

A YEAR OF RECOVERY

ANNUAL REPORT 2022/23

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A Year of Recovery

After more than two years battling Covid-19, a new dawn has begun for Changi Airport with the relaxation of travel restrictions in April 2022. The return of more passengers, new air links and aircraft movements propelled Changi's strong recovery. During the year, Changi Airport Group reopened the doors of Terminal 4 (T4) and the southern wing of the newly revamped Terminal 2 (T2) to cater to the surge in travel demand. This marked Changi's return to four-terminal operations to welcome back passengers and rekindle the magic of the Changi Experience.

In tandem, travel retail sales have also seen a revival with Changi's stores seeing shoppers and diners make a comeback. The opening of T2 South ushered in new-to-Changi brands, refreshing the retail and F&B mix. At the same time, Jewel Changi Airport continued to update its offerings, with both homegrown and international brands setting up shop at the unique leisure and lifestyle destination.

Throughout this journey, the airport community braved challenges together and continued to keep the ONE Changi spirit flying high, upholding the world-class service levels that

Changi has worked hard to build. For this, Changi was presented the World's Best Airport award by Skytrax for the 12th time. The airport has received more than 660 awards since its opening, making it the most awarded airport in the world.

As international borders open and air travel rebounds, the aviation industry is showing promise with many possibilities for growth. Riding on this wave of recovery, Changi also seeks to transform service excellence by pushing the boundaries of what defines an airport, with innovation taking centre stage in its pursuit to create the airport of the future.



Reconnecting to the World

The rapid air travel recovery has seen Changi Airport rebuilding its connectivity to the world and reclaiming its position as one of the world's busiest air hubs, with the highest international recovery among Asian airports in 2022. With over 5,800 weekly flights served by 102 airlines to 145 cities, Changi continues to serve as a key gateway for the region, connecting lives and bringing people from all over the world together.





Over 5,800
weekly flights served by
102 airlines to
145 cities

Rediscovering the Wonders of Changi

As an airport, Changi aspires to be so much more to make travelling fun and stress-free. With the resumption of four-terminal operations, there is plenty for passengers to discover at Changi. Its wonders include getting close to nature with gardens and butterflies, taking a dip in the pool, catching a free movie, enjoying a relaxing snooze and much more before a flight. For a smoother passenger journey, the new fully automated immigration clearance enables seamless travel to local residents and foreign travellers from more than 50 eligible jurisdictions, as well as those on wheelchairs or in family groups.



Koi pond at Terminal 3 offers passengers in transit

a soothing and calming respite



Reviving Travel Retail

Air travel has recovered steadily and travel retail in Changi Airport has also seen a revival in tandem. Building on the confidence that brands and retailers have in the Changi air hub, the shopping and dining offerings within Changi's terminals and Jewel Changi Airport have been refreshed. Despite some uncertainty in the business climate, CAG successfully concluded more than 140 airside concession leases and secured 19 new-to-Changi brands and concepts. At the landside, there were 28 new awards, of which 23 are new-to-Changi brands.

More than 140 airside concession leases were secured, including **19 new-to-Changi brands and concepts.**



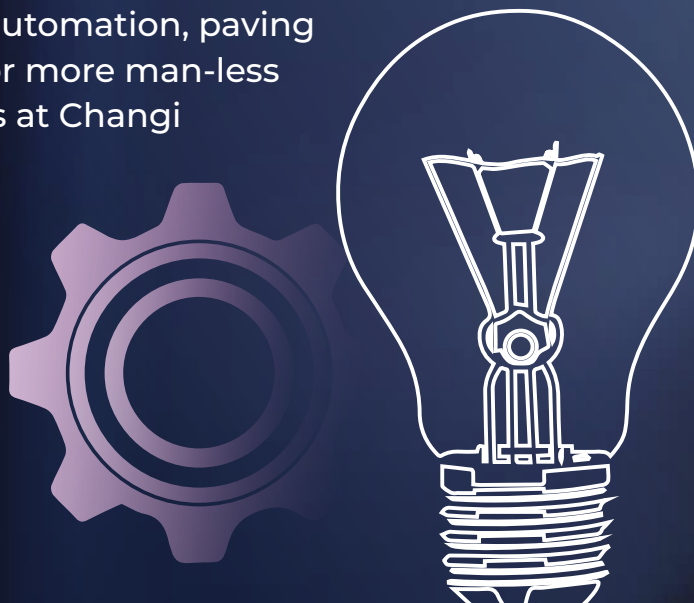


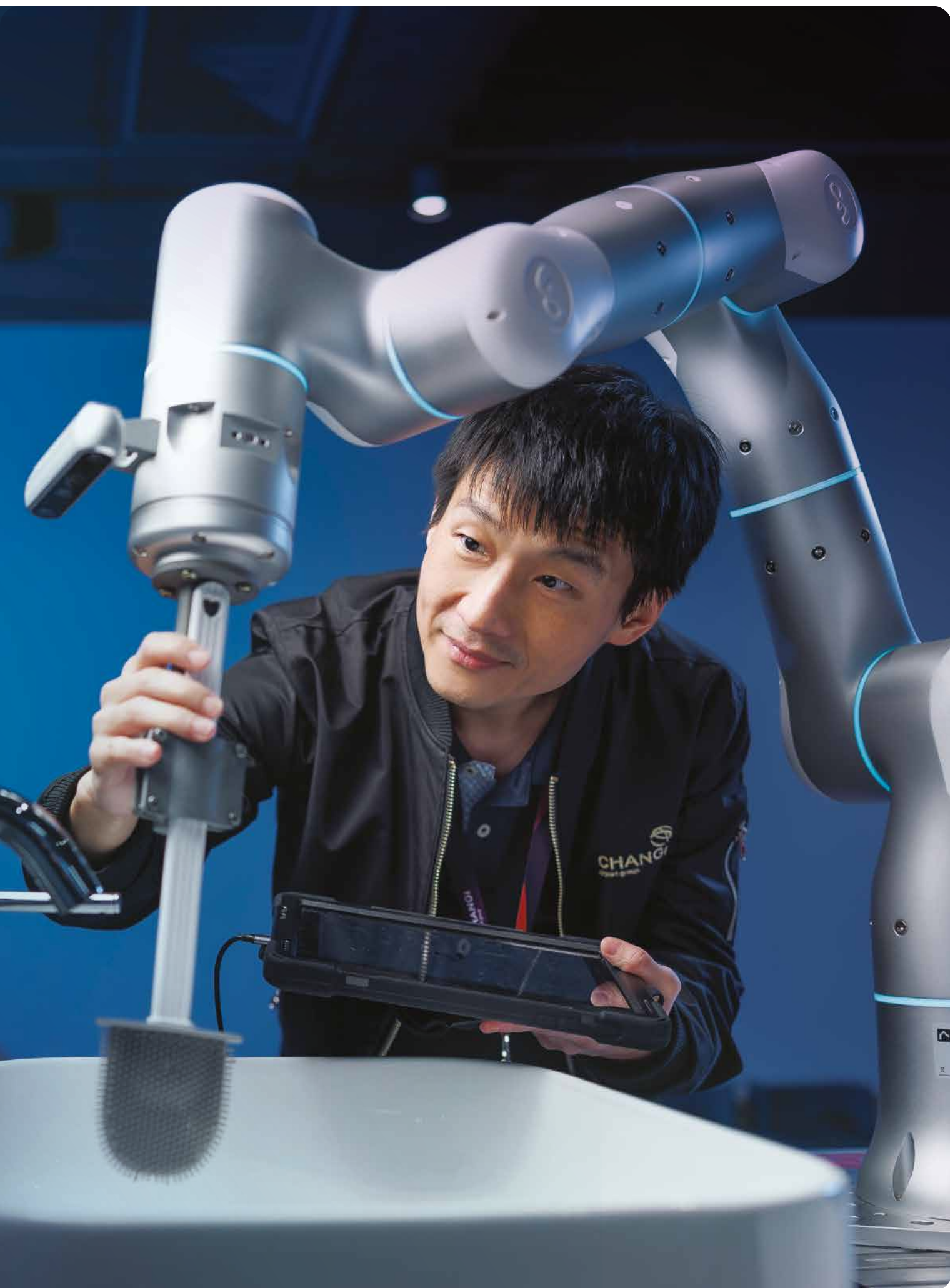
Creating the Airport of the Future

Innovation is key to Changi Airport's development and operational excellence. As the world moves into a post-Covid era, Changi continues to transform its operations with agility to improve efficiencies, tackle manpower challenges and enhance the passenger experience. Through the use of innovative technologies such as extended reality, machine learning, Internet of Things and edge computing, CAG is preparing for an airport of the future.

Revolutionising facilities management

with robotics-based cleaning automation, paving the way for more man-less operations at Changi







Enhancing the Workplace Experience

Following the easing of Covid-19 restrictions, CAG established a hybrid work arrangement to offer flexibility for its employees while ensuring that business and operations continue to run smoothly. To enhance the workplace experience and foster social cohesion among employees, new initiatives were launched, including barista-made coffee and tea on common back-in-office days. In-office activities are also held to appreciate employees and celebrate achievements.

A huge part of what makes CAG lies in its people.

CAG makes it a priority to treat employees with the same level of care and passion as we would to travellers who pass through Changi Airport daily





Powering a Sustainable Changi

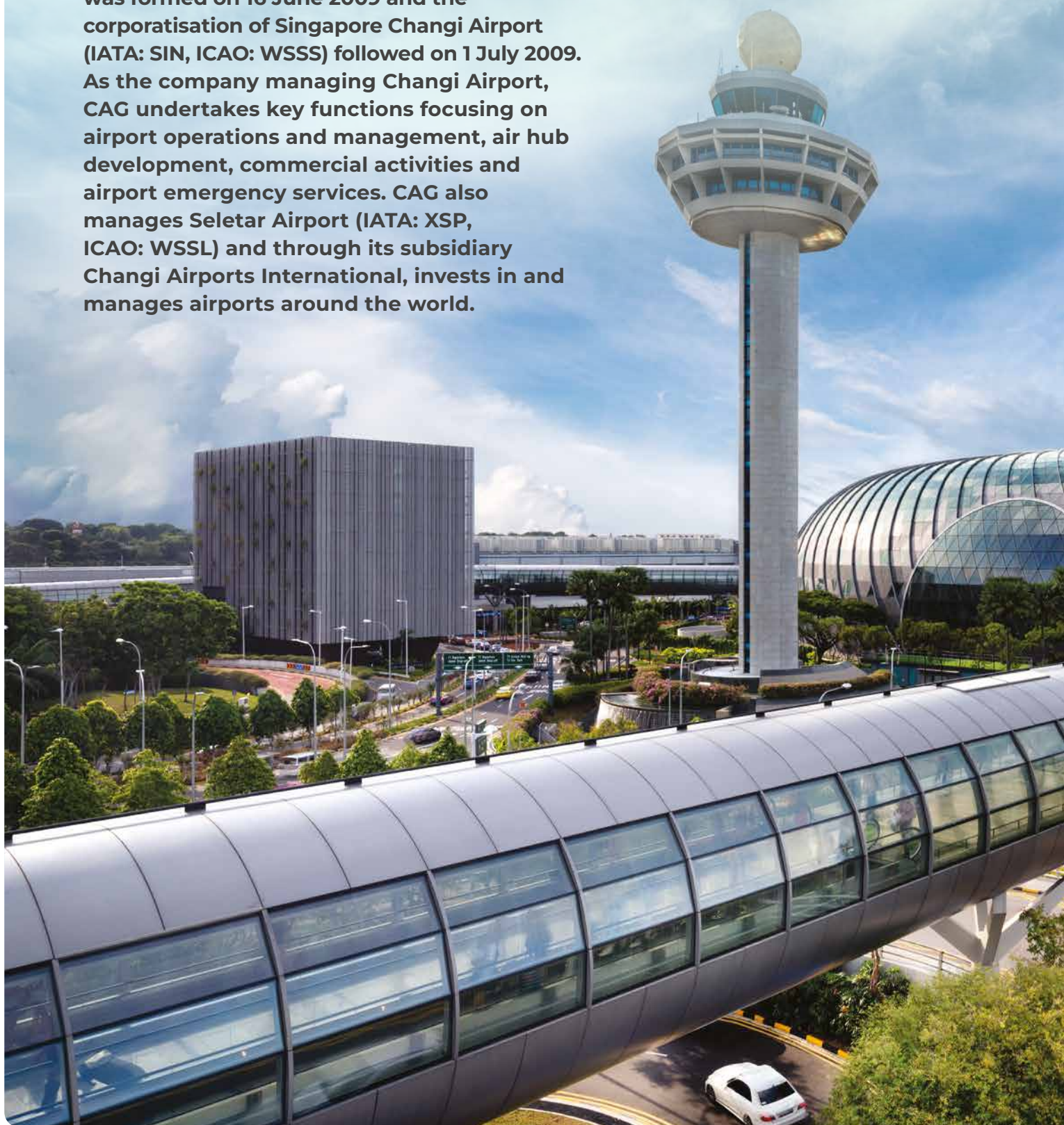
CAG is committed to advancing Changi Airport as a sustainable aviation hub. CAG is targeting zero carbon growth until 2030, capping absolute carbon emissions at 2018 levels even as the airport continues to grow its operations. In the longer term, CAG strives towards a Net Zero aspiration by 2050 through the use of new technologies and the increased adoption of renewable energy. To promote more sustainable air travel, CAG also supports green initiatives by airport partners, including the adoption of Sustainable Aviation Fuel by airlines and the use of cleaner energy vehicles on the airside by ground handlers.

CAG
aspires towards
Net Zero
by 2050



Corporate Profile

Changi Airport Group (Singapore) Pte Ltd (CAG) was formed on 16 June 2009 and the corporatisation of Singapore Changi Airport (IATA: SIN, ICAO: WSSS) followed on 1 July 2009. As the company managing Changi Airport, CAG undertakes key functions focusing on airport operations and management, air hub development, commercial activities and airport emergency services. CAG also manages Seletar Airport (IATA: XSP, ICAO: WSSL) and through its subsidiary Changi Airports International, invests in and manages airports around the world.



Vision, Mission and Values



Our Vision

To be a first-in-class, leading global aviation hub run by exceptional people, connecting lives and businesses, contributing to the economic growth of Singapore.



Our Values

Our values and culture guide us in everything we do. They are the foundation for our decisions and the heart of our organisation. Changi Airport Group is about world-class service, delivered through our passion and culture of excellence.

We value
Our People

We lead in
Our Business

Integrity and Service

are at the Heart of everything we do

We are committed to
Our Customers

We succeed with
Our Partners



Our Mission

To be a global leading airport company, anchored in the heart of Asia, pioneering safe, secure, sustainable and vibrant air hubs, ready for our future.

Chairman and CEO Message

SECURING CHANGI'S AIR HUB STATUS IN A YEAR OF RECOVERY

The aviation industry saw a strong rebound in financial year 2022/23 as global travel resumed with the relaxation of border restrictions around the world, including Singapore which fully reopened to all vaccinated travellers from April 2022.

Changi Airport Group (CAG) prepared well for this and successfully ramped up operations to meet the increase in passenger numbers. We are pleased to have ended the year in a strong position, ranking as one of the busiest air hubs in Asia. Passenger traffic through Changi Airport rose steadily throughout the year to reach 82% of pre-Covid levels by March 2023. For the whole of 2022/23, we recorded an eightfold increase, year-on-year (yoy), in passenger movements to 42.6 million or 62% of pre-Covid levels. The number of aircraft movements doubled yoy to 257,000.

Changi's passenger growth was the result of our determined efforts to rebuild the Singapore air hub. As of March 2023, Changi was linked to 145 cities. This is about 80% of our pre-Covid connectivity. Today, there are over 100 airlines operating at Changi, including nine new to the Changi family.

As we celebrate a significant year of recovery, we were encouraged by the vote of confidence from travellers around the world who endorsed Changi as the World's Best Airport at the Skytrax Awards 2023, making it the 12th time we have been given this recognition.

REGAINING BUSINESS VIABILITY AND FINANCIAL STRENGTH

With the resumption of travel, the Group has returned to profitability with a net profit of

S\$33 million. Our stronger financial performance was driven by partial recovery in revenues from airport services and airport concessions, boosted by faster than expected passenger traffic growth. Overall, revenue for the Group doubled to S\$1.9 billion from the year before.

Core operating, maintenance and manpower costs rose with an increased level of business activities, while energy prices surged more than three times during the year, driving up electricity costs. Covid-related government support was also progressively scaled down with traffic recovery. Excluding depreciation and amortisation charges of S\$0.7 billion, the Group incurred operating expenses of S\$1.2 billion in 2022/23, an increase of 42% yoy.

As at 31 March 2023, total equity attributable to the shareholder of the Company was S\$6.3 billion and the liquidity position of the Group remained healthy with cash and marketable securities totalling S\$2.1 billion.

RAMPING UP THE AIRPORT'S OPERATIONS

During the year, CAG resumed operations at all four terminals to provide capacity for the increase in travel demand. The Arrival Hall of the revamped southern wing of Terminal 2 (T2) was reopened in May 2022, followed by its Departure Hall in October 2022.

In September 2022, the doors of Terminal 4 (T4) were also opened, with 14 airlines returning to the terminal from Terminal 1 (T1). To cater to the surge in travel demand, CAG carried out a fundamental and crucial rebalancing of airlines across all four terminals to optimise the airport's operations. As part of this effort, the Jetstar Group was also successfully relocated to T4 from T1 in March 2023.

Over at Seletar Airport, commercial flight operations resumed in June 2022, with Firefly reinstating regular scheduled flights to Subang, Malaysia.

Amid stiff challenges to secure the necessary manpower resources, CAG kept its operational capabilities and service standards high, focusing on driving transformation to uplift processes for greater efficiency and safety, as well as smoother passenger journeys.

At the newly renovated T2, the baggage handling system was upgraded with intelligent features that can analyse data and monitor bag status in real time to detect abnormalities and facilitate baggage recovery more efficiently.

To enhance passengers' immigration clearance experience, CAG also supported the Immigration & Checkpoints Authority in its automation of the immigration process for both departure and arrival. Instead of manual counters, foreign travellers from more than 50 eligible jurisdictions, including first-time visitors, can now use automated lanes for faster immigration clearance. An automated Special Assistance Lane for travellers on wheelchairs and family groups was also introduced.

In the face of a manpower crunch, we stepped up and assisted our existing tenants in hiring staff for their shops' reopening to serve the increasing number of passengers. We also accelerated the leasing of the airport's concessions and successfully secured numerous brands and operators within a short lead time to meet the demand for travel retail. Along with the reopening of T4 and the southern wing of T2, CAG also brought in a fresh new mix of brands to provide visitors with a rejuvenated shopping and dining experience.

As we celebrate a significant year of recovery, we were encouraged by the vote of confidence from travellers around the world who endorsed Changi Airport as the World's Best Airport at the Skytrax Awards 2023, making it the 12th time we have been given this recognition.

ENTHRALLING VISITORS WITH THE CHANGI EXPERIENCE

As Changi welcomed more passengers back to the terminals, CAG also restarted some of the facilities and services that were closed or suspended during the pandemic. These included the airport's signature attractions in the transit areas such as the Sunflower Garden at T2 and Butterfly Garden in Terminal 3 (T3). We also introduced new retail products and experiential services, including a revamped Central Piazza at T1, as well as a new cocktail tasting bar at T4.

Chairman and CEO Message

Over at Jewel Changi Airport, we brought back the iconic light and sound show at the HSBC Rain Vortex and introduced new shopping and dining outlets for our visitors. Jewel's early check-in lounge also reopened on 4 May 2022, giving passengers the convenience of an alternative check-in option, up to 24 hours ahead of their flight.

We continued to engage local residents with one-of-a-kind events at both Jewel and the public areas of our terminals with activities such as live screenings of the FIFA World Cup 2022 and the annual Changi Festive Village during the year-end holidays.

PREPARING FOR UNPREDICTABLE HEADWINDS

Leveraging the current growth momentum, we are optimistic that passenger traffic can reach pre-Covid levels by 2024. However, as we approach a return to normalcy, CAG is cognisant of new frictions and hurdles that can hamper growth. These include airlines' ability to procure aircraft and long-term changes to travelling behaviour.

Global economic uncertainties and inflationary pressure also continue to hamper the recovery of the air cargo sector. Total throughput for the Changi air cargo hub for 2022/23 was 1.8 million tonnes, compared to 2.0 million tonnes for the year before.

For these reasons, we will remain vigilant and continue to pave the way forward with our emphasis on supporting sustainable travel and building for

the future through innovation, while maintaining financial prudence.

TRANSFORMING FOR THE FUTURE

During the year, CAG pressed on with its efforts to leverage new and emerging technologies that could provide solutions to current and anticipated operational challenges, such as manpower constraints and climate change.

For more efficient deployment of its firefighting resources, the Airport Emergency Service trialled remote-controlled robots to convey casualties and experimented with unmanned aircraft systems to identify hotspots via thermal infrared capabilities.

In preparation for the needs of our future operations at Changi East, where design works on the new T5 have resumed, CAG is also exploring the use of robotics to automate airport processes for higher manpower productivity. As an example, we have been experimenting with driverless baggage tractors.

Augmented reality technology is also being used at the airside to improve the way airfield maintenance is conducted, especially in low light or adverse weather conditions.

BUILDING A SUSTAINABLE AVIATION HUB

CAG is committed to becoming a more sustainable aviation hub with zero carbon growth until 2030. Our



CAG's stronger financial performance was driven by partial recovery in revenues from airport services and airport concessions, boosted by faster than expected passenger traffic growth.

focus is on mitigating carbon emissions, enhancing waste management, conserving water resources and ensuring that the airport's facilities and operations adapt to the impacts of climate change.

As aircraft emissions account for over 90% of the aviation industry's total carbon emissions, we have continued efforts towards the commercial adoption of sustainable aviation fuel (SAF) by facilitating Singapore Airlines Group's pilot SAF programme which commenced in July 2022.

At the airside, we moved ahead with ground handlers on the use of cleaner energy vehicles. All new airside light vehicles, tractors and forklifts will be electric from 2025. To support this transition, we will be tripling our network of electric vehicle charging points to more than 300 in the coming years. Changi will also target to have all airside vehicles run on cleaner energy by 2040.

Against the escalating impact of global warming and climate change, we continue to examine the effects of extreme weather elements on airport infrastructure and operations in order to develop mitigation plans in a timely manner. In anticipation of rising temperatures, our engineering and development team seeks to strengthen our aircraft pavement resilience against harsher weather conditions. We have also invested in a laser crack management system to detect sub-millimeter pavement anomalies to enhance pavement maintenance.

EQUIPPING EMPLOYEES TO INNOVATE

In our bold ambition to redefine the future of air travel, CAG took a big leap in introducing a unique work arrangement to foster innovative mindsets and behaviours among its employees. In January 2023, the company transformed its way of working, by dedicating every Friday for innovation ('i'). On 'i-Fridays', all employees are encouraged to explore innovative ideas, refine concepts and build new capabilities through planned programmes such as brown bag talks, ideathons, pitch days and innovation exchange platforms. They also have the opportunity to form interest groups with like-minded colleagues to experiment with new ideas that are outside of their regular work.

To cultivate a culture of openness and collaboration, CAG prioritises employee communication, engagement and well-being as key tenets of its people policy. New initiatives were introduced during

the year to enhance the workplace experience and foster social cohesion between colleagues, as employees returned to the office on a flexible hybrid-work arrangement when Singapore returned to normalcy after two years of Covid-19 restrictions.

Beyond its own employees, CAG is also committed to building an engaged community of airport workers. The Annual Airport Celebration, which returned after a two-year hiatus in October 2022, paid tribute to airport partners for their efforts in keeping the airport open and running throughout the pandemic as well as for rising to meet the demands of traffic recovery with agility. Thirteen airport staff received awards for their exemplary service acts.

FORGING AHEAD WITH STRATEGIC LEADERSHIP

As we shift gears and enter a new post-Covid era, we would like to express our gratitude to the government and our shareholder for their backing throughout the pandemic period and support for our future plans. This has enabled our management team to navigate the challenges of Covid-19 and, moving forward, to steer Changi towards greater heights.

We would also like to take this opportunity to acknowledge our colleagues on the Board for their good counsel in the past year and look forward to their continued guidance as CAG charts a new phase of growth.

