
5年後	After five years	1,974	1,517
<b>總額</b>	<b>Total</b>	<b>53,886</b>	39,198

(c) 於全面收益表內確認與租賃有關的支出項目

Expense items in relation to lease recognised in the statement of comprehensive income

		2021	2020
租賃負債的利息支出	Interest expense on lease liabilities	541	594

(d) 租賃之現金流出總額

Total cash outflow for leases

		2021	2020
租賃款項	Lease payments	12,025	8,895

Lease liabilities (continued)

The remaining contractual maturities of lease liabilities, which are based on contractual undiscounted cash flows, are shown below:

10 無形資產

INTANGIBLE ASSETS

電腦軟件牌照及系統開發成本  
Computer software licences  
and system development costs

		2021	2020
<b>成本</b>	<b>Cost</b>		
在年初	At beginning of year	157,899	120,039
添置	Additions	56,181	37,860
在年終	At end of year	214,080	157,899
<b>累計攤銷</b>	<b>Accumulated amortisation</b>		
在年初	At beginning of year	74,809	58,743
年內費用	Charge for the year	28,555	16,066
在年終	At end of year	103,364	74,809
<b>帳面淨值</b>	<b>Net book value</b>		
在年終	At end of year	110,716	83,090

11 外匯基金存款

外匯基金存款結餘包括本金50億港元(2020: 30億港元)及為報告日已入帳但尚未提取的利息11.562億港元(2020: 10.061億港元)。存款期為期六年(由存款日起計)，期內不能提取本金。

外匯基金存款利息按每年1月釐定的固定息率計算。該息率是外匯基金投資組合過去6年的平均年度投資回報，或3年期政府債券在上一個年度的平均年度收益率，以0%為下限，兩者取其較高者。2021年固定息率為每年4.7%，2020年為每年3.7%。

PLACEMENT WITH THE EXCHANGE FUND

The balance of the placement with the Exchange Fund comprised principal sums of HK\$5,000 million (2020: HK\$3,000 million) and interest paid but not yet withdrawn at the reporting date of HK\$1,156.2 million (2020: HK\$1,006.1 million). The term of the placement is six years from the date of placement, during which the amount of principal sums cannot be withdrawn.

Interest on the placement is payable at a fixed rate determined every January. The rate is the average annual investment return of the Exchange Fund's Investment Portfolio for the past six years or the average annual yield of three-year Government Bonds for the previous year subject to a minimum of zero percent, whichever is the higher. The interest rate has been fixed at 4.7% per annum for the year 2021 and at 3.7% per annum for the year 2020.

12 應收帳款及其他應收款項

TRADE AND OTHER RECEIVABLES

		2021	2020
應收帳款	Trade receivables	6	71
預付款項	Prepayments	2,280	1,253
銀行存款應計利息	Accrued interest from bank deposits	261	14,536
外匯基金存款應計利息	Accrued interest from placement with the Exchange Fund	71,344	36,854
<b>總額</b>	<b>Total</b>	<b>73,891</b>	52,714

### 13 與客戶的合約結餘

#### (a) 應收款項和合約資產

就提供予公眾的服務而言，在報告日的應收款項結餘即載於附註12的應收帳款。至於提供予關連人士的服務，在報告日的應收款項結餘為3.560億港元（2020：3.501億港元）並載於財務狀況表中的應收關連人士帳款。而基金並沒有任何源於這些服務的合約資產。

#### (b) 合約負債

基金在收取客戶預繳的費用後向客戶提供服務的責任，會於財務狀況表中以遞延收入的形式列出，分析如下：

遞延收入	Deferred revenue	2021	2020
機電及電子工程服務	Electrical, mechanical and electronic services	674,836	957,337
車輛工程服務	Vehicle services	104,140	76,609
工程及顧問服務	Project and consultancy services	65,220	107,249
<b>總額</b>	<b>Total</b>	<b>844,196</b>	1,141,195
代表：	Representing:		
向關連人士提供之服務	Services to related parties	830,175	1,130,504
向公眾提供之服務	Services to the general public	14,021	10,691
<b>總額</b>	<b>Total</b>	<b>844,196</b>	1,141,195

年內遞延收入結餘的重大變動開列如下：

Significant changes in the balances of deferred revenue during the year are shown below:

		2021	2020
因年初遞延收入結餘中的款項於年內獲確認為收入而減少	Decrease due to recognition as revenue during the year that was included in the balances of deferred revenue at beginning of year	(1,033,814)	(1,178,721)
因年內收取預繳費用而增加	Increase due to advance payments received during the year	736,815	800,967

在報告日，分攤至基金現有合約下剩餘履約責任的交易價格總額估計為207.785億港元（2020：208.984億港元），基金預期該金額於未來5年內獲確認為收入。沒有任何客戶合約的代價未納入交易價格。

At the reporting date, the aggregate amount of the transaction price allocated to the remaining performance obligations under the Fund's existing contracts is estimated at HK\$20,778.5 million (2020: HK\$20,898.4 million), which is expected to be recognised as revenue over the next five years. No consideration from contracts with customers is not included in the transaction price.