TAN GEE PAW

Chairman

LEE SEOW HIANG

Chief Executive Officer

Financial Review

FINANCIAL HIGHLIGHTS

	FY18/19	FY19/20 ¹	FY20/21	FY21/22	FY22/23
Profit or Loss (\$'mil)					
Total revenue	3,040	3,119	697	944	1,883
Total expenses	2,120	2,252	1,433	1,526	1,856
EBITDA	1,466	1,637	178	232	751
Profit /(Loss) attributable to shareholder of the Company	677	438	(954)	(838)	33
Financial Position (\$'mil)					
Assets	15,108	15,948	15,301	12,750	13,313
Liabilities	6,647	7,818	8,469	6,628	7,170
Cash and marketable securities	1,866	2,528	1,815	1,888	2,062
Loans and borrowings	1,652	1,803	1,837	2,016	1,972
Equity attributable to shareholder of the Company	7,839	7,887	6,916	6,218	6,259
Financial Ratios					
EBITDA margin	48.2%	52.5%	25.5%	24.6%	39.9%
NPAT margin	18.9%	4.8%	n.m.	n.m.	0.5%
Return on equity	8.8%	5.6%	-12.9%	-12.8%	0.5%

¹ The Group has adopted Singapore Financial Reporting Standards (International) ("SFRS(I)") with effect from 1 April 2019. In accordance with the transition requirements, FY19/20 comparatives and balances as at 31 March 2020 have been restated.

n.m.: Not meaningful

GROUP OPERATING REVENUE

Financial year 2022/23 was a year of recovery for the Group. Following the relaxation of Singapore's border restrictions in April 2022, passenger traffic through Changi Airport rose steadily. By March 2023, Changi's passenger traffic had reached 82% of pre-Covid levels. The recovery in air travel helped to rebuild Changi's global connectivity, making it one of the busiest airports in Asia in terms of international passenger traffic and the 3rd most connected airport in Asia.

For the whole of 2022/23, passenger movements saw an eightfold increase year-on-year (yoy) to 42.6 million, or 62% of pre-Covid levels while air traffic movements doubled yoy to

257,000, or 67% of pre-Covid levels, supporting the partial recovery in revenues from airport services and airport concessions. As the aviation industry continues to recover, the planned increase in chargeable rates for airport services, which was suspended due to the pandemic, was resumed in November 2022. This provided further uplift to revenues from airport services.

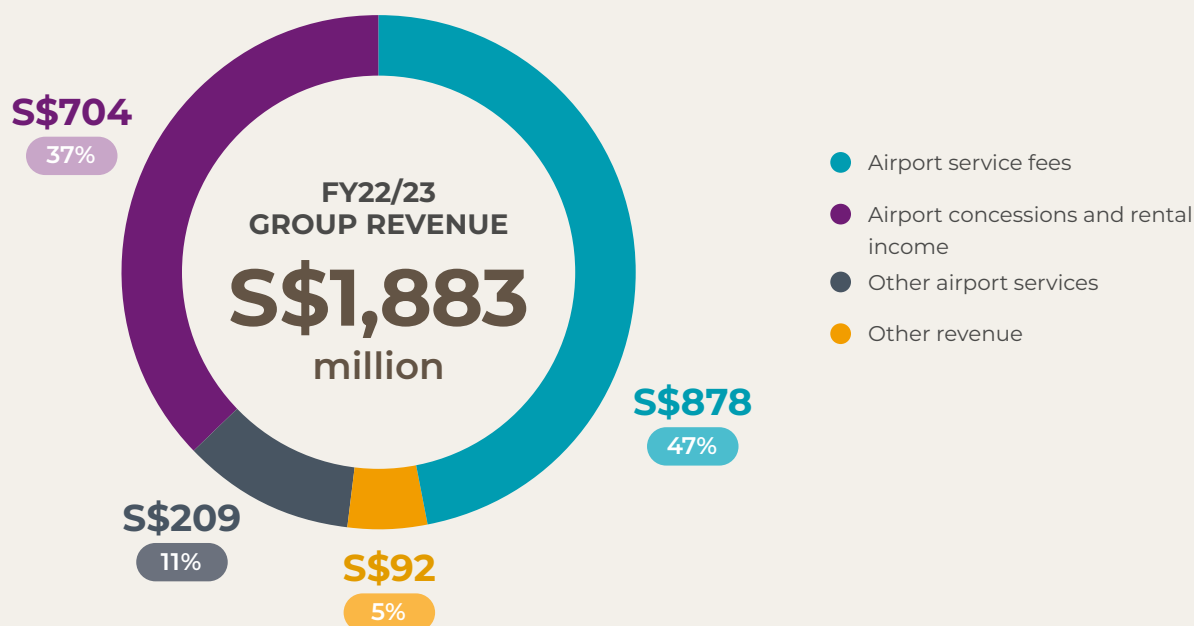
With the surge in travel demand, CAG worked closely with tenants to reopen their outlets, while also accelerating the leasing and operationalisation of Terminal 2 (T2) and Terminal 4 (T4) concessions, securing new brands and operators within a short period. Being well prepared for the travel rebound, CAG successfully ramped up operations with refreshed offerings to better serve the

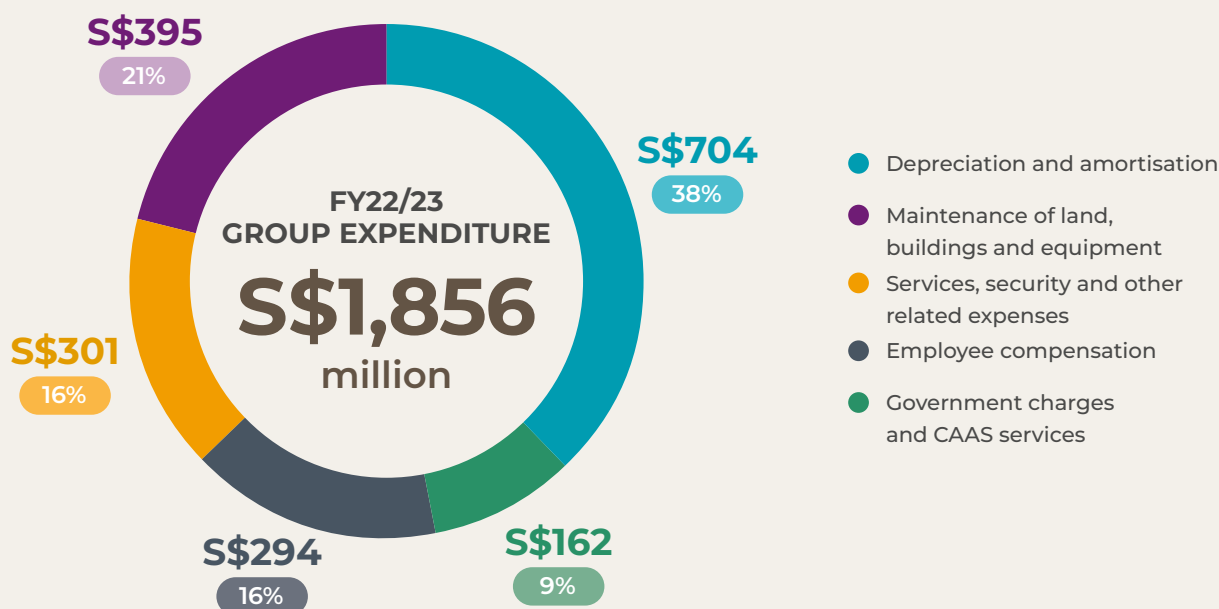
increase in passenger numbers. Travellers from Asia led the way as the biggest spenders at Changi in 2022/23, with liquor & tobacco, perfumes & cosmetics, and luxury emerging as popular product categories. At Jewel Changi Airport, with the resumption of international travel, footfall more than doubled, while the mall was close to approaching full occupancy. In December 2022, Jewel achieved its highest sales since its opening in 2019.

Overall, revenue for the Group doubled to S\$1.9 billion.

GROUP EXPENDITURE

Due to the Group's significant capital investments, more than a third of the Group's expenditure comprised depreciation and amortisation charges.





Excluding depreciation and amortisation charges of S\$0.7 billion, the Group incurred operating expenses of S\$1.2 billion in 2022/23, an increase of 42% yoy.

During the financial year, T4 and the revamped southern wing of T2 were reopened to provide additional capacity for the traffic recovery. Core operating, maintenance and manpower costs rose in tandem with increased level of business activities, while energy prices surged more than three times, driving up electricity costs. Covid-related government support was also progressively scaled down with traffic recovery. To address the escalation in its cost structure, the Group continues to leverage technology and innovation to drive productivity and efficiency in its operations.

One notable example was the upgrade of chiller plants and air handling stations/units to improve energy efficiency and reduce energy consumption. Additionally, the Group is making continuous efforts to move towards renewable and cleaner energy sources with its plans to install additional solar panels to harness solar energy. The Group also ramped up automation by investing in technologies such as cleaning robots, fully automated early baggage storage system and driverless baggage tractors. These technological advancements automate labour-intensive tasks and augment the workforce to improve manpower productivity.

EBITDA AND NET PROFIT

With recovery of Changi's passenger traffic, the Group's EBITDA grew to S\$751 million

in 2022/23 and returned to profitability with a net profit attributable to the shareholder of the Company of S\$33 million.

FINANCIAL POSITION

The Group's asset base remained strong at S\$13.3 billion, of which more than two thirds were made up of property, plant and equipment and investment property.

With traffic recovery, the Group recorded positive operating cash flow and ended the year with cash and marketable securities totalling S\$2.1 billion. Total outstanding loans and borrowings amounted to S\$2.0 billion, all of which is not due for repayment within 12 months of the financial year end.

As at 31 March 2023, total equity attributable to the shareholder of the Company was S\$6.3 billion.

Air Traffic Statistics

PASSENGER MOVEMENTS (IN MILLIONS)

42.6M



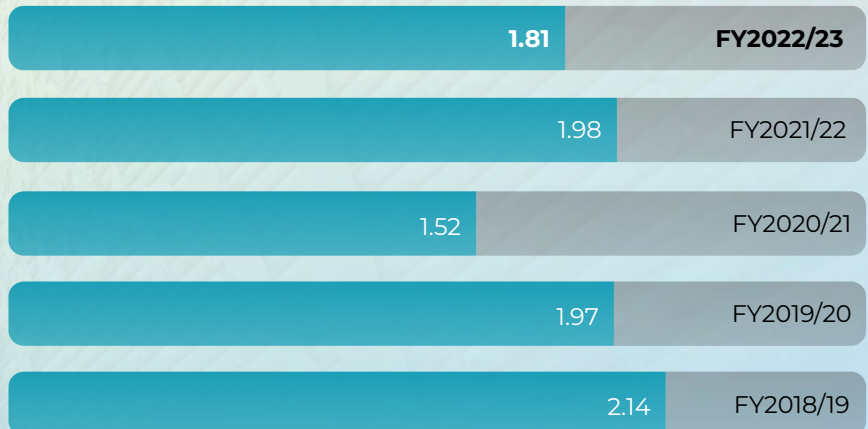
COMMERCIAL AIRCRAFT MOVEMENTS (IN THOUSANDS)

256,589



AIRFREIGHT THROUGHPUT - TONNES OF AIRFREIGHT (IN MILLIONS)

1.81M



Global Connectivity



Abu Dhabi	Bangalore	Chongqing	Doha	Houston
Addis Ababa	Bangkok	Christchurch	Dubai	Hyderabad
Adelaide	Barcelona	Cincinnati	Frankfurt	Indianapolis
Ahmedabad	Beijing	Coimbatore	Fukuoka	Ipo
Amritsar	Berlin	Colombo	Fuzhou	Istanbul
Amsterdam	Brisbane	Copenhagen	Gold Coast	Jakarta
Anchorage	Brussels	Da Nang	Guangzhou	Jeddah
Angeles/ Mabalacat	Busan	Dallas	Guwahati	Jeju
Athens	Cairns	Darwin	Haikou	Johannesburg
Auckland	Cape Town	Davao	Hangzhou	Kathmandu
Bahrain	Cebu	Delhi	Hanoi	Kochi
Baku	Chengdu	Denpasar	Hat Yai	Koh Samui
Balikpapan	Chennai	Dhaka	Helsinki	Kolkata
Bandar Seri Begawan	Chiang Mai	Dili	Ho Chi Minh City	Kota Kinabalu
			Hong Kong	Krabi
			Honolulu	Kuala Lumpur

Connecting Singapore
to 145 cities in
49 countries/territories

As at 31 March 2023



Leading Travel Recovery

It was a year of strong recovery for the aviation industry, with passenger traffic at Changi Airport growing steadily during this period. As the airport leading the Asia-Pacific region in international travel recovery, Changi registered 42.6 million passenger movements in financial year 2022/23, more than eight times the traffic of the previous year. Aircraft movements also more than doubled year-on-year to 257,000 take-offs and landings. Monthly passenger traffic in March 2023 surpassed 80% of pre-Covid levels for the first time since the pandemic.

GROWING CHANGI AIRPORT'S NETWORK

Changi Airport welcomed eight new passenger airlines during the year – Air Macau, Aircalin, Bamboo Airways, Cambodia Airways, Citilink, Firefly, Thai Vietjet Air and T'way Air. Aircalin is the flag carrier of the French Pacific Territory of New Caledonia, and its launch in Singapore marked two key milestones for Changi – a new city link and a new airline. Since its launch, CAG has worked closely with Aircalin, and its key airline partner Air France, to add more flights and expand their services at Changi.

Many airlines also resumed services at Changi in 2022/23, such as Ethiopian Airlines, Shenzhen Airlines, Sichuan Airlines, Spring Airlines and Thai Lion Air. Four new city links were also established, namely, Jeju, Nouméa, Pune and Sibiu. With Jeju and Pune, Changi was connected to more destinations in South Korea and India than it had been pre-Covid. As of March 2023, Changi had restored its connectivity to 145 city links, served by some 100 airlines.

TRAVEL CAMPAIGNS TO DRIVE DEMAND

CAG, Singapore Airlines (SIA) and Singapore Tourism Board co-developed a two-year framework to strengthen Singapore's appeal, spur travel, and reinforce Changi's status as an aviation hub. Two travel recovery campaigns were launched in the year. The 'Discover Singapore Pass' campaign, which ran in seven markets such as Australia, Korea and Vietnam, comprised discounted tourist pass packages and SIA airfare deals to attract leisure travellers. The other campaign, which was rolled out to 24 markets, promoted new, lesser known and refreshed attractions in Singapore for visitors to enjoy. To increase transfer and transit

traffic, CAG also launched in-market Changi Rewards e-Voucher campaigns in 12 markets. This was powered by the new Air Hub Campaign Solution (AHCS), a digital solution that replaced the physical Changi Dollar Vouchers which were distributed pre-Covid, for greater convenience and efficiency. The pan-Korea campaign was especially successful in driving Changi Rewards member acquisition, resulting in the doubling of Korean loyalty members.

DEEPENING RELATIONSHIPS WITH KEY INDUSTRY PARTNERS

Engagement with industry partners continued to be a priority for CAG. In May 2022, CAG hosted the annual Changi Airline Awards for the first time since 2019. More than 120 guests from 71 airlines were in attendance. This marked the first time the airline community gathered in a large group setting since the outbreak of the pandemic. Special awards such as the Resilience Awards, Connectivity Awards and New Airline Awards were presented at the event, as Changi thanked its airline partners for weathering



CAG thanked airline partners for their support at the annual Changi Airline Awards event, which returned for the first time since 2019.

through tough times with the airport over the past two years. Separately, to commemorate their contribution to Changi Airport's air cargo growth, CAG's airline partners were also presented with air cargo awards, including Top 5 Cargo Airlines (by Freighter Flight Movements Growth), Top 5 Passenger Airlines and Airlines Groups (By Passenger Freighter Flight Movements) and Special Commendation Award, during the Let's Talk Cargo event in March 2023.

CAG was also the host for the CAPA Asia Aviation Summit held in Capella Singapore in November 2022, which welcomed about 400 attendees, including airline and airport representatives. The Summit was part of CAPA's regional summit series and was highly regarded as an industry benchmark event across Asia.

During the year, CAG continued to engage members of its Changi Travel Circle (CTC) programme to keep them updated on Changi Airport's latest developments. One of the activities conducted was a Jewel Virtual Tour to provide the travel trade with a deeper appreciation of Jewel Changi Airport as a lifestyle destination, as a good portion of the travel trade had missed the chance to visit Jewel during the pandemic years. With active engagement, CTC's membership base grew to more than 2,000 overseas members and close to 100 local inbound partners.

ENHANCING CARGO CONNECTIVITY AND CAPACITY

On the cargo front, Changi handled 1.81 million tonnes of airfreight throughput in 2022/23, 8.4% lower than the previous year. Throughout the year, CAG facilitated the expansion of



The partnership between Singapore Airlines and DHL Express enhanced Changi's cargo capacity and connectivity.

freighter flight operations and supported express integrators, such as DHL Express (DHLE), FedEx and UPS, on their operational needs to grow their respective regional hub in Changi Airfreight Centre.

Notably, CAG facilitated a partnership between DHLE and SIA, wherein SIA would operate DHLE's five B777 freighters with a dual DHLE-SIA livery, based in Singapore, to the United States of America (USA) via North Asia points. In July 2022, Changi Airport also successfully onboarded Atlas Air, a new scheduled long-haul freighter operator, to its airline family, strengthening the strategic connectivity between Singapore and USA. These developments buttressed the growth of the Singapore air cargo hub.

STRENGTHENING CARGO CAPABILITIES

In 2022/23, CAG completed the pilot for the Truck Dock Slot Booking (TDSB) application as part of its drive to accelerate digital transformation of the air cargo industry. TDSB aimed to reduce truck congestion and provide insights for landside activities to enable resource optimisation and increase cargo handling speed,

while supporting sustainability efforts by reducing greenhouse gas and tailpipe emissions. During the pilot phase, CAG worked with the air cargo community to refine the TDSB application and operational processes, while supporting change management efforts and tools to increase adoption and success rates. With the successful completion of the TDSB pilot, the air cargo community was ready to move forward with the community-wide implementation of TDSB as the new process for cargo lodgement and collection.

INDUSTRY RECOGNITION

During the year, Changi Airport was recognised as the Best Airport – Asia (over 1 million tonnes) at the 2022 Asian Freight Logistics and Supply Chain (AFLAS) Awards. It also received commendation by the panel of judges for the Cargo Hub of the Year categories at the Air Cargo News Awards 2022. The Global Cargo Airport of the Year award was also presented to Changi Airport at the 9th Payload Asia Awards, recognising Changi as a leader at the forefront of innovations in air cargo and logistics.

Refreshing the Travel Experience

Since Singapore relaxed Covid-19 border restrictions in April 2022, Changi Airport saw a strong recovery in air travel. Terminals 2 (T2) and 4 (T4), which had been closed during the pandemic, reopened progressively with refreshed offerings to better serve the restored flights and increasing passenger traffic.

Despite the pandemic challenges, CAG held fast to its commitment to deliver the best airport experience. In financial year 2022/23, Changi was recognised by Airports Council International's Airport Service Quality Awards in three categories in the Asia-Pacific region – Best Airport (over 40 million passengers), Airport with the Most Dedicated Staff, and Easiest Airport Journey. Changi was also named by Skytrax as the World's Best Airport for the 12th time. These accolades bore testament to Changi's unwavering dedication to serve its customers with excellence.

REOPENING TERMINALS TO WELCOME MORE TRAVELLERS

In 2022, CAG accelerated the

reopening of T2 to support the strong air traffic recovery. Preparations for flight operations at T2 were carried out prior to its phased reopening, which led to the successful commencement of arrival operations at T2 south wing on 29 May 2022, ahead of the June school holiday peak. On 11 October 2022, departure operations at T2 south wing also reopened in anticipation of the return of the year-end peak. The revamped T2 south wing offered a refreshed check-in, immigration and baggage claim experience. To support further traffic recovery, inter-terminal relocations of 22 airlines were carried out in 2022/23 to rebalance and optimise capacity across Changi's terminals.

T4 also reopened its doors on 13 September 2022 to respond to the increasing traffic demand. Prior to that, security sweeps of the departure transit, arrival corridor, and baggage claim halls were completed. More than 30 trials with airport partners were held to ensure the operational readiness of key infrastructure, manpower, building systems and processes. Five pairs of orientation flights were also organised to ensure

airport staff would be familiar with touchpoints across T4. These concerted efforts enabled the successful relocation of 14 airlines to T4 within two weeks of its reopening. To optimise the airport's operations, Jetstar Group was also successfully relocated to T4 from Terminal 1 (T1) in March 2023.

The reopening of T2 and T4 were important milestones for Changi, marking the airport's progressive return to four-terminal operations.

FACILITATING FLIGHTS AT SELETAR AIRPORT

Over at Seletar Airport, commercial flight operations also resumed in June 2022, with Firefly reinstating regular scheduled flights to Sultan Abdul Aziz Shah Airport in Subang, Malaysia. To prepare for the resumption of operations, CAG conducted multiple operational trials and system tests with Seletar's airport partners. Airport staff participated in refresher training sessions and briefings on operational and safety requirements to get them ready to serve passengers, once again.



Passengers checking flight information at the newly reopened T2 south departure hall.

Seletar Airport also facilitated the safe and smooth movement of about 300 private jets during the Singapore Grand Prix 2022 Formula 1 Race weekend in September 2022. Seletar Airport worked closely with the Civil Aviation Authority of Singapore and Economic Development Board to ensure that flights were handled smoothly.

RESTARTING OTHER FACILITIES AND SERVICES

As Changi welcomed back more passengers to the terminals, it also restarted some of the facilities and services that were put on hold over the last two years due to the low traffic volume. In the transit area, T2's Sunflower Garden reopened, much to the delight of transfer and transit passengers. At Terminal 3 (T3), butterflies were reintroduced in the Butterfly Garden. Steel in Bloom, T4's transit garden with a koi fish pond, also reopened its doors. T4's Heritage Zone and the Chandelier, a 16-metre-tall play structure, were also made available for passengers' enjoyment before their flights.

Over in Jewel Changi Airport, the Early Check-In Lounge reopened on 4 May 2022. It offered passengers greater convenience and an alternative check-in option away from the passenger terminals' departure halls. Since the lounge's reopening, 11 airlines (AirAsia, Air France, Emirates, Finnair, Jetstar, KLM, Malaysia Airlines, Qantas, Qatar Airways, Scoot and Singapore Airlines) had restarted their early check-in operations. Passengers could check in up to 24 hours at Jewel ahead of their flight, depending on the airline they are travelling with.



Firefly reinstated connections between Seletar Airport and Kuala Lumpur in June 2022.

FACILITATING SMOOTHER JOURNEYS

Departure and arrival immigration are key touchpoints in a passenger's journey through Changi. To improve passengers' experience, CAG supported the plans by the Immigration & Checkpoints Authority (ICA) to deliver its New Clearance Concept in 2024 to extend the automation of the immigration process.

ICA rolled out two new processes as a first step towards this transition. The first is the Automated Clearance Initiative. Instead of manual counters, first-

time foreign travellers from 51 eligible jurisdictions can use the automated lanes across T1 to T4 for faster immigration clearance. CAG worked with ICA to install additional lanes in T1 and T3 to facilitate the higher number of travellers expected to use automated lanes.

The second is the automated Special Assistance Lane (SAL). Previously, travellers on wheelchairs and family groups with young children needed to use the manual counters for immigration clearance. With the automated SAL, travellers on



The ONE Changi community was recognised at the Annual Airport Celebration for their unwavering support to keep Changi running.

Refreshing the Travel Experience

wheelchairs and family groups of up to four persons can also enjoy the convenience of automated immigration clearance. This makes Singapore the first country in the world to introduce an automated lane allowing multiple travellers to perform self-clearance through immigration as a group.

CELEBRATING THE ONE CHANGI COMMUNITY

The Annual Airport Celebration returned after a two-year hiatus. Held at Raffles City Convention Centre on 26 October 2022, the event paid tribute to the airport community for their efforts in keeping the airport open and running throughout the Covid-19 pandemic and for rising to meet the demands of traffic recovery with agility. Thirteen airport staff received service awards for their exemplary service. These included the All-Star Service Team, which comprised staff from Certis, P-Serv and SATS, who went above and beyond the call of duty to provide round-the-clock care for a traveller in need in the Transit Holding Area. ICA was presented with the Service Partner of the Year award for its tremendous contributions to border security and passenger experience as well as its strong display of the ONE Changi spirit.

Project Lionheart, a roving community activation campaign commissioned by the Ministry of Culture, Community and Youth, made Changi Airport its symbolic last stop in December 2022 because of its significance in Singapore's fight against Covid-19. The campaign featured stories and reflections from Singaporeans, including five airport staff, who persevered through the pandemic and demonstrated the qualities of hope, strength, duty, invention, and compassion.



CAG reinvented the airport experience with the opening of Changi Airport's first live music bar, Overflow.

ENGAGING AIRPORT VISITORS WITH NOVEL EXPERIENCES

CAG continued to expand on the variety of attractions at Changi Airport to engage Singapore residents and travellers. In its widely anticipated year-end festive campaign, CAG capitalised on the blockbuster, *Avatar: The Way of Water*, to design various festivities for Changi Festive Village 2022. Anchoring the celebrations was the life-sized seven-metre-tall Marui Pod at T3, which offered breathtaking photo opportunities in the day, and came alive at night with orchestral performances against multi-sensory light and sound shows. Adding to the thematic mix were the first-ever *Avatar*-inspired glampcations and glampicnics in Jewel, as well as gamified archery and illuminated jellyfish workshops in the vicinity to level up the fun for families. Dino Kart 3.0 returned by popular demand for the third year running, where delighted thrill-seekers raced go-karts up to 28km/h under immersive disco lights in the weatherproof comfort of T3's basement.

Extending the festivities outdoors, the 3.5-kilometre-long Changi Airport Connector, including Changi Jurassic Mile, was illuminated by 1,100 levitating jellyfish, 3,600 mushrooms and 4,000 dandelions. Themed 'Dino Glow', the festive light-up attracted more than 210,000 visitors. Besides the dazzling light-up, visitors participated in new experiences, such as the first-ever phygital Puzzle Hunt with augmented reality games and a virtual marathon for runners and cyclists. The year-end activities formed part of Changi Airport's commitment to bring novel experiences to all visitors, including non-travellers.

During the year, CAG also opened the airport's first live music bar, Overflow, at the southern end of T2. Set in lush greenery next to the popular Hub & Spoke café, this music joint with live band provided travellers and Singapore residents alike with a new alfresco hang-out place all year round.

Enhancing Airport Operations

Even as passenger traffic recovered and aircraft movements increased, safety and security continued to be the top priority at Changi and Seletar Airports. In financial year 2022/23, CAG continued to explore using innovative technology to enhance operations.

ENSURING EMERGENCY PREPAREDNESS

With the lifting of Covid-19 safe management measures, CAG's Airport Emergency Service (AES) resumed the conduct of full-scale, multi-agency crisis readiness exercises at Changi and Seletar Airports in the same intensity as pre-Covid days. These exercises, which simulated aircraft crashes, tested the emergency responses of CAG and its coordination with the airport community as well as mutual aid agencies. More than 180 students from Republic Polytechnic, Temasek Polytechnic and the Institute of Technical Education College East role-played as casualties and next-of-kin to add realism to the exercises.

During the year, AES explored using technology to support operations. One example was the deployment of remote-controlled robots to convey casualties from an incident site to the casualty assembly area, removing the need for stretcher conveyance by firefighters. This helped to conserve their energy for more physically demanding tasks, such as rescue operations and firefighting. AES also experimented with the use of unmanned aircraft systems to identify hotspots via thermal infrared capabilities. This enhanced the firefighters' situational awareness and allowed for more efficient deployment of firefighting resources.

AES resumed in-person staff engagement activities, which remained crucial to building team camaraderie and showing appreciation to officers for their hard work. The AES Festival at Jewel Changi Airport held in June 2022 allowed the firefighters' families to understand more about

their jobs in AES with hands-on experiences.

MAINTAINING A SAFE AIRPORT ENVIRONMENT

Throughout the Covid-19 pandemic, CAG stayed committed to providing a safe airport environment for all airport users and held its Airport Safety Awards campaign for the sixth year. The airport-wide campaign, which aimed to inculcate a culture of safety at Changi and Seletar Airports, received strong participation from airport partners and saw close to 500 airport staff being recognised for their safety contributions.

During the year, CAG also launched a new safety influencer programme among the airport community. Selected individuals were empowered as spokespersons within their companies to reinforce the message of safety at Changi and Seletar Airports.



AES firefighters using robots to help convey casualties during an air crash exercise.

Enhancing Airport Operations

To further ensure that Changi's Safety Management System stayed effective, CAG developed new SMS safety performance indicators for tracking and monitoring. This drew praise from International Civil Aviation Organization safety assessors during an airport audit visit to Singapore.

In further recognition of Changi's safety record, it achieved a deficiency-free rating from the International Federation of Air Line Pilots' Associations in February 2023 for the 42nd consecutive year since 1981.

CAG was also recognised for its efforts in promoting workplace safety. It clinched the bizSAFE Partner Award 2022 from the Singapore Workplace Safety & Health Council for the second consecutive year. CAG was also conferred the Gold Medal recognition by UK-based non-profit organisation RoSPA after being a five-time winner of its Achievement Award.

MASTER PLANNING FOR A SUCCESSFUL FUTURE

In land-scarce Singapore, the appropriate and optimal use

of airport land is essential for safe, sustainable and efficient airport operations, and to provide adequate capacity to support the projected aviation traffic needs. As the aerodrome operator for Changi and Seletar Airports, CAG is required to update and submit land use master plans to the Civil Aviation Authority of Singapore for regulatory approval. During the year, CAG successfully secured approvals for the Changi Airport Master Plan for the planning period from April 2022 to March 2065, and for the Seletar Airport Master Plan for the planning period from April 2022 to March 2042.

As part of CAG's long-term climate resilience strategy, it completed the installation of flood protection measures for operationally critical airfield facilities in November 2022. These measures, which included localised flood barriers and bund walls, would ensure operational continuity should exceptionally intense rainfall and flooding occur.

Meanwhile, CAG pushed ahead with its development plans to ensure that the airport has sufficient capacity to support

the projected increase in passenger traffic. These included the planned expansion of the Terminal 1 east and west arrival immigration halls to facilitate faster immigration clearance, and the expansion of bus gates at Terminal 2 (T2) to meet the projected demand in remote flight operations.

IMPROVING THE BAGGAGE HANDLING SYSTEM

CAG brought forward the reopening of T2 south wing in May 2022, as passenger traffic returned. Coinciding with the reopening, CAG successfully rolled out an upgraded baggage handling system at T2. The new system has intelligent features that analyse data and monitor bag status in real time to detect abnormalities and facilitate early baggage recovery intervention actions. This lowers the risk of mishandled baggage.

Going a step further, CAG introduced a personalised baggage tracking function for travellers on its Changi app in December 2022. This first-of-its-kind offering enables passengers travelling through Changi to keep track of the status of their check-in bags on the go at any time.

DRIVING AIRSIDE INNOVATIONS

Over at Changi's airside, CAG worked with its technology partner, NCS, to upgrade and implement iFerret 2.0, a fully automated foreign object debris (FOD) detection system, on its runways. This Singapore-designed intelligent FOD surveillance system, with a detection rate of more than 95%, helps to safeguard Changi's runway operations while improving airside manpower efficiency. This upgraded iFerret system is also being marketed to overseas airports.



CAG conducted intensive tests of the upgraded baggage handling system at T2 before its reopening.



iFerret provides automated round-the-clock surveillance of the runway to reduce the threat of foreign object debris.

CAG also trialled the use of video analytics to monitor apron activities, thereby strengthening airside safety and improving operational efficiency. The system automated the detection of safety infringements at the aircraft parking stand and the sending of alerts to the relevant party, as well as any lapses in conducting FOD inspections. This system would enable CAG to have round-the-clock vigilance against infringements and reduce the risk of safety incidents. Plans are underway to roll out the video analytics system airport wide.

CAG has continued trialling the use of autonomous vehicles (AV) to augment baggage delivery and unlock greater manpower productivity on the airside. It achieved a milestone with the set-up of the AV tele-operations system. This allowed the AV fleet supervisor to troubleshoot from a secure remote location should the AV require intervention, bringing CAG a step closer to removing the need for an onboard safety operator.

To meet the future needs of airport operations in Terminal 5 (T5), CAG is also experimenting with the use of auto dollies to automate driving and replace the baggage tractors. In recent trials, the auto dolly was tested for its ability to travel autonomously on airside roadways as well as within the baggage handling area.

To reduce the likelihood of errors when conducting aircraft pushbacks, CAG launched a digital solution for airtug drivers in October 2022. Phase one of Way2Go consisted of visual animations of pushback procedures that airtug drivers could easily refer to on their mobile phones or dedicated devices to help overcome potential memory lapse or misunderstanding of instruction scenarios. Way2Go has been used in more than 40% of live departures since its introduction and will be closely monitored to support a full roll-out in the coming months.

CAG has also used augmented reality technology to improve the way airfield maintenance is conducted, especially in low light

or adverse weather conditions. With an Augmented Underground Services Visualiser, maintenance staff can pinpoint their real-time location with respect to nearby landmarks, then visualise underground assets with an overlay of virtual routes and assets. This 'X-ray' vision reduces the time required to locate underground or buried assets for troubleshooting and repair. CAG is considering the potential of expanding the use of the visualiser in more areas of the airfield.

As Changi moves toward three-runway operations in the latter half of this decade, airside operations will become increasingly complex. CAG is training its new 80-strong airside shift team to thrive in this new operating environment. The Airside Professional Shift Team transformation programme involves redefining job scopes, and upskilling and multiskilling existing employees to empower them to take full command and control of airside operations. They are also trained to collaborate with stakeholders to uphold airside safety, while meeting capacity and efficiency needs in this new concept of operations.



The autonomous vehicle fleet supervisor could take control of the vehicles remotely, where needed, to manoeuvre around obstacles.

Building Changi's Future

Due to the Covid-19 pandemic, Changi Airport's Terminal 5 (T5) project was paused for two years. During this period, a study was conducted to re-assess the trajectory of aviation growth, review T5's design to make it more modular, and to enhance its resilience and sustainability. The review has since been completed and the preliminary design was unveiled during the National Day Rally (NDR) in August 2022.

Prime Minister Lee Hsien Loong said during the NDR that in the longer term, air travel will keep growing because of a fast-expanding middle class in this region, hence the decision to go ahead and restart the T5 project and redesign T5 to be more resilient. In particular, to operate more safely and flexibly during a pandemic – to scale operations up and down more easily, and to isolate passengers from different flights to limit cross infection. He also said that efforts were made to make T5 greener and more energy-efficient and that when completed, T5 will show the world what sort of place Singapore is.



T5's design was reviewed to make it more modular, and to enhance its resilience and sustainability.

Construction for T5 is expected to commence in 2025, for it to be operational around mid-2030s.

ONGOING CONSTRUCTION AT CHANGI EAST

While Runway 2 was closed for infrastructure upgrades, CAG continued its tunneling works connecting T2 and the future T5, and the fit-out works for the tunnels.

Construction of the Intra-Airside Road Connection (ARC) progressed well. The ARC is a dedicated roadway for airside vehicles to traverse the airfield without interfering with aircraft movements on the ground. The first 1.1km stretch of the 2.8 km ARC was completed in August 2022 and would be used as a road for construction vehicles until T5 is operational.



The T5 design was unveiled at the National Day Rally in August 2022.

Reviving Travel Retail

With the surge in both outbound and inbound travel demand, CAG worked closely with existing tenants to reopen their outlets to serve the rapid growth in passenger traffic. In the face of a severe manpower crunch, CAG also stepped up and assisted tenants in hiring staff to meet their resourcing needs for the shops' reopening. With travel retail sales in Changi Airport growing in parallel, CAG also accelerated the leasing and operationalisation of Terminals 2 (T2) and 4 (T4) concessions, securing numerous brands and operators within a short lead time.

After extensive marketing and negotiation efforts amid an uncertain business climate, CAG successfully concluded more than 140 airside concession leases and secured 19 new-to-Changi brands and concepts. In particular, a large-scale leasing exercise for 20 F&B outlets in T2 saw an overwhelming response from the market.

REVITALISING SPACES TO REDEFINE TRAVEL RETAIL EXPERIENCE

In anticipation of the return of travellers, CAG also made use of the lull period during the pandemic to elevate passenger experience

and increase commercial yield. The revamp of the central piazza in Terminal 1 (T1) Departure Transit Hall, which comprised a full enhancement of the landscaping, garden and events area, was completed in financial year 2022/23. Three new iconic luxury boutiques, Dior, Louis Vuitton and Tiffany & Co., take pride of place in the piazza and have since commenced operations in time to capture the improving travel retail demand in a post-Covid era. The leases of these boutiques were negotiated and sealed during a climate of business uncertainty and construction obstacles, bearing testament to the confidence these brands have in Changi.

With the successful rejuvenation of the central piazza in 2022/23 and the west wing the previous year, CAG has started planning for the revamp of the T1 east wing. The project, which will see the enhancement of a popular F&B cluster and the injection of new retail spaces, will increase the net leasable area, expand the offerings to passengers and uplift the ambience in the zone.

KEEPING THE MAGIC OF SHOPPING ALIVE

Since the reopening of borders, CAG has been working relentlessly

with brand partners to capture the imagination of shoppers while highlighting the wide array of product offerings and travel exclusives.

To solidify Changi's position in the premium wines and spirits category and offer a platform for brand partners to showcase their innovations to VIPs and clients, CAG ran its inaugural World of Wines & Spirits (WOWS) programme from September to December 2022.

The campaign featured over 200 premium wines and spirits from more than 75 brands, including rare and exclusive products, with customers invited to purchase from a curated selection on the WOWS online portal. A three-day VIP event was also held at Jewel Changi Airport, featuring industry masterclasses, performances, and tastings from a range of fine items. The event received an overwhelming response and extensive media coverage, with support from brand partners and customers.

CAG's long-term vision is to run the WOWS program annually with key wines and spirits retailers as partners and be the top



The revamped central piazza in T1's Departure Transit Hall gives brands more visibility and creates a serene space for passengers to relax in.

Reviving Travel Retail

destination in Singapore to offer a wide range of premium exclusive products for its customers.

In November 2021, CAG launched the first run of 'Win With Changi', a year-long campaign in partnership with Porsche Asia Pacific that lasted until October 2022. Shoppers had the chance to win up to 100 million Changi Rewards points and an all-electric Porsche Taycan by making a minimum spend of S\$50 at participating outlets. The promotion was a success with 1.6 million participating entries and positive feedback from survey results.

During the year, there were Changi 1st pop-ups in the departure transit areas to liven the shopping scene for travellers. These Changi 1st collaborations with CAG's brand partners, strategically located at areas with high footfall, not only give brands and products more visibility, but allow passengers to have deeper and more intimate understanding of them, hence elevating the shopping and gifting experience. With nine Changi 1st outposts in 2022/23 and more to come, transit travellers can expect to encounter more of these novel outposts as travel recovery continues.

On the e-commerce front, iShopChangi stepped up merchant listing targeted at travellers. Off-airport merchants like IDS Skincare and Kinohimitsu are now able to sell to travellers. CAG also launched the Revenge Travel campaign to rebuild mindshare during the year-end travel season. The campaign garnered more than 1 million online views within a period of two months.



Changi 1st pop-ups feature immersive experiences and allow customers to have more meaningful engagement with the brands.

VISITORS ENTHRALLED BY ACTIVITIES IN THE PUBLIC AREAS

Along with the reopening of T4 and the southern wing of T2, CAG brought in a fresh new mix of brands to provide visitors with a rejuvenated shopping and dining experience. In 2022/23, there were 28 new awards, of which 23 were new-to-Changi brands, such as dual concept brands WOKE Ramen and Penang Culture (T1), GO Noodle House and PappaRich (T2) as well as Vietnamese cuisine NamNam (T3) and Japanese restaurant AJI ICHI (T4).

With more new brands joining the tenant mix, CAG rolled out various initiatives to continue to attract footfall to the airport terminals. One of these initiatives was the collaboration with Uncle Ringo to run a six-month-long underground carnival in Changi. The carnival featured over 30 rides and games from three different eras and was launched in tandem with the Changi Festive Village to generate more buzz. In March 2023, the team also collaborated

with San-X's branded content Rilakkuma and friends to extend the carnival to the departure hall area in T3.

Other activities that created much buzz included the PEANUTS-themed Snow Hangout in June 2022 and the opening of Singapore's latest rock-climbing facility Climb@T3. The re-activation of activities at ST3PS, such as daily movie screenings, and airing of international events such as the world's most anticipated football tournament also created hype and excitement, driving footfall and spend in the public areas.

Besides working with Mastercard to offer attractive F&B deals during the reopening of T2 and T4, CAG also continued the crowd-favourite 2xGST promotion, and even increased the savings to 8% + 8% instead of the usual 7% + 7% savings. To top it off, there was an additional S\$8 Changi Pay e-voucher incentive to encourage the use of CAG's mobile wallet Changi Pay.

Leveraging Digital Technology

As a customer-centric organisation, CAG places utmost importance on delivering exceptional Changi experience to its customers, while simultaneously focusing on cost effectiveness and efficiency. Throughout the year, CAG continued to leverage technology to gather and consolidate data and insights within the enterprise and its subsidiaries to offer personalised and tailored experiences to customers.

ENHANCING CAG'S CUSTOMER DISCOVERY INSIGHTS PLATFORM

The Customer Discovery Insights (CDI) platform, a centralised customer database across all customer touchpoints, has been a crucial component of CAG's customer engagement strategy since its launch in 2017. It provides a unified view and deeper understanding of CAG's customers, with the goal of establishing a complete view of customers to deliver personalised services and offerings to them.

In 2022, the CDI platform was transformed to significantly increase its capability and capacity to handle more data sources and process near real-time data. This allowed CAG to engage its customers in a more timely and personalised manner. The migration to a more scalable cloud platform resulted in more than 40% cost savings for CAG by eliminating the need to maintain on-premise IT systems, infrastructure and maintenance personnel.

The upgraded platform was renamed to Enterprise Data Platform (EDP) and offers various benefits to CAG, including greater productivity, enhanced security and access control, and shorter time-to-market. Furthermore, the platform's capacity to incorporate additional data sources when future needs arise, will help CAG fulfil its ambition of serving customers with more targeted and personalised services and offerings, especially during their visits to Changi Airport.

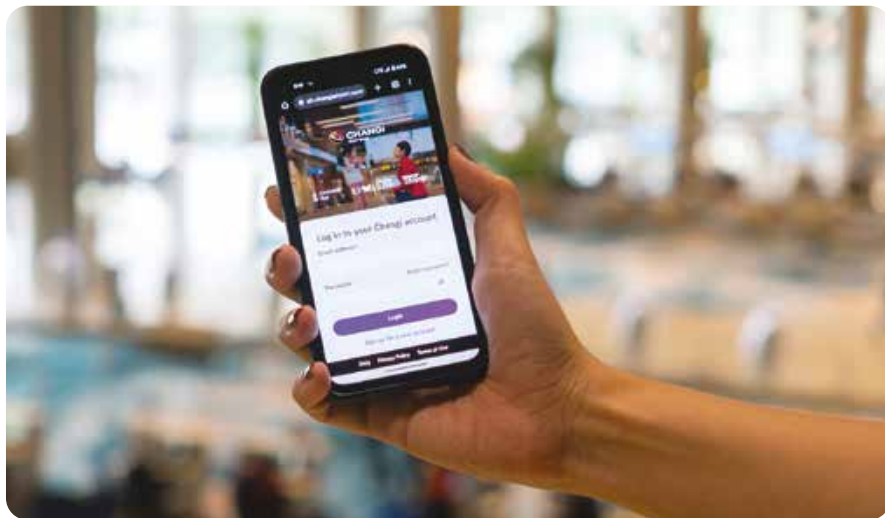
TRANSFORMING CHANGI'S CUSTOMER SERVICE CHATBOT

CAG enhanced its chatbot to offer tailored experiences for customers on the Changi Airport and iShopChangi websites as well as the Changi app. Changi customers could also seek help on new channels, such as Telegram and Facebook Messenger. The enhanced chatbot now embodies the personality of Changi's service mascot, MAX, for more engaging and user-friendly interactions.

The redesigned chatbot features an improved user interface. It is fully integrated into Changi's customer service support team, allowing customers to connect with frontline staff via online conference or voice calls. Built on a low-code chatbot management platform, the new chatbot allows CAG's business users to directly feed the chatbot with updated information and promotions at Changi, resulting in about 80% cost savings in developing the new chatbot.

The enhanced chatbot now embodies the personality of Changi's service mascot, MAX, for more engaging and user-friendly interactions.

Leveraging Digital Technology



With the convenience of a single One Changi login ID, customers can connect and transact on Changi's digital platforms.

Going forward, CAG plans to expand the chatbot's language options to include Simplified Chinese and Bahasa Indonesia, and to expand channel coverage to include WhatsApp and WeChat, to better serve Changi's diverse customer base. There are also plans to integrate key chatbot data with the EDP platform for users who are logged in to their Changi accounts to receive personalised information and recommendations.

IMPROVING CHANGI'S CUSTOMER IDENTITY AND ACCESS MANAGEMENT PROGRAMME

Back in 2017, CAG launched its customer identity and access management programme, 'One Changi ID', which allowed customers to use a single login ID across all of CAG's digital platforms.

The programme was revamped in December 2022 with a streamlined

sign-up experience, in line with prevailing cybersecurity and data privacy best practices to protect the personal data customers have shared with CAG. The improved programme also offers several benefits, including the opportunity to deliver more omni-channel and hyper-personalised content and services to customers.

TRANSFORMING THE WAY CAG LEVERAGES DIGITAL TECHNOLOGY

CAG continued to accelerate its digital transformation efforts and created a vibrant and cohesive digital ecosystem by driving the enhancements of key digital platforms and enablers, such as the Changi App and the Changi Rewards loyalty programme.

CAG also leveraged various technology and data science models to gain deeper insights on its customers. With a focus on rigorous innovation, CAG's experimentation efforts have yielded the creation of over 20 new digital products. One of these products is the baggage tracker, which allows travellers to track their checked-in bags in real time.



A personalised baggage tracking function on the Changi app enables passengers travelling from or to Changi to keep track of the status of their bags, as well as be updated should their arrival baggage at Changi be delayed due to inclement weather.

Expanding Travel Solutions

Changi Travel Services (CTS), a wholly-owned subsidiary of CAG, provides travel products and services to both leisure and business travellers. With the reopening of international borders and an uplift in global tourism, its consumer-facing brand Changi Recommends ramped up its core business of serving travellers, not only for their departure, but also during their journey overseas.

In financial year 2022/23, sales for travel products exceeded pre-pandemic levels. By reinforcing its position as the go-to travel concierge, Changi Recommends' popular inbound and outbound travel essentials saw a marked increase in average spend per customer. These include overseas connectivity options such as ChangiWiFi router and tourist SIM cards, tickets and passes for transport, attractions and tours overseas, travel services like luggage wrapping and meet-and-greet services in Singapore, as well as travel insurance and hotel bookings.

As part of CTS' pursuit to be a one-stop shop with a full suite of travel services, ChangiFX was introduced to provide brick-and-mortar foreign currency exchange service to passengers at Changi Airport. Despite being relatively new to the currency exchange business, ChangiFX gained significant market share steadily over the last year.

Through continuous innovation, ChangiFX Online was introduced as an alternative to address the currency exchange needs of different groups of travellers. Since its launch, ChangiFX Online has served about 15,000 travellers and continues to be a popular choice for travellers who value the convenience of ordering their foreign currencies online with a few simple clicks and collecting them at Changi Airport before departing.

Apart from serving travellers, CTS also leveraged its competitive knowledge in the aviation industry and expanded its services to provide general sales services



Demand for travel essentials such as the ChangiWiFi router had surged with the resumption of travel.

to new airlines such as Aircalin (New Caledonia), Myanmar Airways International (Myanmar) and Citilink (Indonesia). The services provided by CTS include marketing and partnership efforts, reservations, sales generation and operational support.

During the year, CTS continued to expand its services to serve the telecommunications needs of the Singapore market via its Changi Mobile business. Despite being one of the newest Mobile Virtual Network Operators (MVNO) in Singapore, Changi Mobile was voted third best MVNO Service Provider in HardwareZone's Tech Awards 2022, and doubled the growth of subscribers from the previous year to over 30,000. Changi Mobile's attractive value proposition and customer-centric perks enabled it to successfully retain its customers and grow its revenue by 150%.

During the year, Changi Mobile also introduced new travel plans and roaming options to its customers, providing more choices for a seamless travel journey.



Despite being relatively new to the currency exchange business, ChangiFX gained market share steadily over the last year.

Sparkling Brightly Again

On the back of travel recovery, Jewel Changi Airport (Jewel) saw the return of international travellers and a significant increase in visitors. Financial year 2022/23 saw the launch of large-scale marketing activations, influx of new brands and strategic partnerships that continued to profile Jewel as a unique leisure and lifestyle destination in Singapore for both local residents and tourists.

Sales at Jewel rebounded to pre-Covid-19 levels, with December 2022 registering the highest sales since it opened in 2019.

ONE-OF-A-KIND EVENTS TO DRIVE FOOTFALL

Unique events at Jewel brought new experiences that drew in the crowds.

In June, eight characters from LINE FRIENDS' BT21 took visitors on a musical journey through Jewel in a first-in-Southeast Asia event. Visitors could interact, sing and dance with the FRIENDS at several specially-curated installations and enjoy BT21-themed glamping and *glampicnic* experiences. Fans were

also pumped up by the K-pop inspired Light & Sound Show at the HSBC Rain Vortex that ran every night.

For the year-end festive season, an underwater theme inspired by Disney's *Avatar: The Way of Water* transformed Canopy Park into an oceanic seascape of bioluminescent light displays and marine-themed installations. A special edition of the Light & Sound Show featuring creatures from the *Avatar* film, along with the return of snowfall at Jewel, also entranced visitors.