### CONTRACT BALANCES WITH CUSTOMERS

#### Receivables and contract assets

For services provided to the general public, the balance of receivables at the reporting date is presented as trade receivables in note 12. For services provided to related parties, the balance of receivables at the reporting date of HK\$356.0 million (2020: HK\$350.1 million) is included in the amounts due from related parties in the statement of financial position. The Fund does not have any contract assets arising from these services.

#### Contract liabilities

The Fund's obligations to provide services to customers for which the Fund has received advance payments from the customers are presented as deferred revenue in the statement of financial position, as analysed below:

### 14 客戶按金

指向客戶提供工程服務前收取的按金。有關按金用以支付應由客戶付予承辦商的採購費用。

### CUSTOMERS' DEPOSITS

This represents deposits received from customers in the provision of project services. The deposits are used to settle procurement costs payable by the customers to contractors.

### 15 僱員福利撥備

此為在計至報告日就所提供的服務給予僱員年假及合約員工約滿酬金的估計負債（見附註2.11）。

### PROVISION FOR EMPLOYEE BENEFITS

This represents the estimated liability for employees' annual leave and obligations on contract end gratuities payable to contract staff for services rendered up to the reporting date (see note 2.11).

### 16 營運基金資本

此為政府對基金的投資。

### TRADING FUND CAPITAL

This represents the Government's investment in the Fund.

### 17 保留盈利

		2021	2020
在年初的結餘	Balance at beginning of year	5,431,607	4,899,919
年度總全面收益	Total comprehensive income for the year	418,563	717,580
法定回報	Statutory return	(73,491)	(185,892)
<b>在年終的結餘</b>	<b>Balance at end of year</b>	<b>5,776,679</b>	5,431,607

年內，政府根據《營運基金條例》指示將截至2020年3月31日止年度的目標回報（見附註7）轉撥至政府一般收入，而該轉撥於2021年3月完成（2020：截至2019年3月31日止3個年度的目標回報的轉撥於2020年4月完成）。

During the year, the Government directed the transfer of the target return (see note 7) for the year ended 31 March 2020 into general revenue pursuant to the Trading Funds Ordinance, and the transfer was completed in March 2021 (2020: the transfer of the target returns for the three years ended 31 March 2019 was completed in April 2020).

### 18 現金及等同現金

### CASH AND CASH EQUIVALENTS

		2021	2020
現金及銀行結餘	Cash and bank balances	12,948	14,421
銀行存款	Bank deposits	2,590,000	5,375,000
小計	Subtotal	2,602,948	5,389,421
減：原有期限為3個月以上的銀行存款	Less: Bank deposits with original maturities over three months	(680,000)	(4,410,000)
<b>現金及等同現金</b>	<b>Cash and cash equivalents</b>	<b>1,922,948</b>	979,421

## 19 資本承擔

在2021年3月31日，基金尚未在財務報表內撥備的資本承擔如下：

		2021	2020
已批准及簽約	Authorised and contracted for	23,702	47,981
已批准惟未簽約	Authorised but not yet contracted for	119,991	110,043
<b>總額</b>	<b>Total</b>	<b>143,693</b>	158,024

## 20 或有負債

於2021年3月31日，基金就一銀行向若干受益客戶發出的2,660萬港元(2020：2,650萬港元)履約保證書向該銀行提供相應的損害賠償保證，有關客戶為基金的關連人士。

## 21 關連人士的交易

除已在本財務報表內另作披露的交易外，年內與關連人士進行的其他重大交易摘述如下：

- (a) 向關連人士提供的服務包括機電及電子工程服務、車輛工程服務，以及工程及顧問服務。這些服務的總收入為85.766億港元(2020：80.859億港元)；
- (b) 由關連人士提供的服務包括維修、辦公地方、中央行政，以及審計。這些服務的總支出為1.133億港元(2020：1.078億港元)；以及
- (c) 向關連人士購入的物業、設備及器材包括裝置工程及車輛。這些資產的總成本為460萬港元(2020：350萬港元)。

向關連人士提供的服務，是以成本加成本定價。而由關連人士提供的服務，若有關服務亦有提供予公眾，則以公眾所須付的價格收費，否則按收回全部成本方式計算。

## CAPITAL COMMITMENTS

As at 31 March 2021, the Fund had capital commitments, so far as not provided for in the financial statements, as follows:

		2021	2020
Authorised and contracted for		23,702	47,981
Authorised but not yet contracted for		119,991	110,043
<b>Total</b>		<b>143,693</b>	158,024

## CONTINGENT LIABILITIES

As at 31 March 2021, the Fund had provided a bank with counter-indemnity in respect of performance bonds for HK\$26.6 million (2020: HK\$26.5 million) issued by the bank in favour of certain customers who are related parties of the Fund.