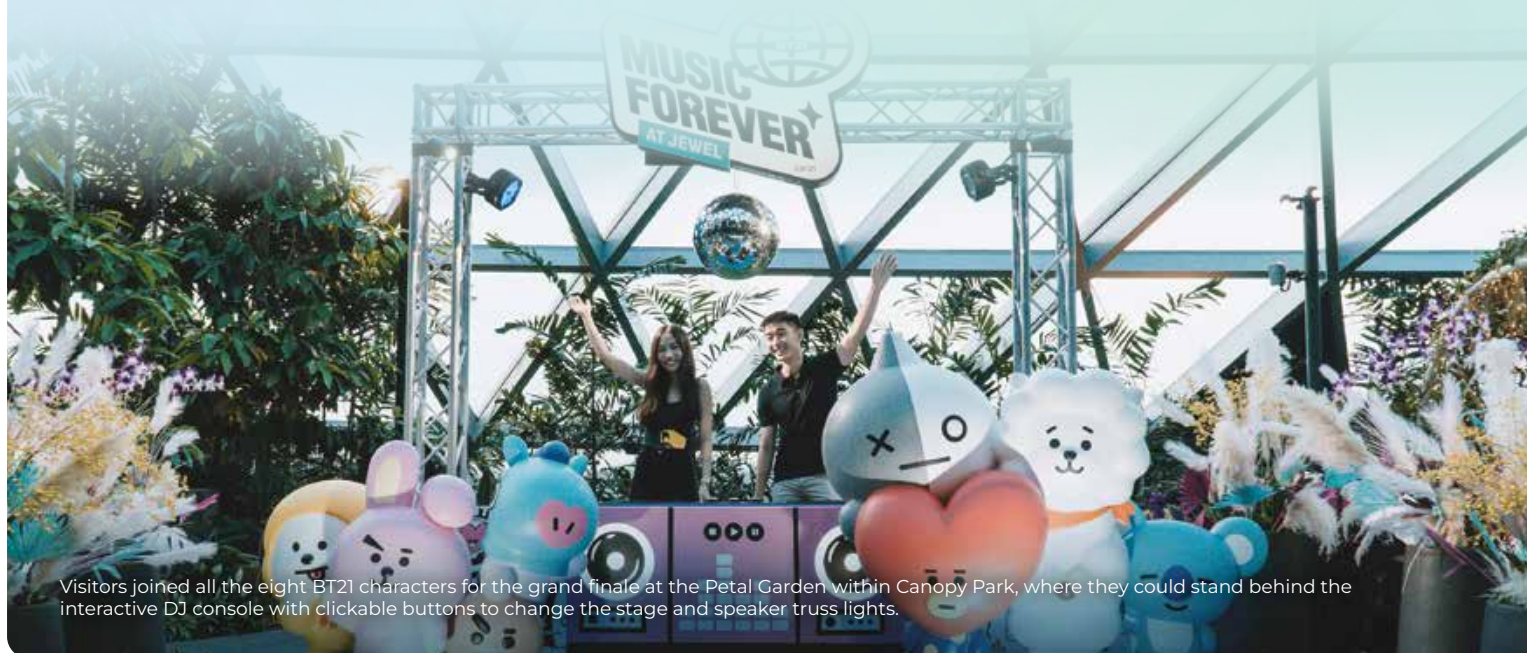
As the world's biggest football event took place in 2022, Jewel hosted its first mega indoor screening in December. Titled *Football Mania*, this was the largest public screening of the matches in Southeast Asia supported by Qatar Airways. Cheers from football fans reverberated throughout Jewel as they watched the live screenings (from the Round of 16) at the Shiseido Forest Valley. Visitors also participated in exciting football-themed fringe activities which had attractive prizes up for grabs.

MAJOR COLLABORATION WITH DISNEY

Another acclaimed premiere at Jewel was The Walt Disney Company's centennial celebration in Singapore. *Disney100: Experience Wonder at Jewel* kickstarted a slew of activities that paid tribute to 100 years of Disney storytelling.

The first instalment of Jewel's partnership with this iconic brand took place between January and April. Disney fans immersed themselves in the magical world of Disney through 10 exclusive *Disney100* milestone photo spots depicting scenes from Disney, Pixar, Marvel and Star Wars movies. The specially-designed photo installations also spotlighted significant Disney films like *Steamboat Willy* – Mickey Mouse's debut and Disney's very first animation with sound. In the evenings, visitors enjoyed the spectacular *Disney100* themed Light & Sound Show and sang along to a medley of original Disney soundtracks.

During the launch weekend special from 13 to 15 January,



Visitors joined all the eight BT21 characters for the grand finale at the Petal Garden within Canopy Park, where they could stand behind the interactive DJ console with clickable buttons to change the stage and speaker truss lights.

Disney fans interacted up close and personal with Disney's special friends - Mickey Mouse, Minnie Mouse and Donald Duck, through exclusive meet-and-greet sessions. Fans also dressed up in outfits inspired by their favourite Disney characters for free entry to Canopy Park.

NEW AND TANTALISING F&B OPTIONS

22 new brands joined Jewel's mix of more than 100 F&B outlets in 2022/2023 including local brands Backyard Bakers, Sampanman, Sourbombe and The Hainan Story Chapter 2. In line with Jewel's vision to showcase promising Singapore brands to the world, these brands introduced unique Singapore flavours to travellers visiting Jewel.

Sourbombe opened their first dine-in boutique in Jewel, offering innovative sourdough-Italian Bomboloni ('Bomb' shaped doughnuts stuffed with pastry cream) pastries along with Jewel exclusive menu items such as sourdough waffles with soft serve. Targeted at seafood lovers, Sampanman was another Halal-certified restaurant that made Jewel its home. This seafood restaurant by the Arteastiq Group serves up hearty seafood boil in custom-made sampan boat grills.

Other international brands include Fong Sheng Hao, a Taiwanese charcoal grilled toast and milk tea brand, Wa-En Wagyu Yakiniku, which is known for its Michelin Bib Gourmand Japanese grilled meat concept from Hong Kong and Hitoyoshi Izakaya, a Japanese bar and restaurant famous for its premium sashimi and sake.

Japan's biggest discount store chain, DON DON DONKI, opened its aviation-themed outlet, the



The magic and wonder of Disney came to life at Jewel with a series of themed activities for fans and families.

largest in the east of Singapore, with Jewel-exclusive offerings such as a first-ever dedicated Halal section. The outlet also boasts the widest variety of sake at the sake bar.

STRATEGIC MARKETING PARTNERSHIPS

Shiseido Travel Retail, one of Jewel's pioneering partners, renewed its brand naming rights of Jewel's iconic indoor forest sanctuary – the Shiseido Forest Valley – for three additional years, until April 2025. Together, both brands reaffirmed their commitment to creating an oasis for the senses that combined

nature, design and technology, to refresh and energise visitors. The partnership was officiated at Jewel, complete with a sake breaking ceremony and planting of the *Garcinia subelliptica*, also known as 'Happiness Tree', at the Shiseido Forest Valley.

Jewel also inked a three-year partnership with Mastercard worth over S\$4 million, aimed at driving local and tourists spend in Singapore and Jewel. Leveraging Mastercard's network and broad suite of capabilities, Jewel will further its outreach to overseas visitors and enhance its reputation as a key Singapore travel destination.



In an expression of new beginnings, Shiseido Travel Retail President & CEO Philippe Lesné (left) and Jewel Changi Airport Devt. CEO James Fong (right) planted a *Garcinia subelliptica*, also known as Happiness Tree - the first of its kind in Jewel.

Investing Overseas

Changi Airports International (CAI) has investments in several countries in its portfolio.

In China, CAI holds a 49% stake in Sino-Singapore Chongqing Airport Commercial Management Co., Ltd, a joint venture with Chongqing Airport Group, which manages the non-aeronautical business of Chongqing Jiangbei International Airport. In financial year 2022/23, the joint venture continued to refresh the airport's commercial offerings by attracting top international travel retailers to the airport. In March 2023, CAI also signed a strategic cooperation agreement with Yantai International Airport Co., Ltd. to explore joint venture opportunities in its airport business.

In Brazil, CAI has a 51% stake in the concessionaire which operates Tom Jobim International Airport in Rio de Janeiro. The concessionaire previously filed to return the airport concession in February 2022 following years of weak economic growth due to the country's deep recession which was exacerbated by the Covid-19 pandemic. The concessionaire signed an amendment to the concession agreement with the regulator in November 2022 to begin the process to return the concession. Until a new operator is selected, the concessionaire continues to manage the airport with high standards of service

for passengers and other stakeholders.

In India, CAI holds a 30% stake in Bengal Aerotropolis Projects Limited, which develops Durgapur Aerotropolis, India's first privately managed airport city. At Kazi Nazrul Islam Airport, the post Covid-19 traffic recovery witnessed strong rebound, and the airport regained air connectivity to the five major Indian metro cities. Indigo and Spicejet operated daily flights to Bangalore, Chennai, Delhi, Hyderabad and Mumbai, and the average load factor for all services stood at 79%. Demand for land at the aerotropolis was healthier than the previous financial year.

In the Philippines, CAI holds a 15% stake in Luzon International Premiere Airport Development Corp (LIPAD), which operates and maintains Clark International Airport. CAI worked closely with LIPAD to open the airport's new passenger terminal in May 2022 – the first in the Philippines to deploy a full suite of contactless passenger solutions. CAI also worked with the airport to rebuild traffic post Covid-19. Passenger traffic saw some recovery in key markets including Korea, the Middle East and Singapore. The airport also welcomed two new airlines, EVA Air and China Southern. Cargo tonnage increased 30% year-on-year.

EXPORTING CHANGI'S EXPERTISE

During the year, CAI continued to expand its international presence, providing consultancy services to a number of overseas airports. CAI successfully won the competitive bid issued by Maldives Airport company Limited in October 2022 to provide consultancy services for Velana International Airport (VIA), the main international airport in the Maldives. The project, which consists of reviewing and updating the airport master plan for VIA, will be completed in 2023.

In November 2022, CAI signed a three-year service agreement with Cambodian Airport Investment Co. Ltd. to help prepare Techo Takhmao International Airport (the new airport near Phnom Penh) for its opening. The multi-disciplinary scope covers several aspects, including operational model strategy, key preparation reports leading to Operational Readiness & Airport Transfer, information communication technology design peer review, technical support for testing and commissioning and transition plan.

CAI also made headway in Central Asia. In January 2023, CAI inked a strategic partnership agreement with Uzbekistan Airports Group to explore potential collaborations for the new Tashkent International Airport.



CAI won the competitive bid to provide consultancy services for the Maldives' island airport, including the seaplane terminal.

Connecting with Fans Globally



Changi Airport debuted on TikTok with a series of entertaining content about the airport to capture the potential of this fast-growing channel.

As travel resumed, CAG sought new ways to engage travellers and accelerated the growth of Changi Airport's fanbase across various social media platforms. CAG created social content to inspire travel and reinforce Changi's position as a well-connected air hub.

ENGAGING FANS WITH FRESH CONTENT AND NEW PLATFORM

To expand Changi's social media presence, CAG launched its new TikTok channel (tiktok.com/@changiairport) on 25 April 2022. Through active trend-spotting and serving a diverse mix of bite-sized video content, the channel quickly garnered over 80,000 followers and over 18 million video views in the financial year 2022/23.

With more people watching videos in the vertical format on their mobile devices, CAG also ramped up its efforts to publish video content on Instagram Reels and

doubled Changi's reach year-on-year on Instagram.

In December 2022, CAG launched a new YouTube series titled 'Our Interns Tried'. Produced by and targeted at Gen Zs, the video series featured CAG interns from various divisions attempting different challenges around the airport. These long-form videos showcased Changi and its offerings in a light-hearted, entertaining manner to engage this generation of airport users. The series was well-received with an average of 210,000 views per episode.

CELEBRATING THE RETURN OF TRAVEL AND TERMINAL REOPENINGS

CAG marked the return of travel with the reopening of Terminals 2 and 4. Ahead of this, Changi's social platforms created lively content to raise awareness and anticipation. Key information on airline operations was also conveyed to keep passengers informed. In total, the content reached over 4.3 million fans and followers, with over 70,000 engagements.

To fuel travel recovery and familiarise travellers with new travel processes, CAG shared related content on its social platforms to guide passengers travelling through Changi. These included a departure video guide for travellers, travel checklists for Singapore residents, and useful Changi app features for a smoother passenger experience.

BUILDING A GLOBAL AUDIENCE

With the lifting of Covid-19 border restrictions, there was renewed interest in Singapore from international travellers. CAG reached out to travellers in overseas markets using familiar platforms to

educate them on the relaxation of travel guidelines to Singapore.

CAG tailored its engagement in Australia, China, India and Indonesia to the language and interests of each market. In China, CAG reached out to followers through popular Chinese social media platforms – WeChat, Weibo and Xiao Hong Shu. Campaigns were timed with key festive seasons to build rapport and increase the brand presence of Changi. An example was a campaign during the mid-Autumn festival, where CAG hopped on a trend centred on 'reunion'. CAG encouraged followers on Xiao Hong Shu to virtually create a photo of themselves with parts of Changi. This resulted in over 850,000 impressions and 120,000 views.

In Indonesia, CAG engaged nine influencers through a partnership with a travel agency. They produced a series of engaging content to showcase and promote Changi as a must-visit destination when travelling to Singapore. These influencers created 150 pieces of content on Instagram and reached an audience of over 2.5 million.



To keep Changi top-of-mind for Chinese tourists, CAG launched fun campaigns during key festive seasons to engage this market creatively.

Developing Talents

During the year, CAG continued to prioritise employee communication, engagement, and well-being as key tenets of its people policy. It redoubled efforts to build capability for its workforce to fast-track innovation and support the company's ambition of creating the airport of the future.

REFRESHED EMPLOYEE ENGAGEMENT APPROACH

As Singapore returned to normalcy after two years of Covid-19 restrictions, CAG established a hybrid work arrangement to offer flexibility for its employees while ensuring that its business and operations continue to run smoothly.

To promote more interaction among colleagues, CAG introduced new initiatives to enhance the workplace experience and foster social cohesion. Barista-made coffee and tea are served at a designated pantry on 'Perk-Me-Up' days, common days when most employees are back in the office. A monthly 'Snack Attack', when thematic snacks are curated at various pantries, boosts the range

of pantry offerings and sparks conversation among colleagues.

CAG's workplace came alive with more onsite activities to appreciate employees and celebrate achievements, such as CAG's 13th anniversary and the reopening of Terminals 2 and 4. An airport-wide carnival was also held to thank all employees and the airport community when Changi Airport clinched Skytrax's World's Best Airport award for the 12th time in 2023.

Internal communications channels such as In.Touch – an internal social media app, electronic direct mailers, and the intranet continue to be timely and important means to inform employees of company and airport news and developments.

In June 2022, CAG relaunched In.Touch on a new platform. The intuitive user interface and improved accessibility enhanced employees' experience over the previous app. Employees were empowered to share ideas, work updates and achievements via a central newsfeed or within

thematic groups such as company innovation. Like-minded colleagues also formed interest groups to connect and bond. Alongside milestones such as new airline launches and global events such as the world's biggest football tournament in 2022, staff competitions with attractive prizes were held to generate engagement and buzz. The new In.Touch platform was hugely popular among colleagues, with a sign-up rate of over 90% within the first three months.

Employee wellness is also a top priority. CAG's 'Healthy Habits, Happy Life' programme introduced new activities for which employees could sign up and track their own progress. A suite of workshops centred on physical, mental and financial health was held to support CAG employees in managing their personal and professional well-being. In one such event, called 'Elephant in the Room: Breaking the Mental Health Taboo', a guest speaker from Changi General Hospital provided practical advice and expert counsel on mental wellness.



CAG's 'Healthy Habits, Happy Life' initiatives aim to help employees achieve physical, mental and financial health.

EQUIPPING EMPLOYEES TO INNOVATE

CAG stayed focused in its pursuit to be one of the most innovative companies in Singapore. It reinforced its efforts to create an environment that fosters innovation and inspire all employees to cultivate behaviours and mindsets that support experimentation.

The CAG Accelerator programme, with its internal network of consultants, is a key catalyst for the development of new ideas within the company. In financial year 2022/23, over 75 project teams leveraged the technical expertise of the Accelerator to co-create innovative solutions, leading to significant productivity gains.

In support of its bold ambition to redefine the future of air travel, CAG took the leap to move into a unique '4D+i' work approach to speed up and scale up innovation. In January 2023, the company transformed its way of working to focus on routine day-to-day work for four days ('4D') in a week and dedicate Fridays to innovation ('i'). On 'i-Fridays', all employees are encouraged to explore innovation, develop ideas, refine concepts, and build new capabilities through planned programmes such as brown bag talks, ideathons, pitch days, and innovation exchange platforms.

The strategy of setting aside bandwidth for innovation gave teams across CAG more opportunities to ideate and collaborate. This helped to unlock fresh ideas and the potential for novel solutions to take place. Within a month, over 60% of employees had attended at least one i-Friday activity, and close to 70% had suggested new



An engaging InnoXchange event held in January 2023 showcased new projects and how CAG is working to redefine the airport of the future.

ideas and/or joined a project team to work on an innovative idea. With this bold step, CAG is turbocharging its thrust to innovate, redefine its airport offerings, and stay ahead of the curve.

CAG's people are the most critical enabler of its zealous transformation journey. The company continued to equip its employees with new skills in mastering digital tools and imbued a mindset that supports continuous learning and improvement so that they could excel in their careers. The one-day Growth Mindset programme, which helps employees thrive amid change, continued into its third year. A new Growth Conversation module was added to bring employees deeper into the practical application of the growth mindset, particularly in meetings and conversations. This helped to unleash individual and team's potential and set the foundation for innovation.

STRENGTHENING EMPLOYER BRANDING

CAG maintained its appeal as an employer of choice. During the year, it received three notable industry awards. In the Randstad Employer Brand Award, CAG retained its top 10 position among

the most attractive employers in Singapore for the 10th year running. In Singapore's 100 (S100) Leading Graduate Employers ranking, CAG emerged as a double winner for the first time in both the Aviation, Transport & Supply Chain, and Hospitality, Leisure & Tourism sectors. It also won a bronze award for Excellence in Learning & Development in the HR Excellence Awards, an affirmation of its talent development programme.

CORPORATE SOCIAL RESPONSIBILITY

CAG remains invested in being an organisation that cares for the community. Its philanthropic arm, Changi Foundation, continued to work with Metta School to support youth with special needs. This included providing them with training opportunities needed as they work towards attaining sustainable livelihoods in the future.

CAG volunteers also continued their support for the Arts@Metta programme, curating an in-house arts programme for special needs artists to hone their marketing skills and sell their artistic creations. It culminated in a two-week art exhibition at the CAG office, where more than 60% of the displayed art pieces received bids.

Sustainability Highlights

ENVIRONMENTAL

CAG commits to

Zero

carbon growth until 2030, capping our absolute emissions at 2018 levels



100%

of airside vehicle fleet to run on cleaner energy by 2040

-25%

reduction in electricity consumption as compared to FY2018/19 baseline



10%

waste diverted from incineration



43%

of our water consumption was NEWater



SOCIAL

Ranked Top 10

most attractive employer in Singapore by Randstad for the 10th consecutive year



Community Chest Volunteer Partner Award



S100

Leading Graduate Employers Awards
Winner in Hospitality, Leisure, & Tourism Category
Winner in Aviation, Transport, & Supply Chain Category

CORPORATE GOVERNANCE

Zero



significant fines for non-compliance with applicable laws and regulations

Zero



employee work-related fatalities

Advancing Environmental Sustainability

CAG's environmental sustainability strategy focuses on four key areas, namely mitigating carbon emissions, enhancing waste management, conserving water resources, and ensuring that airport facilities and operations adapt to the impacts of climate change. CAG has put in significant efforts across all four aspects.

In addition, although airports account for just 2% of the global aviation sector's total carbon emissions, we form the common platform upon which all our community partners operate. Therefore, apart from reducing CAG's own emissions from our operation of terminal buildings, we have intensified projects with our airport partners to build a more Sustainable Changi.

We also collaborate across the community to ensure that infrastructure and work processes can adapt to rising sea levels, warming temperatures and more intense lightning and thunderstorms.

...we have intensified projects with our airport partners to build a more Sustainable Changi

MATERIAL MATTER(S)	TARGETS	PERFORMANCE FY2022/23
 Energy And Emissions Management	Zero carbon growth until 2030, capping absolute emissions at 2018 levels	On track
	Achieve Airport Carbon Accreditation (ACA) Level 3 certification	Achieved
 Energy And Emissions Management		
 Water Management	Achieve ISO 14001:2015 recertification	Achieved
 Waste Management		
 People Development	All employees to attend at least one training programme, yearly	74%
 Community Investment	Achieve 25% volunteerism by 2025/26	20%
	Achieve 3,000 volunteer hours yearly by 2025/26	2,163 hours
	Offer a minimum of 80 annual job attachments to youth beneficiaries from 2025/26 onwards	22
	Engage 35 Airport Partners in Changi Foundation programme by 2025/26	8
 Airport Experience & Passenger Satisfaction	Achieve good yearly performance for the Customer Satisfaction Index of Singapore (CSISG)	81.7 out of 100 in 2020
 Airport Safety	Zero employee work-related fatalities, yearly	Achieved
	Deficiency-free rating from the International Federation of Air Line Pilots' Associations (IFALPA), yearly	Achieved
 Good Corporate Governance	Zero tolerance for corruption	Existing policy
	Zero significant fines for non-compliance with applicable laws and regulations	Achieved
 Contribution to the Economic Development Of Singapore	Completion of Terminal 2 (T2) Expansion Project	On track
	Build capacity ahead of growth with Terminal 5 (T5) planning and development	Ongoing effort

A Holistic Approach to Measuring Our Impact

ENVIRONMENTAL MANAGEMENT SYSTEM

CAG is committed to protecting the environment and creating a sustainable future by carrying out our activities in an environmentally responsible manner. Our ISO 14001:2015 certified Environmental Management System (EMS) adopts

a risk-based approach to identify, manage and control environmental risks holistically within the airport and across our supply chain.

Environmental champions are required to undergo refresher training to ensure conformity to the EMS and ISO 14001:2015 standard requirements.

This year, more than 200 staff (including top management) attended various training and awareness workshops to gain the necessary knowledge to continuously improve our environmental performance.

CAG's Carbon Footprint

965,948 tCO₂e

TOTAL GHG EMISSIONS¹



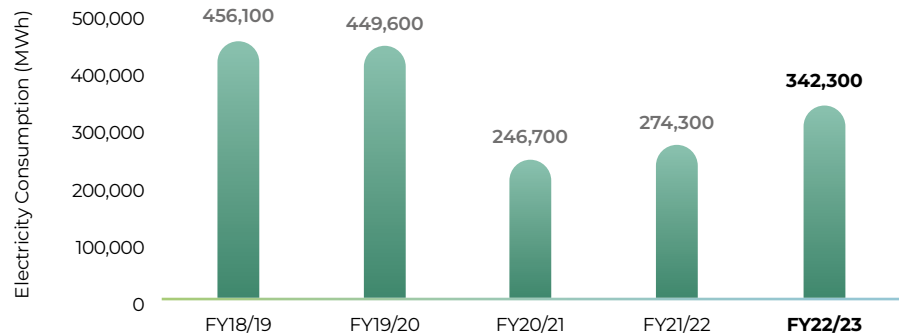
¹ CAG's overall carbon footprint has been prepared in accordance with ISO 14064, GHG Protocol and ACI's Airport Carbon Accreditation (ACA) guidelines, verified by an independent, third-party accredited verifier. The full methodological approach can be found in Appendix A. FY22/23 GHG emissions are subject to third-party verification.

Energy & Emissions Management

CAG stands with airports globally in our long-term commitment to slow down climate change. We commit to Zero Carbon Growth in our Scope 1 and 2 emissions until 2030 by capping our absolute emissions at 2018 levels, even as we expect to serve a growing number of passengers in the years ahead. We will also strive towards a Net Zero aspiration by 2050 through the adoption of new building energy efficiency technologies, increasing our renewable energy mix, while being further enabled by Singapore's national grid decarbonisation.