## RELATED PARTY TRANSACTIONS

Apart from those separately disclosed in the financial statements, the other material related party transactions for the year are summarised as follows:

- (a) services provided to related parties included electrical, mechanical and electronic services, vehicle services, and project and consultancy services. The total revenue derived from these services amounted to HK\$8,576.6 million (2020: HK\$8,085.9 million);
- (b) services received from related parties included maintenance, accommodation, central administration and auditing. The total cost incurred on these services amounted to HK\$113.3 million (2020: HK\$107.8 million); and
- (c) acquisition of property, plant and equipment from related parties included fitting out projects and motor vehicles. The total cost of these assets amounted to HK\$4.6 million (2020: HK\$3.5 million).

Services provided to related parties were priced on a cost-plus basis. Services received from related parties were charged at the rates payable by the general public for services which were also available to the public or on a full cost recovery basis for services which were available only to related parties.

## 22 金融風險管理

### 22.1 投資政策

基金將現金盈餘投放於金融工具，包括定期存款及外匯基金存款。根據基金的政策，所有投放於金融工具的投資均應保本。

### 22.2 信用風險

信用風險指金融工具的一方將不能履行責任而且會引致另一方蒙受財務損失的風險。

基金的信用風險，主要取決於外匯基金存款、應收帳款及其他應收款項、應收關連人士帳款、銀行存款及銀行結餘。基金訂有風險政策，並持續監察須承擔的信用風險。

為盡量減低信用風險，所有定期存款均存放於香港的持牌銀行。這些金融資產被視為屬低信用風險。虧損準備按相等於12個月預期信用虧損的數額計量，基金評定所涉及的虧損並不重大。

銀行存款及銀行結餘的信用質素，以穆迪或其等同指定的評級，分析如下：

		2021	2020
信用評級：	Credit rating:		
Aa1 至 Aa3	Aa1 to Aa3	212,925	694,421
A1 至 A3	A1 to A3	1,990,000	4,015,000
Baa1 至 Baa3	Baa1 to Baa3	400,000	680,000
<b>總額</b>	<b>Total</b>	<b>2,602,925</b>	5,389,421

雖然其他金融資產須符合減值規定，但基金估計其預期信用虧損輕微，因此無須作出虧損準備。

在報告日基金的金融資產所須承擔的最高信用風險數額相當於其帳面值。

## FINANCIAL RISK MANAGEMENT

### Investment policy

Surplus cash is invested in financial instruments including fixed deposits and placement with the Exchange Fund. It is the Fund's policy that all investments in financial instruments should be principal-protected.

### Credit risk

Credit risk is the risk that one party to a financial instrument will fail to discharge an obligation and cause the other party to incur a financial loss.

The Fund's credit risk is primarily attributable to placement with the Exchange Fund, trade and other receivables, amounts due from related parties, bank deposits and bank balances. The Fund has a credit policy in place and the exposure to these credit risks is monitored on an ongoing basis.

To minimise credit risks, all fixed deposits are placed with licensed banks in Hong Kong. These financial assets are considered to have a low credit risk. The loss allowances are measured at amounts equal to 12-month expected credit losses, which are assessed to be immaterial by the Fund.

The credit quality of bank deposits and bank balances, analysed by the ratings designated by Moody's or their equivalents, is shown below:

While other financial assets are subject to the impairment requirements, the Fund has estimated that their expected credit losses are minimal and considers that no loss allowance is required.

The maximum exposure to credit risk of the financial assets of the Fund at the reporting date is equal to their carrying amounts.

## 22 金融風險管理(續)

### 22.3 流動資金風險

流動資金風險指某一實體將難以履行與金融負債相關的責任的風險。

基金採用預計現金流量分析來管理流動資金風險，透過預測所需的現金款額及監察基金的營運資金，確保可以支付所有到期負債及已知的資金需要。

### 22.4 利率風險

利率風險指因市場利率變動而引致虧損的風險。利率風險可進一步分為公平值利率風險及現金流量利率風險。

公平值利率風險指金融工具的公平值會因市場利率變動而波動的風險。由於基金的所有銀行存款均按固定利率計息，當市場利率上升，這些存款的公平值便會下跌。然而，由於這些存款均按攤銷成本值列帳，市場利率的變動不會影響其帳面值及基金的盈利和儲備。