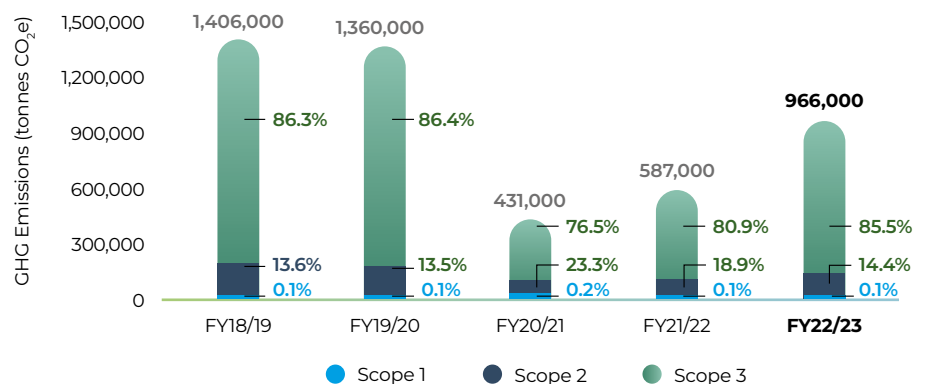
ELECTRICITY CONSUMPTION¹

Electricity consumption constitutes 99.3% of CAG's Scope 1 & 2 emissions. In 2022/23, CAG consumed 342,300 MWh of electricity, a 25% increase over 2021/22 due to the partial re-opening of T2 since June 2022 and the full re-opening of Terminal 4 in September 2022. Nonetheless, this was still 25% lower than our pre-Covid consumption of 456,100 MWh in 2018/19.



GHG EMISSIONS²

A total of 966,000 tonnes CO₂e of greenhouse gas (GHG) emissions was recorded in 2022/23, with Scope 1 and 2 accounting for 0.1% and 14.4% respectively. Scope 3 emissions form the largest proportion of our footprint at 85.5%.



¹ The historical electricity data has been restated to reflect the inclusion of CAG's operational areas within Jewel since 2018/19, as well as electricity consumption from the third runway since 2020/21. The adjustment margins (rounded to the nearest 100 MWh) for the respective years are: 2018/19: +100 MWh (+0.03%); 2019/20: +9,600 MWh (+2.2%); 2020/21: +10,300 MWh (+4.4%); 2021/22: +14,200 MWh (+5.4%).

² The historical emissions data has been restated according to the adjustment made to electricity consumption (see Footnote 1 above)

Emissions above 3000ft are not part of the airport's carbon footprint

Emissions below 3000ft are included in the airport's carbon footprint

User Emissions (passengers and airport users' surface access)



Creating a Sustainable Air Hub

INVOLVEMENT IN THE INTERNATIONAL ADVISORY PANEL (IAP) ON SUSTAINABLE AIR HUB

In February 2022, the Civil Aviation Authority of Singapore (CAAS) convened the International Advisory Panel (IAP) as part of its efforts to develop a Sustainable Air Hub Blueprint in guiding the Singapore air hub's decarbonisation roadmap. CAG's CEO Lee Seow Hiang was part of the 20-member IAP alongside Director-Generals from key international aviation

organisations and top management from aviation industry players, knowledge and technology partners. The IAP submitted its report in September 2022, covering 15 key initiatives across the three pillars of airport, airline and air traffic management (ATM). CAG is committed to advancing sustainability efforts under the airport domain, and looks forward to working with CAAS and industry partners to study the initiatives under the airline and ATM pillars.

KEY RECOMMENDATIONS BY THE INTERNATIONAL ADVISORY PANEL ON SUSTAINABLE AIR HUB With focus on airport domain

Study feasibility of deploying solar panels on the airfield

Explore system optimisation through digital twin modelling

Improve building energy efficiency

Increase the share of renewables in our energy mix

Facilitate the transition of airside vehicles towards cleaner energy sources

Promote resource circularity

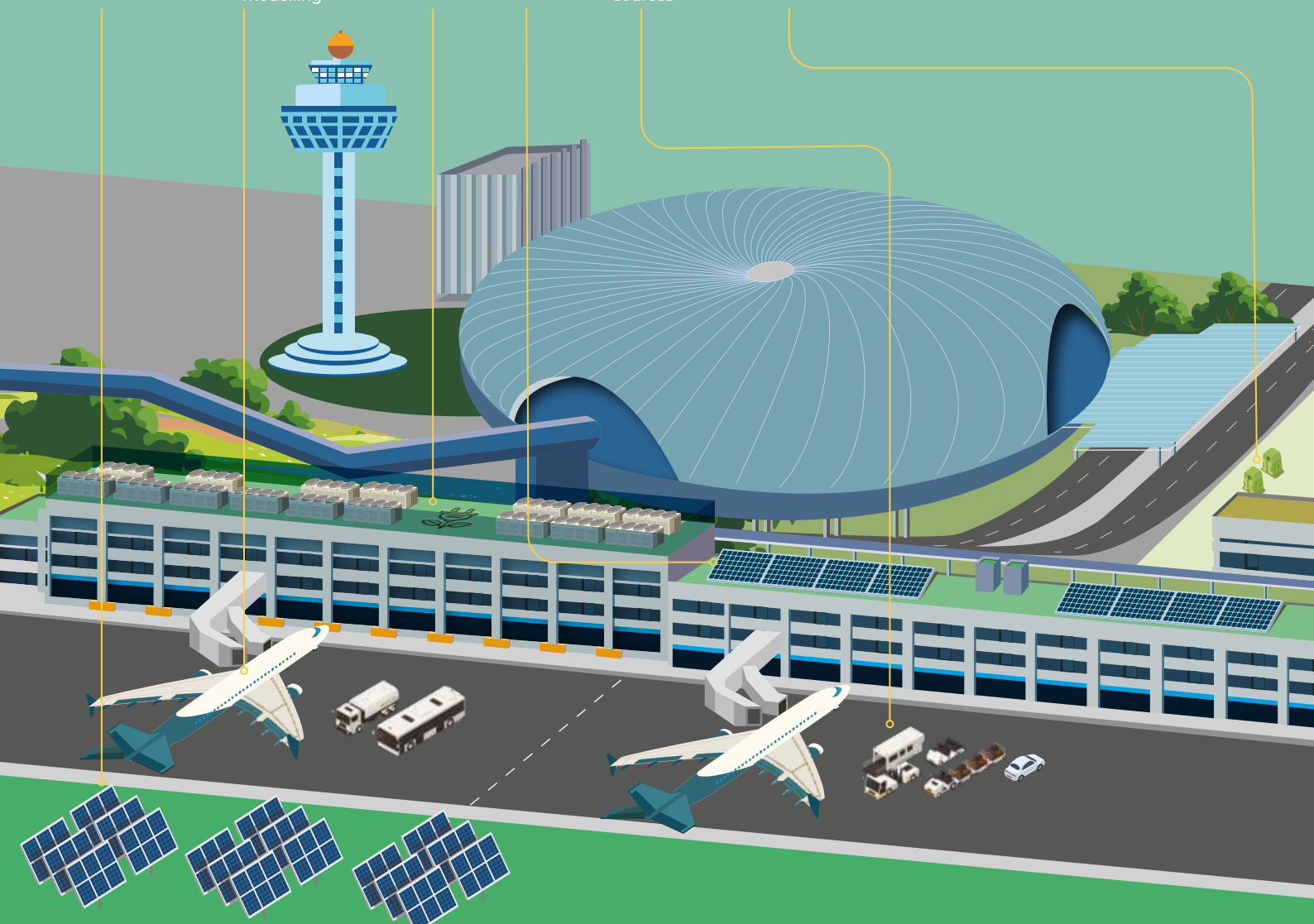
INITIATIVES FOR THE OTHER DOMAINS

AIRLINE

- Roadmap to create long-term secured sustainable aviation fuel (SAF) supply ecosystem
- Corporate Buyers' Club
- Structural offtake mechanism for SAF
- Aviation vertical offerings in carbon markets, support ecosystem for and encourage uptake of aviation carbon offsets
- Technical centre for capability-building in aircraft technology

AIR TRAFFIC MANAGEMENT

- Advanced demand-capacity balancing
- Performance-based navigation
- Gate-to-gate trajectory optimisation
- Trajectory-Based Operations and Free Route Airspace in collaboration with stakeholders and partner Air Navigation Service Providers



ROLLING OUT SUSTAINABLE AVIATION FUEL TRIALS TOWARDS A GREENER FUTURE

Aircraft emissions account for over 90% of the aviation industry's total carbon emissions. As such, the transition towards a viable alternative to traditional fossil jet fuel has been a key focus for decarbonising air travel. Sustainable aviation fuel (SAF) has been widely recognised by the industry to be a critical lever, which is estimated to contribute to approximately 65% of the emissions reduction required to meet the International Civil Aviation Organisation's long-term aspirational goal of net-zero carbon emissions by 2050.

In 2020, CAG initiated and co-funded a multi-party assessment of the operational and commercial viability of SAF in Singapore. In July 2022, the Singapore air hub reached a new milestone with the commencement of Singapore Airlines Group's one-year SAF pilot at Changi Airport, conducted in partnership with

CAAS and GenZero, an investment platform wholly owned by Temasek. Under this pilot, 1,000 tonnes of neat SAF was supplied by Neste and blended with refined jet fuel at ExxonMobil's facilities in Singapore. It marked the first time blended SAF was inducted into Changi Airport's fuel hydrant system and delivered to Singapore Airlines and Scoot aircraft departing from Singapore. The pilot is estimated to reduce Singapore Airlines' carbon emissions by 2,500 tonnes.

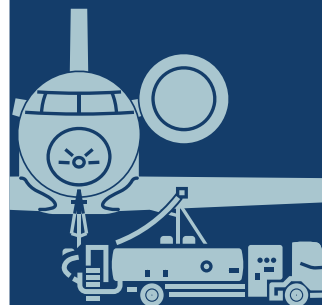
Building on this momentum, CAG was also pleased to support Cebu Pacific's maiden global SAF-powered commercial flight in September 2022, as well as Japan Airlines' SAF uplift from Changi Airport within the same quarter. With Neste's refinery expansion set to enable local SAF production capability up to 1 million tonnes per annum, CAG looks forward to working with our industry partners to promote acceleration of SAF deployment for the Singapore air hub.



SAF can reduce
greenhouse gas
emissions by up to
80%
as compared to
traditional fossil jet fuel



Singapore Airlines
Group's SAF pilot is
estimated to reduce
carbon emissions by
**2,500
tonnes**



WHAT IS SAF?

SAF, while chemically similar to traditional fossil jet fuel, is produced from sustainable feedstock such as used cooking oil and waste animal fats. Other types of feedstock sources include municipal solid waste and agricultural waste.

As SAF is typically produced from waste materials, it has the potential to reduce greenhouse gas emissions by up to 80% as compared to traditional fossil jet fuel¹. Today, SAF can be blended (up to 50%) with traditional fossil jet fuel for use at airports and in airplanes without any adjustments to existing infrastructure and technical designs. Its ease of use as a drop-in fuel, together with its scalability to support long-haul flights, makes SAF a key decarbonisation lever for the aviation industry.



¹ Computed on a life cycle basis. Emissions reduction potential vary depending on feedstock source, production method and supply chain arrangements.

Creating a Sustainable Air Hub

TRANSITIONING AIRSIDE VEHICLES TO CLEANER ENERGY

In addition to supporting our airline partners' decarbonisation through SAF adoption, CAG is working with the airport community to transition our airside vehicle fleet to cleaner energy variants.

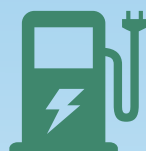
Since 2017, CAG has installed a network of more than 100 charging points to support our ground handling agents' fleet of electric vehicles.

Looking ahead, the Singapore Government has developed a decarbonisation roadmap for the airside fleet and CAG is committed to supporting this journey. From 2025 onwards, all new airside light vehicles, forklifts and tractors shall be electric. For other heavy vehicles and specialised equipment that do not yet have viable electric variants, we will commence trials of renewable diesel to evaluate if it is an effective complement to electrification where vehicle performance and efficiency can be maintained. Changi targets to have all airside vehicles run on cleaner energy by 2040.

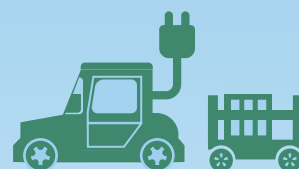
To enable this next phase of airside fleet electrification, CAG will expand our charging network to more than 300 points over the next few years, in tandem with the needs of our airport partners.



CAG works closely with key stakeholders to drive initiatives and enable decarbonisation of the aviation ecosystem.



We will be tripling our EV charging points to **more than 300**



100% of Changi Airport's airside baggage tractors are **electric**



Enhancing Airport Runway Resilience against Climate Change Impacts

CAG has been working alongside agencies and partners to examine the effects of extreme weather on airport infrastructure and operations to develop mitigating adaptations in a timely manner. One mission-critical infrastructure that we are building resilience against climatic changes would be airport runways.

With the projected increase in rainfall intensity and sea levels, CAG has grooved the asphaltic pavement of all three runways at Changi Airport and the single runway at Seletar

Airport to minimise the dangers of aquaplaning and runway excursion on wet surfaces during thunderstorm conditions. Over the years, CAG has also expanded airfield drainage capacity to avert flooding risk and added flood barriers to protect ground-based aircraft navigation systems.

In 2022, CAG's Engineering and Development (E&D) Cluster worked closely with the Aeronautical Telecommunications Engineering Division of CAAS to operationalise a new runway condition reporting system which automatically

assesses and relays any change in runway surface characteristics to air traffic controllers and pilots in real time. The system uses sensors installed next to each runway to enable broadcast of runway water film depth to air traffic controllers and pilots to alert them of environmental factors of operational significance. As one of the world's first systems with such capability, this runway condition reporting system won the 2022 Minister for Transport Distinguished Innovation Award.



CAG's Pavement and Airside operations teams work alongside each other to ensure round-the-clock operability of Changi's runways in spite of climate change. Runway grooving can be seen in the picture foreground.

Enhancing Airport Runway Resilience against Climate Change Impacts

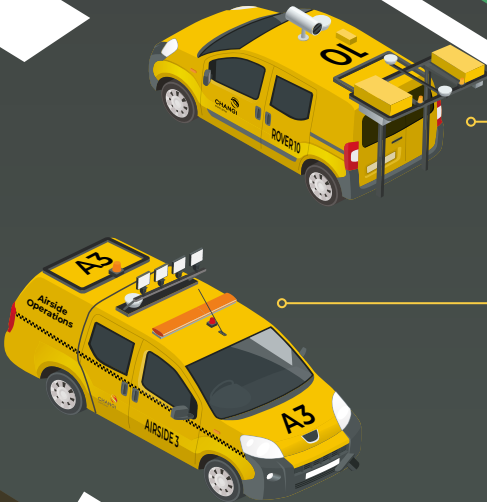
PAVEMENT TEMPERATURE SENSOR
Temperature sensors are embedded within the asphaltic pavement surface and installed above ground



RUNWAY GROOVES
Runway pavements are grooved to provide drainage and minimise dangers of aquaplaning and runway excursion during heavy rainfall

LASER CRACK MEASUREMENT SYSTEM (LCMS)
The LCMS scans the runway in pitch darkness to look for sub-millimetre pavement anomalies that are not discernible by the naked eye

RUNWAY CONDITION REPORTING (RCR)
Sensors installed next to each runway and a vehicle fitted with sensors will assess the runway condition as part of pre-calibrating the RCR



ASPHALTIC PAVEMENT LAYERS
CAG has introduced polymer additives into asphalt mix designs to enable durability while sustaining higher temperatures

ASPHALT
BASE COURSE
SUBGRADE

Globally, there have been concerns about increasing ambient temperatures affecting airport runways. At CAG, the E&D Cluster has been partnering technical experts from academia and industry to continually enhance the asphaltic mix design to strengthen pavement resilience against higher traffic volumes, more demanding aircraft gear configurations and harsher weather conditions. For many years, CAG has introduced polymer additives into Changi's runway and taxiway asphalt mix designs to enable them to function durably whilst sustaining higher temperatures.

To deepen this understanding, the Airfield Section in the E&D Cluster initiated research to establish the relationship between the temperature of asphaltic pavement surface and underlying structural layers with ambient temperature declared by the Meteorological Service Singapore in real-time. Furthermore, Terminal 5's Planning, Development and Construction Office is conducting a parallel study on implantation of stress and strain sensors in different layers of newly-constructed aircraft pavement to validate original pavement design assumptions under simulated and live aircraft loading. Data collected from the sensors would help the aircraft pavement maintenance team predict the remaining life span of the pavement structure and plan for rehabilitation to maintain robust structural integrity even amidst adverse weather.

With the combined effects of more frequent tropical storms and rising temperatures, CAG has invested in a Laser Crack Measurement System (LCMS) for aircraft pavement maintenance.

With the combined effects of more frequent tropical storms and rising ambient temperatures, the E&D Cluster Airfield Section has invested in a Laser Crack Measurement System for aircraft pavement maintenance.

The system comprises lasers and sensors mounted on an airfield vehicle that scans the runway in pitch darkness during runway closure. It picks up sub-millimetre pavement anomalies not discernible by the naked eye that, when subject to wet weather or hot temperatures in daytime, could be prone to the formation of potholes. Such specialised equipment would enable pavement surfaces to be mapped digitally for data analytics and machine learning to pre-emptively detect and predict maintenance needs and ensure safer aircraft use without resorting to massive resurfacing efforts that would be disruptive to operations. On an annual basis, the Airfield Section also performs profiling checks on the runway and uses the data to generate the ride comfort performance of different aircraft types using the runway.



CAG introduced polymer additives into Changi Airport's runway and taxiway asphaltic mix designs to enable them to

function durably while sustaining higher temperatures

Reducing Waste, Building Circularity

CAG adopts a three-pronged approach to waste management – actively reducing consumption of resources, switching to green options, and reusing and recycling resources. As CAG continuously manages various waste streams that goes through Changi Airport, different approaches and innovative solutions are implemented to help divert waste from Singapore's landfill.

CAG's waste control procedures are also reviewed annually to align with statutory requirements and mitigate any environmental risks. As Changi's passenger traffic recovers, CAG continues to reduce the amount of waste being generated and review waste reduction goals.

REVERSE VENDING MACHINE

In December 2022, CAG deployed a Reverse Vending Machine (RVM) to offer passengers and airport users an interactive and rewarding way of recycling plastic bottles and aluminum cans. With the RVM, users deposit their beverage containers and receive an incentive that can be utilised at Changi, encouraging them to recycle more. The aim is to increase the segregation of recyclables from non-recyclables which is often a challenge at areas with high footfall. Complementing recycling bins deployed around the airport, the RVM creates greater awareness in recycling with its interactive interface that displays educational recycling videos to the users.

To reduce contamination of the collected recyclables, the machine is equipped with a smart function to accept only empty beverage containers, and can identify the shape, size, and weight of each deposit to determine if it is



Airport users can contribute to waste circularity by depositing used cans and plastic bottles in exchange for a reward.

recyclable. For instance, a half-filled beverage bottle would be turned away by the machine as it would detect that the weight is higher than that of an empty beverage bottle.

As part of the initiative, the RVM offers users an option of further reducing their environmental footprint. Users can redeem points when they have deposited a sizable number of recyclables in the RVM for a mangrove tree to be planted by a reforestation non-profit organisation that helps support local villagers when they deposit recyclables. The option provides users with a meaningful experience through their recycling efforts.



Innovative solutions such as the RWD help reduce waste volume and carbon emissions from waste transportation.

TI ROTARY WASTE DRUM

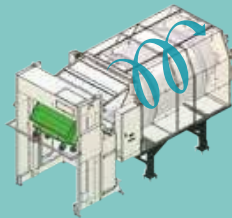
Apart from reducing consumption and recycling waste, CAG explores innovative solutions to efficiently manage waste and ensures measures are in place to maintain levels of hygiene. In doing so, an improved version of a conventional waste compactor known as a Rotary Waste Drum (RWD) was installed in the bin centre to increase the efficiency of waste management. The RWD helps reduce the volume of compacted waste by up to 5% by releasing water content from the collected waste through a process of rotation and compaction.

Reducing the water content in the waste collected alleviates the volume of non-recyclable waste that contain Liquids, Aerosol and Gels that are often disposed of at flight gates. The reduction in waste volume also reduces Scope 3 emissions with lesser carbon footprint generated from transporting the waste. The process has since resulted in fewer number of refuse disposal trips required and halved emissions generated from waste transportation.



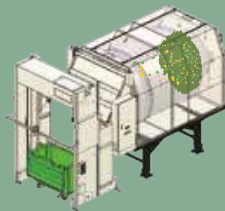
1 REFUSE DISPOSAL

Waste is loaded directly into the drum through the option of either an automatic conveyor or manually through an inlet gate that is fitted to the drum system.



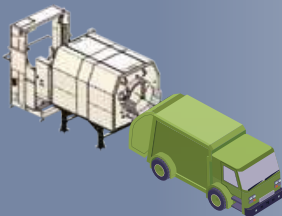
2 DRUM ROTATION

In the system, the waste is rotated with an internal inverter motor that help drives the rotation process. While this occurs, the system can lower any noise emitted.



3 COMPACTION- STORAGE

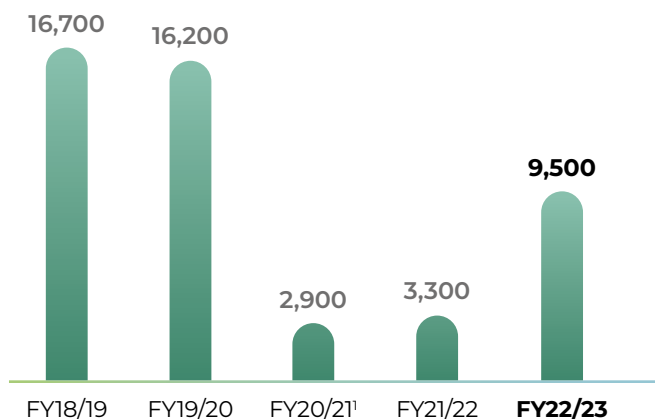
Bulky waste is compressed and any forms of liquid from the waste is released. The higher the volume of waste within the drum, the greater the compression strength is exerted.



4 AUTOMATIC DISCHARGE

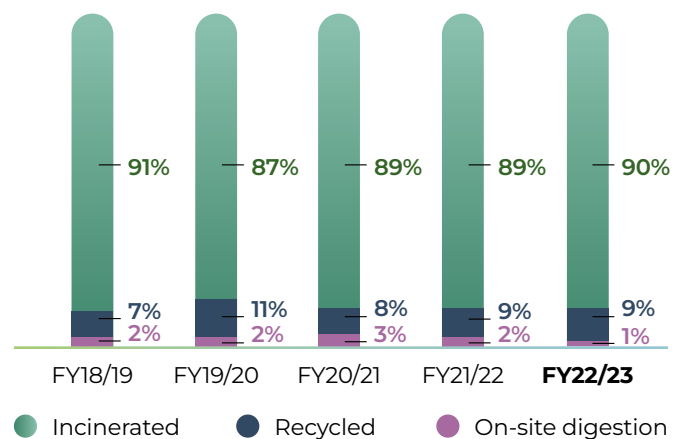
The system then pushes out the compacted waste, allowing it to be automatically discharged into the garbage truck without having to manually transfer the waste from one location to the other.

TOTAL WASTE GENERATED IN TONNES



¹ Waste volumes in FY20/21 and FY21/22 decreased due to global impact on air travel

% BREAKDOWN OF WASTE DIVERSION



● Incinerated ● Recycled ● On-site digestion

Conserving Water

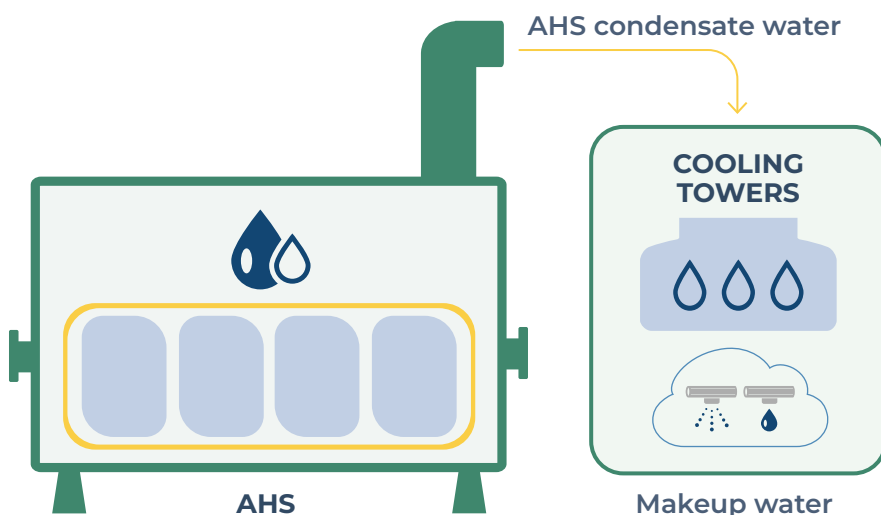
CAG continually looks to strengthen the long-term water resilience of Changi through the adoption of water-efficient technologies to reduce water consumption, while building on existing wastewater and condensate recycling capabilities. These efforts are undertaken in close partnership with various stakeholders within the airport ecosystem towards achieving a circular water economy at Changi.

	FY18/19	FY19/20	FY20/21	FY21/22	FY22/23
Water Consumption (nearest 1000m³)					
Potable Water	1,050,000	818,000	448,000	463,000	1,383,000
NEWater	2,176,000	2,454,000	861,000	783,000	1,032,000
Total Consumption	3,226,000	3,272,000	1,309,000	1,245,000	2,415,000
Water Discharge	2,273,000	2,064,000	904,000	815,000	1,832,000

AHS CONDENSATE RECOVERY

The condensate water from air handling stations (AHS) has been identified as a source of water that can be recovered as part of water recycling efforts. Six AHS at T2 have been designed so that condensate water will be recovered and pumped to top-up the makeup water of the cooling towers.

As NEWater – Singapore's high-grade treated used water – forms a significant share of the source of water used for operational consumption, the recovery of condensate water from the AHS would reduce the need to utilise fresh NEWater for the cooling towers. The condensate recovery will enable CAG in saving over 60,000 cubic metres of water annually, which is equivalent to 24 Olympic-sized swimming pools of water saved every year.



PROMOTING ENVIRONMENTAL CONSCIOUSNESS AT WORK

Using a 3As approach, the People Development & Experience team drives awareness amongst employees and inspires them to take action and advocate for the environment.

In March to April 2022, CAG organised a "Changi Goes Green" campaign that was an amalgamation of the three 'A's.



Awareness

Drive awareness on the multitude of environmentally friendly activities and the need for sustainability efforts



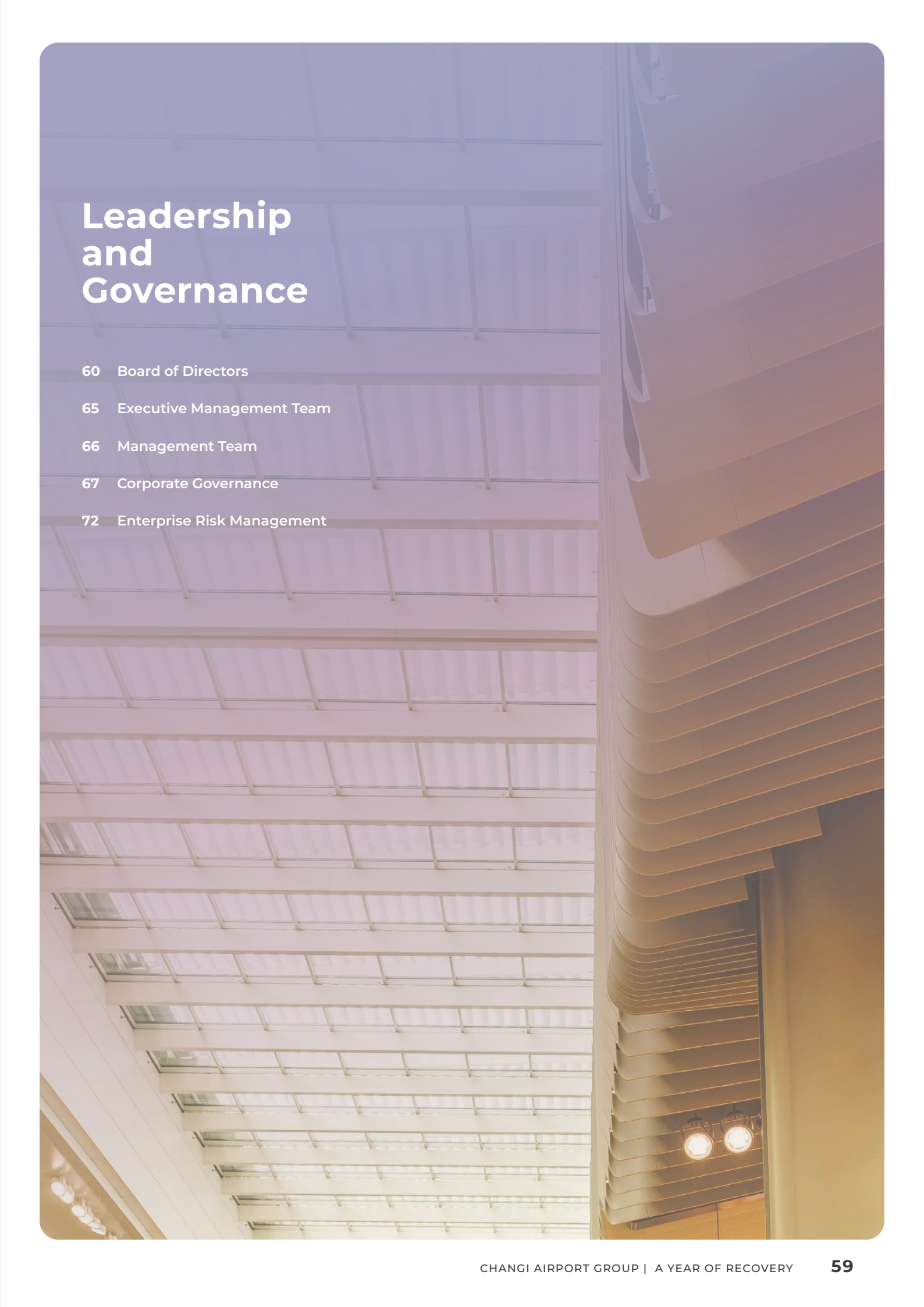
Action

Inspire staff to take action and to inculcate a sense of responsibility for the environment



Advocacy

Instill a sense of conservationism in our employees and to inspire them to advocate environmental wellness



Leadership and Governance

- 60 Board of Directors
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Board of Directors

1, 2, 3, 4, 5, 6



7, 8, 9, 10, 11, 12, 13



1. Tan Gee Paw

Chairman

Mr Tan Gee Paw is the non-executive chairman of CAG. He was appointed to the Board on 1 May 2017 and was subsequently appointed the non-executive chairman of the Board on 23 October 2020.

Mr Tan is currently the Special Advisor to the Chairman of the PUB, Singapore's National Water Agency, a member of the Centre for Liveable Cities (CLC) Panel of Distinguished Advisors, a Board Member of Surbana Jurong Private Limited, and a Senior Advisor of the Clean Energy Advisory Group, Temasek International Advisors Pte Ltd. He is an Adjunct Professor at the College of Design and Engineering, National University of Singapore.

Mr Tan was the previous Chairman of the PUB from 1 April 2001 up until his retirement on 31 March 2017. His previous appointments include being appointed as member on a number of government committees, the Principal of Ngee Ann Polytechnic, Permanent Secretary of the then Ministry of the Environment, Advisor on Rail Transformation, Ministry of Transport and Special Advisor to Land Transport Authority.

Mr Tan received the Public Administration Medal (Silver) in 1978 and a Special Award (Gold Medal) for Clean River Commemoration in 1987. He also

received the Medal of Commendation at the NTUC May Day Award in 2005, the President's Award for the Environment in 2007 and the President's Science and Technology Medal in 2015. Mr Tan was conferred the Meritorious Service Medal in 2001 for his work as Permanent Secretary of the then Ministry of the Environment and the Distinguished Service Order in 2010 for his work as Chairman of PUB. In 2011, Mr Tan was conferred the Distinguished Engineering Alumni Award by the National University of Singapore; the Distinguished Member Award by National University of Singapore Society in 2014; and the Distinguished Professional Engineer Award in 2018 by the Professional Engineers Board. He was elected an Honorary Fellow of the Institution of Engineers, Singapore and awarded the Lifetime Engineering Achievement Award in 2015.

Mr Tan was also elected as a Fellow of the Academy of Engineering, Singapore in 2012. Mr Tan graduated with First Class Honours in Bachelor of Engineering (Civil) from the University of Malaya in 1967, and a Master of Science in Systems Engineering from the University of Singapore in 1971. He was conferred an Honorary Degree of Doctor of Science from the University of Westminster, UK in 1993; and an Honorary Doctorate in Engineering from Sheffield University, UK in 1995. In 2013, he was conferred an Honorary Degree of Doctor of Engineering by the Nanyang Technological University.



2. Lee Seow Hiang

Executive Director and CEO

Mr Lee Seow Hiang is the CEO of CAG. He was appointed to the Board on 16 June 2009.

Mr Lee is concurrently Chairman of Changi Airports International Pte Ltd, Changi Foundation Limited and Jewel Changi Airport companies. He also chairs the National Library Board and sits on the board of NTUC FairPrice Co-operative Ltd. He holds the appointment of Immediate Past President on the Airports Council International (ACI) Asia-Pacific Regional Board and is a Director on the ACI World Governing Board.

From 1989 to 2005, Mr Lee held various appointments in the Republic of Singapore Air Force (RSAF) and the Ministry of Defence, with his last appointment being Deputy Head of Air Operations in HQ RSAF. From 2005 to 2008, he was the Principal Private Secretary to the late Minister Mentor Lee Kuan Yew in the Prime Minister's Office.

Mr Lee was awarded the Singapore Armed Forces (SAF) Overseas Scholarship and President's Scholarship in 1989. He was also awarded the SAF Postgraduate Scholarship (General Development) in 2002. He holds a Bachelor of Arts (Honours) from the University of Cambridge, UK, and a Master of Business Administration from the Massachusetts Institute of Technology, USA.

3. Tan Ching Yee

Mrs Tan Ching Yee is a Non-Executive Director of CAG. She was appointed to the Board on 1 May 2017.

Mrs Tan is the Permanent Secretary of the Ministry of Finance, Singapore. She also holds the appointment of Permanent Secretary (Special Duties), Prime Minister's Office. She assumed these posts on 1 May 2016. She is Chairman of the Inland Revenue Authority of Singapore and the Accounting and a board member of the Lee Kuan Yew School of Public Policy.

Mrs Tan was previously Permanent Secretary at the Ministry of Health and the Ministry of Education. Before that, she was the Chief Executive of the then Infocomm Development Authority of Singapore, and also Deputy Secretary (Infocomm and Media Development) at the former Ministry of Information, Communications and the Arts. Prior to these roles, she had worked at the Ministry of Education and Ministry of Trade and Industry.

Mrs Tan read Economics at Cambridge University and obtained her Masters of Science in Management from the Graduate School of Business, Stanford University.

Board of Directors

4. Titus lee

Mr Titus Lee is the Alternate Director to Mrs Tan Ching Yee. He was appointed to the Board on 15 January 2022.

Mr Lee is Director (Reserves and Investment) at the Ministry of Finance. Prior to joining the Ministry of Finance in November 2021, he held appointments at the Ministry of Health, the former Workforce Development Agency and the National Population and Talent Division. At the Ministry of Health, Mr Lee held the positions of Director, Aged Care Services, and Deputy Director of the Healthcare Finance Division. At the Workforce Development Agency, he was the Deputy Director overseeing workforce measures for low-wage workers. At the National Population and Talent Division, he was the Assistant Director involved in strengthening Marriage and Parenthood policies. Mr Lee started his career in the public service as an Economist with the Ministry of Trade and Industry.

Mr Lee was awarded the Public Service Commission Overseas Merit Scholarship and graduated from Northwestern University, majoring in Mathematical Methods in the Social Sciences and Economics. He also holds a Masters in International and Development Economics from Yale University.

5. Professor Tan Kong Yam

Professor Tan Kong Yam is a Non-Executive Director of CAG. He was appointed to the Board on 30 January 2015.

Professor Tan is presently Professor of Economics at the Nanyang Technological University. He is also Deputy Chairman of APS Asset Management (China).

From 1984 to 1988, Professor Tan was the Assistant Director on exchange rate policy at the Monetary Authority of Singapore and assistant to the late Dr Goh Keng Swee, the former Deputy Prime Minister of Singapore, who had been invited by Mr Deng Xiaoping to advise China on economic development strategy. From June 2002 to June 2005, he was a senior economist at the World Bank office in Beijing. In 2004, he was a member of the World Bank expert group on the 11th five-year plan (2006 to 2010) for the State Council in China. The expert group provided analysis and policy recommendations to the Chinese government. Prior to that, he was the chief economist of the Singapore government at the Ministry of Trade and Industry (1999 to 2002) and head of the Department of Strategy and Policy at the NUS Business School. He has also worked at the Hoover

Institution at Stanford University and World Bank in Washington.

Professor Tan is a graduate of Princeton University with a Bachelor of Art (Honours) and has a PhD in Economics from Stanford University.

6. Ng Chee Khern

Mr Ng Chee Khern is a Non-Executive Director of CAG. He was appointed to the Board on 1 March 2018.

Mr Ng is Permanent Secretary for Manpower in the Ministry of Manpower, which is responsible for Government policies and programmes covering the workforce and workplaces. Mr Ng was previously Permanent Secretary (Smart Nation and Digital Government) in the Prime Minister's Office from May 2017 to March 2022, where he led the government's efforts in driving the development of digital enablers for citizens and businesses and applying digital and smart solutions to improve the lives of citizens in a Smart Nation. He was Permanent Secretary (Defence Development) in Singapore's Ministry of Defence from May 2014 to April 2017 where his portfolio covered defence research and technology, capability development and acquisitions, and defence administration. He was concurrently 2nd Permanent Secretary in Singapore's Ministry of Health from August 2014 to February 2016 where he oversaw the overall operations, emergency preparedness and capacity building for the public healthcare sector in Singapore.

Mr Ng was previously the Chairman of the Government Technology Agency of Singapore (GovTech) board and served as a board member of the National Research Foundation (NRF), Civil Aviation Authority of Singapore (CAAS), Singapore Technologies Engineering Ltd, and CapitaLand Mall Trust.

7. Chia Song Hwee

Mr Chia Song Hwee is a Non-Executive Director of CAG. He was appointed to the Board on 1 October 2018.

Mr Chia is the Deputy Chief Executive Officer at Temasek. He has held various leadership roles in Temasek, including President and Chief Operating Officer, as well as Head of the Investment, Credit Portfolio, and Strategy Groups. He has also led the Temasek market teams in Singapore and China.

In February 2021, he was appointed to the board of Agency for Science, Technology and Research (A*STAR).

Mr Chia also serves as a member of Singapore's Advisory Council on the Ethical Use of AI and Data, established by the Infocomm Media Development Authority (IMDA) since 2018.

Prior to joining Temasek in 2011, Mr Chia was the Chief Operating Officer at GlobalFoundries. Before the integration of GlobalFoundries and Chartered Semiconductor Manufacturing Ltd (Chartered), he served as Director of the Board, and President and CEO of Chartered from 2002 to 2009.

Mr Chia also held various management positions at Chartered, including Senior Vice President, Chief Financial Officer, and Chief Administrative Officer. Prior to Chartered, Mr Chia was Regional Controller for Asia, Australia, and the Middle East for the drilling group of Schlumberger, a global oilfield services group.

Mr Chia holds a Bachelor of Business (Accountancy) degree with distinction, from Edith Cowan University, Australia, and is a member of CPA Australia. He was honoured with the EE Times Annual Creativity in Electronics Award for Executive of the Year in 2007.

8. Kelvin Fan

Brigadier-General (BG) Kelvin Fan is a Non-Executive Director of CAG. He was appointed to the Board on 15 August 2018.

BG Fan is currently the Deputy Secretary (Policy), Ministry of Defence. Prior to his current appointment, BG Fan was Chief of Staff – Joint Staff, Inspector-General and Chief Sustainability Officer in the Singapore Armed Forces (SAF). He had previously served as Director (Policy) in the Ministry of Defence, as well as Chief of Staff – Air Staff, Commander Air Defence and Operations Command, and Head Air Operations in the Republic of Singapore Air Force. BG Fan is also a member of the Singapore Administrative Service and had served in the Ministry of Trade and Industry, where he was responsible for developing tourism policies such as the Integrated Resorts.

BG Fan was awarded the SAF Overseas Scholarship in 1998. He has a Master of Economics from Cambridge University, a Master of International and Developmental Economics from Yale University, and a Master of Business Administration from Massachusetts Institute of Technology. BG Fan is also a graduate of the US Air Force Command and Staff College and a Lee Kuan Yew Post-Graduate Scholar. In 2022, BG Fan was awarded the Public Service Administration (Military) (Gold).

9. Chng Sok Hui

Mrs Chng Sok Hui is a Non-Executive Director of CAG. She was appointed to the Board on 1 October 2019.

Mrs Chng is the Chief Financial Officer of DBS Group, and a member of the DBS Executive Committee. Prior to this appointment in 2008, she was the Managing Director and Head of Risk Management at DBS Group and held the position for six years.

Mrs Chng is currently a Board member of DBS Bank India Limited. She serves on the board of Singapore Exchange Limited and chairs its Risk Management Committee. Additionally, she is a member of the CareShield Life Council. Mrs Chng previously served on the boards of the Bank of the Philippine Islands, Inland Revenue Authority of Singapore, Housing & Development Board, Accounting Standards Council and, for 10 years, as the Supervisor of the board of DBS Bank (China) Limited.

Mrs Chng is a Chartered Financial Analyst, a Certified Financial Risk Manager, an Institute of Banking and Finance Singapore Distinguished Fellow, as well as a Fellow Chartered Accountant of Singapore. Mrs Chng was the recipient of AsiaRisk's Risk Manager of the Year Award in 2002 and The Asian Banker's Inaugural Risk Manager of the Year Award in 2012. Mrs Chng was named Best CFO at the Singapore Corporate Awards 2013, Accountant of the Year at the Inaugural Singapore Accountancy Awards in 2014 and Best CFO in Singapore by the FinanceAsia's Best Companies Awards in 2023. She is a member of the International Women's Forum (Singapore).

10. Kwa Kim Li

Ms Kwa Kim Li is a Non-Executive Director of CAG. She was appointed to the Board on 1 October 2019.

Ms Kwa is the Managing Partner of Lee & Lee, Advocates and Solicitors. Ms Kwa graduated in 1979 from the National University of Singapore and was called to the Singapore Bar in 1980. She has been in active legal practice with the Firm for over 40 years, and her practice areas span various aspects of law. Although her specialty is real estate, Ms Kwa also advises on loans, trusts, wills, probates, joint ventures and cross border transactions.

Ms Kwa also holds various positions outside her legal practice, including directorship in Wing Tai Holdings Limited. In the health sector, she is a Trustee of the Singapore Cardiac Society.

Board of Directors

Ms Kwa was awarded the Ministry of Education “Service to Education” Award and the Ministry of Health 5 years Appreciation Service Award.

11. Abdul Wahab Bin Mohamed Yusoff

Mr Abdul Wahab Bin Mohamed Yusoff is a Non-Executive Director of CAG. He was appointed to the Board on 1 October 2019.

Mr Wahab holds the position of Vice President - Asia Pacific & Japan at Delinea, formed from established leaders in Privileged Access Management – Thycotic and Centrify. Delinea is a leading provider of cloud-ready privileged access management (PAM) solutions that empower cybersecurity for the modern, hybrid enterprise.

With over 30 years of experience in the information technology, computer and cybersecurity fields, Mr Wahab has held various leadership roles in companies that are focused on helping multi-national corporations establish and grow their operations in the Asia Pacific region. Prior to joining Delinea, Mr Wahab was Vice President, APJ of Forescout Technologies Pte Ltd from 2017 – 2021, Vice President and General Manager of Palo Alto Networks ASEAN from 2015 to 2017. He also held the role of Vice President, South Asia of McAfee & Intel Security from 2009 to 2015 and was EMC Computer Systems, South Asia’s Vice President and General Manager from 2003 to 2009.

Mr Wahab is presently a Board of Director of Singapore Civil Service College (CSC) and EZ-Link Pte Ltd. Board Member of Workforce Singapore (WSG), National Arts Council (NAC) and Energy Market Authority (EMA). He is a Non-Executive Director of Rekanext Capital Partners Pte Ltd (a venture capital fund focused on ASEAN pre-series start-ups).

Mr Wahab holds a Bachelor of Engineering degree from the National University of Singapore and is a graduate of INSEAD’s International Executive Programme.

12. Kee Teck Koon

Mr Kee Teck Koon is a Non-Executive Director of CAG. He was appointed to the Board on 1 March 2020.

He is the Chairman of NTUC Fairprice Co-operative Limited and Deputy Chairman of NTUC Enterprise Co-operative Limited, the holding company of Fairprice Group, NTUC First Campus, NTUC Health, Income Insurance Limited, NTUC LearningHub, NTUC Link, Mercatus and MoneyOwl.

He also holds directorships in CapitaLand Investment Limited, Tangram Asia Capital LLP and Mandai Park Holdings Pte. Ltd. He is a Board Advisor of Income Insurance Limited and a member of the Angsana Fund Investment Committee of the Singapore Labour Foundation.

Mr Kee was awarded the Public Service Star (BBM) by the Singapore Government and Meritorious Service Award by the National Trades Union Congress.

Mr Kee holds a Master of Arts in Engineering Science from Oxford University, UK.

13. Mark Yeo

Mr Mark Yeo is a Non-Executive Director of CAG. He was appointed to the Board on 1 April 2021.

Mr Yeo sits on the Boards of Keppel Infrastructure Trust as well as Ireit Global both of which are listed on SGX. Prior to his current appointments, Mr Yeo was Director on the Board of Changi Airports International (CAI) and held non-executive directorship on the Boards of Cityspring Infrastructure Trust, Singapore Cruise Centre and Singapore Expo/Singex.

Mr Yeo has held various senior banking positions working on the infrastructure sector in Asia, Europe and Latin America mainly doing project finance advisory. He was based both in Singapore and London. Thereafter, he held several leadership positions in corporates in Asia and the Middle East. He started his career in the Singapore civil service.

Mr Yeo graduated with a Master of Arts from the University of Oxford and a Master of Laws from the National University of Singapore. He is also a Barrister of Gray’s Inn and attended the Advanced Management Programme with Insead.

Executive Management Team



1, 2, 3



4, 5, 6



7, 8, 9

1 Lee Seow Hiang
Chief Executive Officer

2 Lim Peck Hoon
Executive Vice President,
Commercial

3 Ng Lai Leng
Chief Financial Officer
Executive Vice President,
Enterprise Performance &
Development

4 Tan Lye Teck
Executive Vice President,
Safety & Security

5 Yam Kum Weng
Executive Vice President,
Airport Development

6 Eugene Gan
Chief Executive Officer,
Changi Airports International

7 Jayson Goh
Executive Vice President,
Airport Management

8 Lim Ching Kiat
Executive Vice President,
Air Hub & Cargo Development

9 Justina Tan
Executive Vice President,
Corporate, People and Culture

Management Team

(As at 1 June 2023)

Changi Airport Group

ANG Cheng Nam

Senior Vice President
Changi East Safety

ANG Siew Min

Senior Vice President
Airport Operations Development
& Airport Operations Services

CHAN Boon Seng

Group Project Director
Changi East Construction

CHOY Da Wen

Group Senior Vice President
Enterprise Strategy & Development

CHUA Siew Hwi

Senior Vice President
Enterprise Performance

CHUNG Choon San

Group Project Director
Changi East Construction

James FONG

Chief Executive Officer
Jewel Changi Airport Development

GOH Hwai Kar

Senior Vice President
People Services & Rewards

HUNG Jean

Group Senior Vice President
Enterprise Digital Ecosystem
& Business

Oliver KIESEWETTER

Senior Vice President
Airside Development & Baggage

KOH Miaw Ling

Senior Vice President
T5 Building

KOH Ming Sue

Managing Director
Engineering & Development

LECK Siew Leng

Senior Vice President
Internal Audit

Audrey LEE

Group Senior Vice President
Regulatory Affairs & Sustainability

Jacqueline LEE

Senior Vice President
Changi East Programme
Management Office

LEONG Yuh Khee

Senior Vice President
Airport Operations Technology
& Corporate IT

LEONG How Yin

Group Project Director
Changi East Planning,
Design & Construction

Albert LIM

Group Senior Vice President
Airport Operations Planning

LING Ming Koon

Senior Vice President
Airport Operations Policy & Business
Continuity Planning

LIU Yan Ling

Senior Vice President
Airport Operations Strategy
& Transformation

Jeffrey LOKE

Senior Vice President
Pricing & Commercial Strategy

Jessie LOONG

Group Senior Vice President
Legal & Compliance

Chandra MAHTANI

Senior Vice President
Airside Concessions

Fiona NG

Senior Vice President
Legal & Compliance

Jeffrey NG

Senior Vice President
Air Hub Strategy

Matthew NGAN

Senior Vice President
Changi East Mechanical & Electrical

ONG Chee Chiau

Group Senior Vice President
Changi East

ONG Sim Lian

Group Senior Vice President
Design Management

POH Li San

Senior Vice President
Changi East Specialised Systems

PUAR Teck Jin

Chief
Airport Emergency Service

Alan Xavier TAN

Senior Vice President
Aviation Security

TAN Boon Seng

Project Director
Changi East Construction

TAN Chien Mien

Senior Vice President,
Changi East IT Infrastructure &
Building Systems

Ivan TAN

Group Senior Vice President
Corporate & Marketing
Communications

TAN Kok Siong

Project Director
Changi East Construction

TENG Hwee Onn

Group Senior Vice President
Engineering Management & Systems
Planning

TEO Chew Hoon

Managing Director
Airside Concessions

WEN Dazhi

Senior Vice President
Tunnel Design Management

Damon WONG

Senior Vice President
Airport Operations Planning

Ivy WONG

Senior Vice President
Enterprise Strategy & Development

YEO Kia Thye

Managing Director
Airport Operations Control

Changi Airports International

LAU Ban Kiong

Managing Director
Changi Airport Planners & Engineers

LIM Wee Ping

Managing Director
Consulting Businesses

NG Kuan Luen

Director
Portfolio Strategy

Jane ONG

Director and Head
Human Resources

OON Wei Ying

Director
Risk and Operations

TAN Ee

Chief Financial Officer

Corporate Governance

The Board and Management of CAG ('the Company') are deeply committed to our Company's core value – integrity – which is at the heart of everything we do. We strive to meet and maintain the highest standards of corporate governance, professionalism and integrity, to build a company our stakeholders can be proud of. To operate a sustainable business over the long term and to uphold and protect the Company's brand and reputation, we strongly believe in being accountable to our immediate business and regulatory environment, as well as to the global community.