現金流量利率風險指金融工具的未來現金流量會因市場利率變動而波動的風險。基金無須面對重大的現金流量利率風險，因為其持有的主要金融工具都不是浮息金融工具。

### 22.5 貨幣風險

貨幣風險指金融工具的公平值或未來現金流量會因匯率變動而波動的風險。

基金沒有重大的貨幣風險，因為其金融工具絕大部分是以港元為本位。

### 22.6 其他金融風險

基金因於每年1月釐定的外匯基金存款息率(附註11)的變動而須面對金融風險。於2021年3月31日，假設2020年及2021年的息率增加/減少50個基點(2020: 50個基點)而其他因素不變，估計年度盈利將增加/減少3,080萬港元(2020: 2,000萬港元)。

## FINANCIAL RISK MANAGEMENT (continued)

### Liquidity risk

Liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities.

The Fund employs projected cash flow analysis to manage liquidity risk by forecasting the amount of cash required and monitoring the working capital of the Fund to ensure that all liabilities due and known funding requirements could be met.

### Interest rate risk

Interest rate risk refers to the risk of loss arising from changes in market interest rates. This can be further classified into fair value interest rate risk and cash flow interest rate risk.

Fair value interest rate risk is the risk that the fair value of a financial instrument will fluctuate because of changes in market interest rates. Since all of the Fund's bank deposits bear interest at fixed rates, their fair values will fall when market interest rates increase. However, as they are all stated at amortised cost, changes in market interest rates will not affect their carrying amounts and the Fund's profit and reserves.

Cash flow interest rate risk is the risk that future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Fund is not exposed to material cash flow interest rate risk because it has no major financial instruments bearing interest at a floating rate.

### Currency risk

Currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates.

The Fund does not have significant exposure to currency risk as substantially all of its financial instruments are denominated in Hong Kong dollars.

### Other financial risk

The Fund is exposed to financial risk arising from changes in the interest rate on the placement with the Exchange Fund which is determined every January (note 11). It was estimated that, as at 31 March 2021, a 50 basis point (2020: 50 basis point) increase/decrease in the interest rates for 2020 and 2021, with all other variables held constant, would increase/decrease the profit for the year by HK\$30.8 million (2020: HK\$20.0 million).

## 22 金融風險管理(續)

### 22.7 公平值

在活躍市場買賣的金融工具的公平值是根據報告日的市場報價釐定。如沒有該等市場報價，則以現值或其他估值方法以報告日的市況數據評估其公平值。

所有金融工具均以與其公平值相等或相差不大的金額在財務狀況表內列帳。

## 23 已頒布但於截至2021年3月31日止年度尚未生效的修訂、新準則及詮釋的可能影響

直至本財務報表發出之日，香港會計師公會已頒布多項修訂、新準則及詮釋。該等修訂、新準則及詮釋在截至2021年3月31日止年度尚未生效，亦沒有在本財務報表中採納。

基金正就該等修訂、新準則及詮釋在首次採納期間預計會對其財務報表產生的影響進行評估。迄今的結論是採納該等修訂、新準則及詮釋不大可能會對財務報表有重大影響。

## FINANCIAL RISK MANAGEMENT (continued)

### Fair values

The fair value of financial instruments traded in active markets is based on quoted market prices at the reporting date. In the absence of such quoted market prices, fair values are estimated using present value or other valuation techniques, using inputs based on market conditions existing at the reporting date.

All financial instruments are stated in the statement of financial position at amounts equal to or not materially different from their fair values.

## POSSIBLE IMPACT OF AMENDMENTS, NEW STANDARDS AND INTERPRETATIONS ISSUED BUT NOT YET EFFECTIVE FOR THE YEAR ENDED 31 MARCH 2021

Up to the date of issue of these financial statements, the HKICPA has issued a number of amendments, new standards and interpretations which are not yet effective for the year ended 31 March 2021 and which have not been adopted in these financial statements.

The Fund is in the process of making an assessment of the expected impact of these amendments, new standards and interpretations on its financial statements in the period of initial application. So far it has concluded that the adoption of them is unlikely to have a significant impact on the financial statements.

# 鳴謝

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懲教署	Correctional Services Department
香港海關	Customs and Excise Department
衛生署	Department of Health
渠務署	Drainage Services Department
教育局	Education Bureau
消防處	Fire Services Department
食物環境衛生署	Food and Environmental Hygiene Department
政府產業署	Government Property Agency
路政署	Highways Department
香港警務處	Hong Kong Police Force
醫院管理局	Hospital Authority
入境事務處	Immigration Department
康樂及文化事務署	Leisure and Cultural Services Department
北區醫院	North District Hospital
運輸署	Transport Department
將軍澳醫院	Tseung Kwan O Hospital
屯門醫院	Tuen Mun Hospital





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