The Company's Code of Conduct sets out the principles and standards of conduct that it expects of all employees in their day-to-day activities and in the decisions they make. The Company also promotes a 'speak up' culture through its whistle-blowing policy, which is intended to detect and deter unethical or illegal conduct, while protecting whistle-blowers from retaliation.

In September 2022, the Company successfully re-certified its anti-bribery management system to the ISO 37001 standard, providing continuing assurance to its stakeholders that it maintains internationally recognised anti-bribery controls and practices.

In April 2023, the Company was also awarded the Data Protection Trustmark (DPTM) certification by the Infocomm Media Development Authority. The DPTM is a voluntary enterprise-wide certification for organisations to demonstrate accountable data protection practices. This is part of the Company's efforts to increase its competitive advantage and build trust with its customers, partners, and stakeholders, signalling to them that the Company has processes and systems in place to protect their personal data.

THE BOARD OF DIRECTORS

1. The Company's Board of Directors is our highest decision-making body. It oversees the Company's long-term strategies and provides guidance to Management for the long-term performance and financial soundness of the CAG Group ('the Group'), while safeguarding the interests of stakeholders.

Composition and Balance

2. Headed by Non-Executive Chairman, Mr Tan Gee Paw, the Board currently comprises 13 Directors (including an alternate director). Mr Lee Seow Hiang, our CEO, is the only executive member of

the Board. The majority of our Board members are independent. Our Directors are individuals with broad and diverse expertise and experience.

3. The Board Directors of the Company are:

- i. Mr Tan Gee Paw – Chairman
- ii. Mr Lee Seow Hiang – CEO
- iii. Mrs Tan Ching Yee – Shareholder Representative (Alternate: Mr Titus Lee)
- iv. Professor Tan Kong Yam
- v. Mr Ng Chee Khern
- vi. Mr Chia Song Hwee
- vii. Brigadier-General Kelvin Fan
- viii. Mrs Chng Sok Hui
- ix. Ms Kwa Kim Li
- x. Mr Abdul Wahab Bin Mohamed Yusoff
- xi. Mr Kee Teck Koon
- xii. Mr Mark Yeo

The profiles of the Directors can be found on pages 60 to 64 of this annual report. Changi Airports International Pte Ltd (CAI), a wholly owned subsidiary of the Company, has a separate Board of Directors.

4. The roles of the Chairman and the CEO are separate and distinct. The Chairman leads the Board and facilitates effective and comprehensive Board discussions and decision-making on strategic issues, while the CEO has full executive responsibility for the management of the Company's businesses and implementation of the Group's strategies and policies.
5. At this time, there are nine Board sub-committees which assist the Board in more detailed consideration of various matters. These are the Executive Committee (EXCO), Executive Resource and Compensation Committee (ERCC), Audit Committee (AC), Tenders Committee (TC), Executive Committee on Airport Development (ECAD), Operational Risk and Safety Committee (ORSC), Nominating Committee (NC), Capital Management Committee (CMC) and Technology & Systems Committee (TSC) (previously known as Technology Development Committee). Each committee is governed by its own terms of reference, which set out the scope of the committee's authority, duties and responsibilities. Ad-hoc committees are also formed from time to time to review specific issues.
6. The Board meets at least four times a year.

Access to Information

7. Prior to each Board Meeting and when necessary, the Board is provided with pertinent information – including updates on the Company's operating and financial key performance indicators, regulatory, industry and other significant developments relating to the Group – to enable the Board to make informed and sound decisions. The Board has full access to the Senior Management team and the Company Secretary. Should the Directors require independent professional advice on matters relating to the businesses or issues affecting their duties, the Company will, at its expense, arrange for the appointment of relevant professional advisors.

CAPITAL & INVESTMENTS

1. The EXCO comprises the following Directors:
 - i. Mr Tan Gee Paw - Chairman
 - ii. Mrs Tan Ching Yee
 - iii. Mr Chia Song Hwee
 - iv. Professor Tan Kong Yam
 - v. Mr Lee Seow Hiang
2. The EXCO reviews and recommends to the Board financing and investment strategies of the Group and approves significant investments by the Company and CAI. The EXCO also approves treasury matters such as the acceptance of banking and credit facilities, granting of corporate guarantees, debt capital market issuances, opening of bank accounts as well as hedging policies. The EXCO also sets the financial limits for the operational, procurement and treasury activities of the Company.
3. The Company had expected to take on significant debt in the coming years to finance the development of Changi East. To that end, the CMC was established at the end of 2018 to provide specific oversight in the area of capital management. However, in light of the pause in the development of Changi East, a decision was taken to suspend the CMC on 21 October 2020 until further notice.
4. The suspended CMC comprises the following Directors:
 - i. Mr Chia Song Hwee - Chairman
 - ii. Mr Titus Lee
 - iii. Mrs Chng Sok Hui
 - iv. Mr Lee Seow Hiang

5. It was intended that the CMC would review and recommend to the Board and/or EXCO the financing strategies and plans of the Company (debt capital market issuances and bank facilities), as well as guide and advise Management on the financing execution strategy.

EXECUTIVE RESOURCE AND COMPENSATION

1. The ERCC comprises the following Directors:
 - i. Mr Tan Gee Paw - Chairman
 - ii. Mr Chia Song Hwee
 - iii. Mr Kee Teck Koon
2. The ERCC supports and advises the Board on remuneration matters, leadership succession and development. The responsibilities of the ERCC include:
 - i. reviewing and approving the policy for determining executive remuneration, including the remuneration packages, service contract terms and benefits programme for key management executives;
 - ii. approving the appointment of key management executives, overseeing their development and reviewing succession plans to ensure a strong pipeline of talent to enable the continued success of the Company; and
 - iii. recommending the remuneration framework, including fees for non-executive Directors.

ACCOUNTABILITY AND AUDIT

Accountability

1. Management provides all members of the Board with reports on operating and financial information and key performance indicators on a quarterly basis and as the Board may require from time to time, to enable the Board to make balanced and informed assessments of the Company's performance, position and prospects.

Audit Matters

2. The AC comprises the following Directors:
 - i. Mrs Chng Sok Hui – Chairman
 - ii. Mrs Tan Ching Yee
 - iii. Brigadier-General Kelvin Fan

3. The main responsibilities of the AC are to assist the Board in discharging its statutory and other responsibilities relating to the Company's internal controls, financial and accounting matters, compliance, and business and financial risk management.
4. The AC is responsible for reviewing the effectiveness of financial, compliance and risk management frameworks, as well as the robustness of the reporting and disclosure processes. The AC also reviews the adequacy of whistle-blowing arrangements implemented by the Company through which employees, partners, suppliers and contractors can raise concerns in confidence about possible improprieties in matters of financial reporting or other matters. All whistle-blowing complaints are reviewed by the AC to ensure independent and thorough investigation, and adequate follow-up and resolution of the matters reported. The AC also provides oversight for the effectiveness of the Company's anti-bribery management system.
5. The AC performs independent review of the financial statements of the Company, and reviews the key areas of management judgment applied for adequate disclosure, critical accounting policies and any significant changes that would have a material impact on the financial statements.
6. The AC reviews the adequacy and effectiveness of the internal audit function and its processes, as well as ensures it is adequately resourced to carry out its function effectively. The AC reviews the Internal Audit (IA) Division's plans, its effectiveness and audit scope, and also approves its budget. The AC receives reports from IA at the completion of each audit, and at each AC meeting, IA provides the AC with updates on the key findings from the audit reviews, the remediation actions which have been or will be taken to address these findings, and an overview of the resolution of the audit issues (including current and past-due issues) to verify the effectiveness and timeliness of actions taken by Management on the internal auditors' recommendations and observations. Any changes to the audit plan will also be tabled for AC approval at the AC meetings.
7. The AC reviews and approves the external audit plan, the scope and results of the external audit. The AC also reviews the external audit reports to ensure that significant findings and observations regarding control weaknesses are promptly rectified. Prior to making recommendations to the Board on the external auditor's appointment or reappointment, the AC reviews the external auditor's independence, objectivity and quality of work based on the Audit Quality Indicators Disclosure framework established by the Accounting and Corporate Regulatory Authority. In line with best practice, the external audit partner is rotated every five years. The AC also reviews the non-audit fees awarded to the external auditors to ensure that the non-audit services performed by them would not affect their independence.
8. The AC meets with the internal and/or external auditors three times during the year. At least one of these meetings is conducted without the presence of Management, where the auditors may raise issues encountered in the course of their work directly to the AC.

INTERNAL CONTROLS

1. The Board and Management of the Company are fully committed to maintaining a robust system of internal controls, procedures and risk management to safeguard our shareholder's interests and the Group's assets. The Board delegates its oversight responsibilities for internal controls, financial and strategic (business) risk management and compliance matters to the AC, which ensures the effectiveness and adequacy of the system of internal controls in the Company, while the ORSC assists the Board in reviewing the operational and safety risk management and compliance systems put in place by Management.
2. The internal controls established by the Company are supported by systems, processes and people. The Company's three lines of defence for risk management are as follows:
 - i. the first line of defence is the business units who are responsible for identifying and managing risks inherent in their businesses;

- ii. the second line of defence comprises the oversight and control functions such as Enterprise Risk Management (ERM), Legal & Compliance, Aerodrome Safety, Aviation Security, Cybersecurity & Digital Governance, and Enterprise Performance; and
 - iii. the third line of defence is IA, which provides an independent assessment and assurance on the reliability, adequacy and effectiveness of the Company's system of internal controls, risk management procedures, governance framework and processes.
- 3. The Company's internal and external auditors review its key internal controls for material non-compliance or failures in internal controls and recommend areas of improvements. The AC reviews the effectiveness of the actions taken by Management in response to the recommendations made.
- 4. The AC also reviews the effectiveness of the enterprise risk management framework and the risk management processes put in place to manage financial and strategic (business) risks while meeting business objectives. Control self-assessments in key areas of the Group's businesses / operations are conducted by Management on a periodic basis to evaluate the adequacy and effectiveness of the risk management and internal control systems.
- 5. As part of the Company's anti-bribery management system, all employees undergo annual anti-bribery training, and divisions perform identification and assessment of bribery risk annually and put in place appropriate mitigating measures. Employees in sensitive positions are also required to submit declarations relating to anti-bribery compliance yearly.
- 6. A separate TC evaluates and approves the award of tenders for goods and services exceeding S\$50 million in value, except for those related to new development projects and major redevelopment projects at Changi Airport which come under the purview of the ECAD. The TC comprises the following Directors:
 - i. Mr Ng Chee Khern – Chairman
 - ii. Ms Kwa Kim Li
 - iii. Mr Lee Seow Hiang

Internal Audit

- 7. IA assists the AC to ensure that the Company maintains sound risk management and internal control systems. IA is independent of the activities it audits. It conducts regular audits of high-risk areas, and undertakes investigations as directed by the AC. It comprises suitably qualified and experienced staff, headed by the Senior Vice President, Internal Audit (SVP, IA). SVP, IA reports functionally to the Chairman of the AC, and administratively to the CEO. To ensure the independence of the IA function, the IA team has unrestricted access to the AC.
- 8. IA adopts a risk-based approach in formulating its annual audit plan that aligns its activities to the key risks across the Company's businesses, focusing on key internal controls, including financial, operational and compliance controls. The annual audit plan is developed in consultation with, but is independent of, Management and is approved by the AC. IA also works closely with Management to provide internal consulting and control advisory to promote effective risk management, robust internal control and good governance practices in the development of new services / products and implementation of new / enhanced systems and processes. Internal audit practices are also guided by the International Standards for the Professional Practice of Internal Auditing set by the Institute of Internal Auditors. IA also harnesses technology to maximise efficiencies in the way it audits, through robust use of analytics and continuous auditing.
- 9. IA's assessments on the adequacy and effectiveness of internal controls over processes / systems across the businesses are reported to the AC, and a summary of key findings and recommendations are also discussed at the AC meetings. IA also tracks and reports to the AC on the implementation status of actions agreed by Management, so as to ensure prompt and adequate closure of audit observations.

AIRPORT DEVELOPMENT

1. The ECAD currently comprises three Directors, and nine non-voting co-opted members who provide additional advice and expertise in relation to development projects.
2. The three Directors are:
 - i. Mr Tan Gee Paw – Chairman
 - ii. Mr Titus Lee
 - iii. Mr Lee Seow Hiang
3. The six non-voting co-opted members¹ are:
 - i. Professor Lui Pao Chuen
 - ii. Mr Lim Bok Ngam
 - iii. Mr Tham Kui Seng
 - iv. Mr Lai Huen Poh
 - v. Mr Lee Chuan Seng
 - vi. Mr Lee Kut Cheung
4. The ECAD oversees new development and major redevelopment projects at Changi Airport. The responsibilities of the ECAD include:
 - i. reviewing and approving collaborations, selection of consultants, architects and other professional advisors, design concepts, aesthetic element proposals and other proposals related to development projects at Changi Airport; and
 - ii. reviewing and approving tenders for goods and services exceeding S\$50 million related to development projects at Changi Airport.

NOMINATING COMMITTEE

1. The NC comprises the following Directors:
 - i. Mr Tan Gee Paw - Chairman
 - ii. Mrs Tan Ching Yee
 - iii. Mr Chia Song Hwee
 - iv. Ms Kwa Kim Li
2. The NC assists the Board in reviewing the structure, size, composition, core competencies and skills required by the Board and its committees to support the strategic objectives and values of the Company, and makes relevant recommendations to the Board.

TECHNOLOGY & SYSTEMS COMMITTEE

1. The TSC comprises five Directors and one non-voting member who has been co-opted to provide additional advice and expertise, as follows:
 - i. Mr Ng Chee Khern - Chairman
 - ii. Mr Chia Song Hwee
 - iii. Mr Titus Lee
 - iv. Mr Abdul Wahab Bin Mohamed Yusoff
 - v. Mr Lee Seow Hiang
 - vi. Professor Lui Pao Chuen (co-opted member)
2. The TSC provides guidance to Management on technology-driven innovation, as well as the development of technological capabilities in support of the Company's transformation. It also guides the Company on its strategy for the co-development of solutions and investments into start-ups with promising new technologies.

¹ Ms Patricia Chia, Mr Chua Hua Meng and Mr Goh Hup Chor retired as ECAD co-opted members on 1 September 2022.

Enterprise Risk Management

1. CAG continues to strengthen its risk governance and remains steadfast to its commitment to minimise key risks as well as the impact of damage through timely risk identification and implementation of appropriate mitigation strategies.
2. In financial year 2022/23, CAG focused on rebuilding the Changi air hub. Passenger traffic grew as Singapore gradually lifted Covid-19 border measures to facilitate the safe resumption of international travel in line with the stable and improved global pandemic situation. CAG ramped up airport operations and brought forward the reopening of Terminal 4 and the southern wing of Terminal 2 to meet the demands of the strong travel recovery. It navigated through nation-wide manpower shortages, reduced familiarity and experience of the airport community, and escalating operating costs arising from macro inflation and a tight labour market to ensure Changi Airport continued to operate safely, securely and efficiently.

RISK GOVERNANCE

3. The CAG Board and Management are responsible for the management of risks in Changi Airport. The Board, through the Operational Risk & Safety Committee (ORSC), provides oversight on operational and safety risks, while the review of the Company's financial and strategic risks is overseen by the Audit Committee (AC).
4. The ORSC comprises three Directors and two co-opted members, who provide additional advice and expertise to the Committee.
5. The three Directors are:
Brigadier-General Kelvin Fan – Chairman
Ms Kwa Kim Li
Mr Abdul Wahab Bin Mohamed Yusoff

The two co-opted members are:
Mr Mike Barclay
Mr Wong Woon Liong
6. The Board Committees work with the Management to ensure effective allocation of resources to create and protect CAG's assets and value. At the Management level, the Management Risk Committee (RC) is responsible for monitoring the risk management and internal control systems and ensuring that emerging risks are managed appropriately. The RC is chaired by the CEO and

comprises Senior Management members of the Company. It meets regularly to review the Company's key risks and provides strategic guidance to reinforce the implementation of enterprise risk management within the Company as needed.

7. The Enterprise Risk Management (ERM) unit supports the Board Committees and Management in their management of risks within CAG. The ERM unit carried out global risk scanning efforts for emerging risks to keep mitigation strategies timely and relevant. It also worked closely with the programme office to monitor the Changi East project comprising the future Terminal 5, connecting tunnels, and the three-runway system to ensure that risk factors across the design and construction phases, such as safety, operations, scheduling and cost, were mitigated to achieve optimal project outcomes.

RISK AWARENESS CULTURE

8. Risk management is an integral part of CAG's culture across all levels of staff. Every employee is to function as a risk manager for his or her own area of work by being vigilant and reporting risks in a timely manner. A new risk management champions network was further set up in 2022/23 to promote a more robust risk-aware culture across CAG. This network would help to flag up emerging risks more effectively.
9. The ERM unit continued to meet with risk owners regularly to ensure that risks are adequately addressed. It is involved in key committees such as the Information Assurance Committee and the Safety Committee, and will continue to work alongside business units to provide risk advisory to help them meet their business objectives amid challenging headwinds.

STRENGTHENING CYBERSECURITY

10. CAG has incorporated cybersecurity in its risk management framework by adopting a risk-based approach towards cybersecurity. Its proprietary cybersecurity awareness programme, mandated throughout the organisation, is updated regularly to address the latest threat landscape. CAG is one of the first international airports to achieve ISO 27001 certification for its critical airport operations. It demonstrated that it has met international standards in managing information security, and it continues to strengthen its digital security and resilience to ensure a safer cyberspace for its customers and passengers.

Group Financial Summary

The Group Financial Summary as set out on pages 74 to 88 contains only a summary of the information extracted from the Statement by Directors and the audited consolidated financial statements of Changi Airport Group (Singapore) Pte. Ltd. and its subsidiaries for the financial year ended 31 March 2023.

For a full understanding of the state of affairs of the Company and the Group as at 31 March 2023 and of the results of the Group for the financial year ended 31 March 2023, the Group Financial Summary should be read in conjunction with the audited consolidated financial statements and the audit report thereon, which can be obtained via the Company's website (www.changiairportgroup.com).

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Directors' Statement

For The Financial Year Ended 31 March 2023

The directors present their statement to the member together with the audited financial statements of the Group for the financial year ended 31 March 2023 and the balance sheet of the Company as at 31 March 2023.

In the opinion of the directors,

- (a) the balance sheet of the Company and the consolidated financial statements of the Group as set out on pages 9 to 76¹ are drawn up so as to give a true and fair view of the financial position of the Company and of the Group as at 31 March 2023 and the financial performance, changes in equity and cash flows of the Group for the financial year covered by the consolidated financial statements; and
- (b) at the date of this statement, there are reasonable grounds to believe that the Company will be able to pay its debts as and when they fall due.

DIRECTORS

The directors of the Company in office at the date of this statement are as follows:

Mr Tan Gee Paw	Chairman
Mr Lee Seow Hiang	Chief Executive Officer
Mr Abdul Wahab Bin Mohamed Yusoff	
Mr Chia Song Hwee	
Mrs Chng Sok Hui	
Mr Kelvin Fan Sui Siong	
Mr Kee Teck Koon	
Ms Kwa Kim Li	
Mr Mark Yeo	
Mr Ng Chee Khern	
Mrs Tan Ching Yee	
Mr Tan Kong Yam	
Mr Titus Lee Huisheng	(Alternate director to Mrs Tan Ching Yee)

ARRANGEMENTS TO ENABLE DIRECTORS TO ACQUIRE SHARES AND DEBENTURES

Neither at the end of nor at any time during the financial year was the Company a party to any arrangement whose object was to enable the directors of the Company to acquire benefits by means of the acquisition of shares in, or debentures of, the Company or any other body corporate.

DIRECTORS' INTERESTS IN SHARES OR DEBENTURES

According to the register of directors' shareholdings, none of the directors holding office at the end of the financial year had any interest in the shares or debentures of the Company or its related corporations.

¹ These page numbers refer to the pages in the full set of consolidated financial statements.

Directors' Statement

For The Financial Year Ended 31 March 2023

SHARE OPTIONS

There were no options granted during the financial year to subscribe for unissued shares of the Company.

No shares have been issued during the financial year by virtue of the exercise of options to take up unissued shares of the Company.

There were no unissued shares of the Company under option at the end of the financial year.

INDEPENDENT AUDITOR

The independent auditor, PricewaterhouseCoopers LLP, has expressed its willingness to accept reappointment.

On behalf of the Board of Directors

Tan Gee Paw
Chairman

Lee Seow Hiang
Chief Executive Officer

1 June 2023

Independent Auditor's Report

To The Member Of Changi Airport Group (Singapore) Pte. Ltd.

REPORT ON THE AUDIT OF THE FINANCIAL STATEMENTS

Our Opinion

In our opinion, the accompanying consolidated financial statements of Changi Airport Group (Singapore) Pte. Ltd. (the "Company") and its subsidiaries (the "Group") and the balance sheet of the Company are properly drawn up in accordance with the provisions of the Companies Act 1967 (the "Act") and Singapore Financial Reporting Standards (International) ("SFRS(I)s") so as to give a true and fair view of the consolidated financial position of the Group and the financial position of the Company as at 31 March 2023 and of the consolidated financial performance, consolidated changes in equity and consolidated cash flows of the Group for the financial year ended on that date.

What we have audited

The financial statements of the Company and the Group comprise:

- the consolidated income statement of the Group for the financial year ended 31 March 2023;
- the consolidated statement of comprehensive income of the Group for the financial year ended 31 March 2023;
- the balance sheets of the Company and the Group as at 31 March 2023;
- the consolidated statement of changes in equity of the Group for the financial year then ended;
- the consolidated statement of cash flows of the Group for the financial year then ended; and
- the notes to the financial statements, including a summary of significant accounting policies.

Basis for Opinion

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

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

Independence

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

Independent Auditor's Report

To The Member Of Changi Airport Group (Singapore) Pte. Ltd.

Our Audit Approach

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

Key Audit Matter

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements for the financial year ended 31 March 2023. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Key Audit Matter	How our audit addressed the Key Audit Matter
Property, Plant and Equipment ("PPE") The Group invests significantly into its capital infrastructure assets to support the growth and ongoing operations of the Singapore Changi Airport and Singapore as an air hub. To secure Singapore's air hub status and to ensure its continued competitiveness and relevance, the Group commenced the Changi East Development ("CE") project in 2014. Due to the Covid-19 pandemic, the development of Terminal 5 was temporarily paused in 2020 and construction is now expected to start in 2025. Works on other areas of the CE project continued during the financial year. The Group's total additions to PPE, including those relating to CE, amounted to \$1,073 million during the financial year (Note 12*). We focused our audit on the accounting for additions to PPE for CE as the additions are material to the financial statements of the Group. At the end of the financial year, management estimates the progress of construction or development works that have not been billed by suppliers and contractors and accrues for the unbilled PPE under construction. Estimates of percentage of completion of construction are made based on certified progress reports from the suppliers and contractors.	We performed a walkthrough of the procurement and fixed assets capitalisation cycle and evaluated the design, implementation and operating effectiveness of key internal controls over payments, accruals and capitalisation of PPE additions. In respect of the additions to PPE arising from suppliers and contractors, we selected samples of the additions and verified that they were appropriately supported by the relevant supplier invoices. For accrued balances, we sighted the relevant certified progress reports to support the appropriateness of the accrued amounts. We also checked that payments of invoices and progress reports used for accrual of unbilled PPE construction costs were approved by management in accordance with the Delegation of Authority set out by the Board.

Independent Auditor's Report

To The Member Of Changi Airport Group (Singapore) Pte. Ltd.

Our Audit Approach (continued)

Key Audit Matter (continued)

Key Audit Matter	How our audit addressed the Key Audit Matter
Property, Plant and Equipment ("PPE") (continued) Employee compensation was also capitalised as PPE. Management reviews the job scopes of employees and allocation of costs to capitalise as part of PPE on a periodic basis to ensure that only employee compensation directly attributable to CE were capitalised. Estimation of construction progress, recording of accruals, capitalisation of internal costs also involve estimation and judgement.	 For capitalised employee compensation, we selected samples to verify that only employee compensation for employees working directly attributable to PPE for construction or development works were capitalised. We also assessed management's internal cost allocation to the relevant assets for appropriateness. We also reviewed the adequacy and appropriateness of disclosures in the financial statements in respect of the Group's PPE balances.

* This reference is made in relation to the full set of consolidated financial statements.

Other Information

Management is responsible for the other information. The other information comprises the Directors' Statement (but does not include the financial statements and our auditor's report thereon), which we obtained prior to the date of this auditor's report, and the other sections of the annual report ("the Other Sections"), which are expected to be made available to us after that date.

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

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

If, based on the work we have performed on the other information that we obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

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

Independent Auditor's Report

To The Member Of Changi Airport Group (Singapore) Pte. Ltd.

Responsibilities of Management and Directors for the Financial Statements

Management is responsible for the preparation of financial statements that give a true and fair view in accordance with the provisions of the Act and SFRS(I)s, and for devising and maintaining a system of internal accounting controls sufficient to provide a reasonable assurance that assets are safeguarded against loss from unauthorised use or disposition; and transactions are properly authorised and that they are recorded as necessary to permit the preparation of true and fair financial statements and to maintain accountability of assets.

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

The directors' responsibilities include overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

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

As part of an audit in accordance with SSAs, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.

Independent Auditor's Report

To The Member Of Changi Airport Group (Singapore) Pte. Ltd.

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

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with the directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the directors with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

In our opinion, the accounting and other records required by the Act to be kept by the Company and by those subsidiary corporations incorporated in Singapore of which we are the auditors, have been properly kept in accordance with the provisions of the Act.

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

PricewaterhouseCoopers LLP
Public Accountants and Chartered Accountants
Singapore, 1 June 2023

Consolidated Income Statement

For The Financial Year Ended 31 March 2023

	Group	
	2023	2022
	\$'000	\$'000
Revenue	1,882,523	944,140
Expenses		
– Depreciation and amortisation	(704,058)	(715,784)
– Maintenance of land, buildings and equipment	(395,531)	(210,779)
– Services and security related expenses	(200,811)	(156,093)
– Employee compensation	(293,809)	(234,914)
– CAAS services and licence fees	(114,984)	(5,846)
– Property tax	(47,283)	(26,296)
– Other operating expenses	(99,927)	(176,142)
Total expenses	(1,856,403)	(1,525,854)
Operating profit/(loss)	26,120	(581,714)
Finance expenses	(72,361)	(259,107)
Other income and losses – net	118,064	(175,935)
Share of results of associated companies and joint ventures	(43,148)	21,515
Profit/(loss) before tax	28,675	(995,241)
Income tax (expense)/credit	(19,419)	48,112
Profit/(loss) after tax	9,256	(947,129)
Profit/(loss) after tax attributable to:		
Equity holder of the Company	32,630	(837,626)
Non-controlling interests	(23,374)	(109,503)
	9,256	(947,129)

Consolidated Statement of Comprehensive Income

For The Financial Year Ended 31 March 2023

	Group	
	2023	2022
	\$'000	\$'000
Profit/(loss) after tax	9,256	(947,129)
Other comprehensive income/(loss):		
<i>Items that will not be reclassified to income statement:</i>		
Currency translation losses arising on consolidation – Non-controlling interests	–	(623)
	–	(623)
<i>Items that may be reclassified subsequently to income statement:</i>		
Cash flow hedges		
– Fair value gains	9,595	10,495
– Reclassification	9,227	5,515
– Share of fair value losses from an associated company	–	(2,875)
Share of other comprehensive income of associated company		
– Reclassification	–	147
Currency translation differences arising on consolidation		
– Losses	(977)	(28,443)
– Reclassification	(6,005)	162,467
	11,840	147,306
Other comprehensive income, net of tax	11,840	146,683
Total comprehensive income/(loss)	21,096	(800,446)
Total comprehensive income/(loss) attributable to:		
Equity holder of the Company	40,968	(698,165)
Non-controlling interests	(19,872)	(102,281)
	21,096	(800,446)

Balance Sheets

As At 31 March 2023

	Group		Company	
	2023	2022	2023	2022
	\$'000	\$'000	\$'000	\$'000
ASSETS				
Current assets				
Cash and cash equivalents	1,594,954	1,350,855	1,541,577	1,237,569
Trade and other receivables	275,166	195,060	261,569	186,600
Other current assets	88,315	195,428	85,105	186,568
Other investments	466,833	537,245	428,767	495,537
Inventories	8,267	9,942	5,454	6,453
	2,433,535	2,288,530	2,322,472	2,112,727
Non-current assets				
Trade and other receivables	–	–	185,024	181,384
Other non-current assets	53,664	58,049	79,747	84,108
Property, plant and equipment	8,494,751	8,033,935	8,465,190	7,996,205
Intangible assets	6,772	5,228	–	–
Right-of-use assets	979,906	1,030,960	979,906	1,030,845
Subsidiaries	–	–	333,681	333,681
Associated companies and joint ventures	22,250	27,297	13,614	13,614
Investment property	1,217,843	1,269,984	–	–
Other investments	67,102	17,937	59,890	13,855
Derivatives	13,592	4,981	–	–
Deferred tax assets	23,950	13,305	–	–
	10,879,830	10,461,676	10,117,052	9,653,692
Total assets	13,313,365	12,750,206	12,439,524	11,766,419
LIABILITIES				
Current liabilities				
Trade and other payables	900,108	805,448	1,069,785	922,710
Lease liabilities	76,378	76,940	76,378	76,825
Derivatives	227	–	227	–
Deferred income	75,444	79,624	62,919	69,414
Current tax liabilities	26,160	62,695	13,851	50,441
	1,078,317	1,024,707	1,223,160	1,119,390
Non-current liabilities				
Trade and other payables	183,146	182,720	138,842	157,444
Loans and borrowings	1,971,824	2,016,313	750,000	750,000
Lease liabilities	972,300	1,007,670	972,300	1,007,670
Derivatives	100,000	100,000	–	–
Deferred income	2,774,009	2,265,297	2,774,009	2,265,297
Deferred tax liabilities	90,792	31,618	90,792	31,618
	6,092,071	5,603,618	4,725,943	4,212,029
Total liabilities	7,170,388	6,628,325	5,949,103	5,331,419
NET ASSETS	6,142,977	6,121,881	6,490,421	6,435,000
EQUITY				
Share capital and reserves	3,820,758	3,811,576	3,789,608	3,788,764
Retained profits	2,438,232	2,406,446	2,700,813	2,646,236
	6,258,990	6,218,022	6,490,421	6,435,000
Non-controlling interests	(116,013)	(96,141)	–	–
Total equity	6,142,977	6,121,881	6,490,421	6,435,000

Consolidated Statement of Changes in Equity

For The Financial Year Ended 31 March 2023

	Attributable to owners of the Company						Non-controlling interests	Total equity
	Share capital	Hedging and other reserves	Currency translation reserve	Sinking fund reserve	Retained profits	Total		
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
2023								
Beginning of financial year	3,280,387	18,295	4,517	508,377	2,406,446	6,218,022	(96,141)	6,121,881
Profit/(loss) for the year	–	–	–	–	32,630	32,630	(23,374)	9,256
Other comprehensive income	–	15,320	(6,982)	–	–	8,338	3,502	11,840
Total comprehensive income	–	15,320	(6,982)	–	32,630	40,968	(19,872)	21,096
Sinking fund contribution	–	–	–	844	(844)	–	–	–
Total other movements in equity	–	–	–	844	(844)	–	–	–
End of financial year	3,280,387	33,615	(2,465)	509,221	2,438,232	6,258,990	(116,013)	6,142,977
2022								
Beginning of financial year	3,280,387	12,858	(129,507)	507,534	3,244,915	6,916,187	(84,479)	6,831,708
Loss for the year	–	–	–	–	(837,626)	(837,626)	(109,503)	(947,129)
Other comprehensive income	–	5,437	134,024	–	–	139,461	7,222	146,683
Total comprehensive income	–	5,437	134,024	–	(837,626)	(698,165)	(102,281)	(800,446)
Disposal of controlling interest in subsidiary (Note 15*)	–	–	–	–	–	–	90,619	90,619
Sinking fund contribution	–	–	–	843	(843)	–	–	–
Total transactions with owners and other movements in equity	–	–	–	843	(843)	–	90,619	90,619
End of financial year	3,280,387	18,295	4,517	508,377	2,406,446	6,218,022	(96,141)	6,121,881

* This reference is made in relation to the full set of consolidated financial statements.

Consolidated Statement of Cash Flows

For The Financial Year Ended 31 March 2023

	2023	2022
	\$'000	\$'000
Cash flows from operating activities		
Profit/(loss) after tax	9,256	(947,129)
Adjustments for:		
– Income tax expense/(credit)	19,419	(48,112)
– Depreciation and amortisation	704,058	715,784
– Government grant	(46,605)	(92,409)
– Net loss on disposal of property, plant and equipment	393	3,544
– Impairment of intangible assets	63	12,176
– Gain on disposal of an associated company	(46,249)	–
– Loss on deconsolidation of a subsidiary	–	127,963
– Write-down of investment in joint venture	–	200,572
– Write-back of impairment of trade and other receivables	(217)	(164)
– Share of results of associated companies and joint ventures	43,148	(21,515)
– Unrealised currency translation differences	(17)	(8,964)
– Loss on financial assets held at fair value	12,399	15,905
– Loss on fair value of derivative instrument	227	–
– Amortisation of deferred revenue	(3,981)	(4,178)
– Finance expenses	72,361	259,107
– Interest income	(33,894)	(26,281)
– Dividend income	(553)	(552)
	729,808	185,747
Changes in working capital		
– Inventories	1,675	3,609
– Trade and other receivables	(79,889)	(86,329)
– Other assets	(47,403)	(74,320)
– Trade and other payables	84,746	(63,620)
Cash provided by/(used in) operations	688,937	(34,913)
Interest received	17,421	27,981
Government grants received	124,423	48,976
Income tax paid	(8,525)	(79,741)
Net cash provided by/(used in) operating activities	822,256	(37,697)

Consolidated Statement of Cash Flows

For The Financial Year Ended 31 March 2023

	2023	2022
	\$'000	\$'000
Cash flows from investing activities		
Additions to property, plant and equipment and capital work-in-progress	(1,054,476)	(950,582)
Additions to investment property and investment property under development	(16,916)	(5,463)
Additions to intangible assets	(3,164)	(11,929)
Proceeds from disposal of property, plant and equipment and intangible assets	163	23
Proceeds from disposal of an associated company	10,001	–
Investment in associated companies and joint ventures	(386)	(680)
Dividends received	3,965	56,496
Placement in treasury bills	(30,887)	–
Purchase of financial assets at amortised cost	(50,000)	–
Purchase of financial assets at fair value through profit or loss	(7,966)	(468,986)
Redemption of financial assets at fair value through profit or loss	97,702	53,927
Net cash deconsolidated on loss of control of subsidiary	–	(2,123)
Net cash used in investing activities	(1,051,964)	(1,329,317)
Cash flow from financing activities		
Proceeds from loans and borrowings, net of transactions costs	–	750,000
Repayment of loans and borrowings	(45,000)	(306,004)
Interest paid	(82,691)	(68,238)
Payment of lease principal	(37,868)	(37,289)
Release of restricted bank deposits	960	–
Government grants received	639,650	747,269
Net cash provided by financing activities	475,051	1,085,738
Net increase/(decrease) in cash and cash equivalents	245,343	(281,276)
Cash and cash equivalents at beginning of financial year	1,349,895	1,631,109
Effects of currency translation on cash and cash equivalents	(284)	62
Cash and cash equivalents at end of financial year	1,594,954	1,349,895

Listing of Significant Companies in the Group

For The Financial Year Ended 31 March 2023

Name of companies	Principal activities	Country of business/ incorporation	Equity holding	
			2023	2022
			%	%

Significant subsidiaries

Held by the Company:

Changi Airports International Pte. Ltd. ^(a)	Investment holding and provision of consultancy services in the field of civil aviation	Singapore	100	100
Changi Travel Services Pte. Ltd. ^(a)	Sale of travel and tour-related products and packages	Singapore	100	100
Jewel Changi Airport Holdings Pte. Ltd. ^(a)	Investment holding	Singapore	100	100
E-Concierge Pte Ltd ^(a)	E-commerce distribution	Singapore	100	100

Held by the Group:

Changi Airport Consultants Pte. Ltd. ^(a)	Provision of airport-related consultancy services	Singapore	100	100
Changi Airport Planners and Engineers Pte. Ltd. ^(a)	Provision of professional engineering services in the field of civil aviation	Singapore	100	100
Rio de Janeiro Aeroporto S.A ^(b)	Investment holding	Brazil	100	100
Jewel Changi Airport Devt Pte Ltd ^(a)	Provision of development, project, and real estate management services	Singapore	51	51
Jewel Changi Airport Hotel Pte Ltd ^(a)	Hotel and F&B operations	Singapore	51	51
Jewel Changi Airport Trust ^(a)	Operation and management of mixed-use development	Singapore	51	51
Jewel Changi Airport Trustee Pte Ltd ^(a)	Provision of trustee-management services	Singapore	51	51
CTS Southeast Asia Pte. Ltd. ^(a)	Investment holding	Singapore	100	100
Changi Travel International Pte. Ltd. ^(a)	Provision of management services and representing airlines as general sales agent	Singapore	100	100

Listing of Significant Companies in the Group

For The Financial Year Ended 31 March 2023

Name of companies	Principal activities	Country of business/ incorporation	Equity holding	
			2023	2022
			%	%

Significant associated companies and joint ventures

Held by the Company:

Experia Events Pte Ltd ^(c)	Organising and management of conferences, exhibitions and other related activities	Singapore	20	20
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Held by the Group:

Concessionária Aeroporto Rio de Janeiro S.A. ^(b)	Airport concessionaire	Brazil	51	51
Bengal Aerotropolis Projects Ltd ^(c)	Development of airport and township projects	India	30.2	30.2
Fukuoka International Airport Co., Ltd ("FIAC") ^(c)	Provision of airport and airport-related services	Japan	— ^(d)	21
Sino-Singapore Chongqing Airport Commercial Management Co., Ltd. ^(b)	Provision of retail mall management services	People's Republic of China	49	49

^(a) Audited by PricewaterhouseCoopers LLP, Singapore.

^(b) Audited by PricewaterhouseCoopers firms outside of Singapore.

^(c) Audited by other firms

^(d) During the financial year, the Group sold its investment in FIAC (Note 16*).

* This reference is made in relation to the full set of consolidated financial statements.

Annex: GHG Emissions Quantification Methodology

This section explains the calculation boundaries, methodologies and assumptions used in the preparation of CAG's Scope 1, 2 and 3 emissions for CAG. The carbon footprint is prepared in accordance with ISO 14064-1, Greenhouse Gas (GHG) Protocol and the Airport Carbon Accreditation (ACA) guidelines.

REPORTING SCOPE AND PERIOD

CAG uses an adaptation of the Operational Control Approach, where the company accounts for 100% of the GHG emissions from operations over which it has control. Following requirements for Level 3 "Optimisation" Airport Carbon Accreditation, this carbon footprint takes into account the sources and activities that are controlled by CAG, namely, Scope 1 and Scope 2 GHG emissions, as well as the sources that the airport can guide or influence through effective partnership (Scope 3 GHG emissions). CAG focuses on calculating carbon dioxide (CO₂) emissions for all three scopes.

Data for GHG emission calculations includes Terminals 1 to 4, as well as emissions under CAG's direct operational control (Scope 2) in Jewel Changi

Airport Trustee Pte Ltd (JCAT). Electricity on-sale to JCAT as a private developer is included in CAG's Scope 3 emissions.

Data from the following reporting periods have been included in this Sustainability Report for Scope 1, 2 and 3 emissions:

- FY18/19
- FY19/20
- FY20/21
- FY21/22
- 1 April 2022 until 31 March 2023, for Scope 1, 2 and 3 emissions.

CAG's energy and emissions data is externally verified on an annual basis. In this report, CAG's energy and emissions data for FY22/23 have been disclosed with verified FY18/19, FY19/20, FY20/21 and FY21/22 data for comparability.

CALCULATION METHODOLOGIES

Our methodologies are consistent with the ACI Guidance Manual on Airport Greenhouse Gas Emissions Management and the GHG Protocol. Emissions are divided according to ownership and control of the source:

SCOPE 1

Scope 1 emissions are direct GHG emissions which occur from sources that are owned or controlled by CAG. This includes emissions from both stationary sources (power generators, dynamic-uninterruptible power supply (D-UPS), water pumps, electrical switchgears and other stationary equipment) and mobile sources (company-owned cars, trucks, motorcycles and heavy duty equipment). Activities and process emissions (i.e. from firefighting exercises) contribute to less than 0.01% of total emissions are excluded.

The quantity of Scope 1 GHG emissions is calculated by multiplying the fuel usage (activity data) by their respective emission factor. The data for fuel usage was obtained from invoices of procured and/or topped up fuel.

Annex: GHG Emissions Quantification Methodology

SCOPE 2

Scope 2 emissions are indirect GHG emissions which occur from the generation of purchased or acquired electricity, heating, cooling and steam consumed by CAG. At CAG, Scope 2 emissions only relate to purchased electricity from the grid.

The quantity of Scope 2 GHG emissions is calculated by multiplying electricity usage (in kWh) by the grid emission factor. Data for electricity usage was obtained from receipts issued by the electricity supplier. The grid emission factors used in the calculation is based on the grid emission released annually by the Energy Market Authority (EMA) in accordance with the United Nations Framework Convention on Climate Change (UNFCCC) guidelines.

SCOPE 3

Scope 3 emissions are other indirect GHG emissions that are a consequence of CAG's activities, but occur at sources not owned or controlled by CAG. Due to the variety of Scope 3 GHG emission sources within the scope, a range of methodologies has been used.

For emissions resulting from activities involving aircraft (landing and takeoff cycle, engine test-run and aircraft auxiliary power unit), the ACERT is used. For emissions resulting from ground activities that are carried out by our partners (ground support equipment, surface access, electricity resold, waste management), a similar calculation approach used for quantifying Scope 1 and Scope 2 emissions was used. Emissions from the shuttle bus operations was calculated with the use of the GHG Emissions Calculation Tool. Finally, for business travel, the International Civil Aviation Organization Carbon Emissions Calculator was used. For every calculation tool/model used, CAG has applied suitable assumptions to the input data. Refer to the table below for the respective emission factors used.

REFERENCES FOR EMISSION FACTORS

1. Airports Council International (ACI), Airport Carbon and Emissions Reporting Tool (ACERT) version 5.1
 2. World Resources Institute (2015), GHG Protocol Tool for Stationary Combustion version 4.1
 3. World Resources Institute (2015), GHG Protocol Tool for Mobile Combustion version 2.6
 4. Intergovernmental Panel on Climate Change (IPCC) (2007), Fourth Assessment
 5. Energy Market Authority of Singapore (EMA) (2021), Singapore Energy Statistics
 6. United States Environmental Protection Agency (US EPA) (2023), Emission factor for greenhouse gas inventories
 7. UK Government Conversion Factors for Greenhouse Gas (GHG) Reporting (2022)
 8. GHG Protocol, GHG Emissions Calculation Tool version 2.6
-

Emission Factors		Unit
Scope 1 Emissions		
Stationary Sources		
Diesel stationary	2.6988	kgCO ₂ e/litre
Jet A-1 stationary	2.5451	kgCO ₂ e/litre
Motor gasoline stationary	2.3397	kgCO ₂ e/litre
Sulfur hexafluoride (SF6)	22,800	kgCO ₂ e/litre
Mobile Sources		
Diesel mobile	2.6988	kgCO ₂ e/litre
Gasoline mobile	2.3397	kgCO ₂ e/litre
Scope 2 Emissions		
Electricity Consumption		
2022 National Grid Emission Factor	0.4057	kgCO ₂ e/kWh
2020 National Grid Emission Factor	0.4085	kgCO ₂ e/kWh
2018 National Grid Emission Factor	0.4192	kgCO ₂ e/kWh
Scope 3 Emissions		
Ground Support Equipment		
Diesel mobile	2.6988	kgCO ₂ e/litre
Gasoline mobile	2.3397	kgCO ₂ e/litre
Surface Access		
Coach	0.0342	kgCO ₂ e/vehicle-km
Minibus/van	0.2902	kgCO ₂ e/vehicle-km
Motorcycle	0.1106	kgCO ₂ e/vehicle-km
Private charter	0.1945	kgCO ₂ e/vehicle-km
Private hire care	0.1945	kgCO ₂ e/vehicle-km
Private hire shared ride	0.1945	kgCO ₂ e/vehicle-km
Privately owned car	0.1945	kgCO ₂ e/vehicle-km
Taxi (Grab taxi)	0.1945	kgCO ₂ e/vehicle-km
Taxi (Phone booking)	0.1945	kgCO ₂ e/vehicle-km
Taxi (Street hail)	0.1945	kgCO ₂ e/vehicle-km
Mass Rapid Transit (MRT)	0.0597	kgCO ₂ e/passenger-km
Public bus	0.0342	kgCO ₂ e/passenger-km
Electricity Re-sold		
2022 National Grid Emission Factor	0.4057	kgCO ₂ e/kWh
2020 National Grid Emission Factor	0.4085	kgCO ₂ e/kWh
2018 National Grid Emission Factor	0.4192	kgCO ₂ e/kWh
Waste Management		
0% load	0.16073	kgCO ₂ e/kWh
50% load	0.1915	kgCO ₂ e/kWh
100% load	0.22228	kgCO ₂ e/kWh

Annex: Social Indicators



COMMUNITY INVESTMENT

Current Community Investment Targets

Goal	Statistics
Achieve 25% staff volunteerism by FY 25/26	20.20%
Achieve 3,000 volunteer hours yearly by FY 25/26	2,163 hours
Engage 35 Airport Partners to join our Changi Foundation programme by FY 25/26	8
Offer a minimum of 80 annual job attachments to youth beneficiaries from FY 25/26 onwards	22



FAIR EMPLOYMENT PRACTICES

Employee Numbers

Total Employees	Age Group			Total
	< 30	30 - 50	> 50	
Male	212	816	236	1,264
Female	97	508	106	711

Total Employees	Employment Contract		Total
	Permanent	Temporary	
Male	1,264	0	1,264
Female	711	0	711

Total Employees	Employment Type		Total
	Full-time	Part-time	
Male	1,262	2	1,264
Female	709	2	711

New Hires	Age Group			Total
	< 30	30 - 50	> 50	
Male	79	105	4	188
Female	44	56	3	103

Employee Turnover (Voluntary only)	Age Group			Total
	< 30	30 - 50	> 50	
Male	19	50	9	78
Female	7	44	3	54

Collective Bargaining Agreements

Percentage of total employees covered by collective bargaining agreements	56.30%
Percentage of CAG's employees that are part of SMMWU	30.70%



PEOPLE DEVELOPMENT

Total number of training events	203
Percentage of employees attending at least one training event	74.05%

Category of learning and development programmes ¹	Percentage of total programmes
Experiential	3.32%
Social	4.34%
Formal learning	92.34%

- ¹ CAG categorises learning and development programmes into three categories - Experiential, Social and Formal Learning.
- Experiential Learning provides hands-on experiences to better connect real-world situations. Examples include i-Fridays Experiential Tour: Journey to the East, CAG Orientation Programme and Basic Airport Fire Fighter training.
 - Social Learning aims to provide learning through observation of behaviours, such as through brownbag talks or LearnFest.
 - Formal Learning refers to focused and structured learning programs identified and defined by the organisation.

Annex: Social Indicators



PEOPLE DEVELOPMENT (CONT'D)

Training Hours: Breakdown²

Average Training Hours	
Male	8.74
Female	5.12
Average Training Hours	
Support Staff	12.81
Professional Staff	5.61

² Higher average training hours among male employees is due to the inclusion of mandatory annual AES training, as AES is predominantly younger males owing to the nature and demands of the job. Moreover, as a result of Covid-19, CAG has moved to learning through LinkedIn Learning offerings and other virtual programmes, which are of shorter duration.

Performance and Career Development Reviews: Breakdown

Employees Receiving Performance and Career Development Reviews		
	Support Staff	Professional Staff
Male	377	887
Female	86	625

Corporate Information

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CHANGI AIRPORT GROUP

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