

... nature nurtures



NATURE NURTURES

Greenery remains a distinctive feature of the Singapore landscape, in spite of the pressures of urbanisation. Our green spaces function as important focal points, bringing different communities together, for shared activities and active engagement.

In our City in a Garden, everyone enjoys easy access to flora and fauna found in our parks, gardens and nature reserves.

We have green spaces for recreation and education, inclusive playgrounds, therapeutic gardens and heritage trails, nature ways and park connectors; something for everybody in the community. In these green settings, bonds are built to strengthen the fabric of our society, and nature nurtures our minds and bodies.

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CHAIRMAN'S MESSAGE



MRS CHRISTINA ONG
Chairman

"As the lead agency for the greening of Singapore, we must not only plant trees and build parks, but also foster a public appreciation for nature and protect our natural heritage."

NParks was originally established as the lead agency for the greening of Singapore. To achieve this, we must not only plant trees and build parks, but also foster a public appreciation for nature and protect our natural heritage.

Plants and green spaces, of course, remain core to our work. Over the past 12 months, NParks planted more than 52,000 trees, introduced 17 new species to our island and opened 80 km of nature ways. Our Park Connector Network now extends over 313 km, linking parks, nature areas and open spaces, while bringing communities together.

We develop green spaces for the benefit of all, so we match our horticultural efforts with public outreach. The diversity of our population inspires our broad range of activities. In October 2017, the inaugural Singapore Botanic Gardens Children's Festival encouraged children to engage with nature through play at the Jacob Ballas Children's Garden, the largest children's garden in Asia. The Festival at the Fort in February 2018, on the other hand, catered to heritage lovers, bringing the rich history of Fort Canning Park to life.

In addition to our own events, we partner with community groups to deepen specific interests in nature. Our Friends of the Parks groups, such as Friends of Ubin and Friends of Bishan-Ang Mo Kio Park, help us promote stewardship and responsible use of our green spaces to their peers. The 1,350 Community in Bloom groups inspire interest and confidence in gardening. Our Community in Nature programme engaged over 4,500 citizen scientists in projects such as Butterfly and Dragonfly Watches. In May 2017, more than 35,000 participants, including 20,000 students and 330 partners, joined in Biodiversity Week activities across Singapore.

In our highly urbanised and land-scarce city-state, our biodiversity is a national asset that we must protect for generations to come. Over the last five years, over 500 flora and fauna species have been discovered or rediscovered on our islands and in our waters. These include, potentially, a small carpenter bee of the genus *Ceratina*, and the *Acropsis ridleyi*, an orchid originally discovered in 1889 and rediscovered at the Bukit Timah Nature Reserve in 2016.

While NParks' efforts were recognised by the international community with the 2017 UNESCO Sultan Qaboos Prize for Environmental Preservation, most of our achievements are not ours alone. Collaboration is vital in conservation, as in the

case of the hatching and release of 45 juvenile Critically Endangered Singapore Freshwater Crabs by the Crab Working Group, which includes researchers from NParks, National University of Singapore and Wildlife Reserves Singapore.

Such cooperation is true in every aspect of NParks' work. I would like to thank everyone, from the Board of Directors and management to all staff, sponsors, donors, agency partners, business associates and volunteers, for their partnership in realising a green Singapore.

It has been an honour and privilege to serve as Chairman of this remarkable organisation for the past ten years. The incoming chairman, Mr Benny Lim, brings with him a wealth of experience and expertise. Under his stewardship, I have every confidence that NParks will continue to fulfil its mission of delivering a better quality of life for all Singaporeans through its expanded mission to manage our nation's flora and fauna.

Mrs Christina Ong
Chairman, National Parks Board
(till July 2018)



MR BENNY LIM
Chairman

For over five decades, the volunteers and staff of NParks have worked with quiet dedication to create a Garden City and now to create a City in a Garden.

Envisioning Singapore as a City in a Garden – a biophilic city – is not only about incorporating nature, and access to nature, in the design and organisation of our urban environment. It should ultimately be reflected in Singaporeans' positive engagement and connection with nature in and through such an environment.

Living with nature and sharing our environment with its many denizens is a way of life that will require learning and adjustments in attitudes and social habits. The addition of officers from the former AVA, bringing their knowledge and experience in veterinary science, is a timely resource to help us together find a balanced and informed way forward.

NParks has come a long way. Over the last decade in particular, NParks has benefited from Mrs Christina Ong's strong leadership and many contributions. I hope to be able to build on Christina's legacy and to work as closely and warmly with the staff as she did during her tenure.

Mr Benny Lim
Chairman, National Parks Board
(from August 2018)

MEMBERS OF THE BOARD

AS OF SEPTEMBER 2018



MRS CHRISTINA ONG
Chairman
(till 31 July 2018)

Mrs Christina Ong is founder, owner and managing director of the COMO Group, which comprises luxury fashion retail company Club 21, hospitality company COMO Hotels and Resorts, wellness brand COMO Shambhala, and philanthropic grantmaker COMO Foundation. In 1995, Mrs Ong was awarded the Cavaliere del Lavoro and received the Italian Fashion Hall of Fame Award for her accomplishments, leadership and contributions to the fashion world.



MR BENNY LIM
Board Member
(from 1 August 2018)

Mr Benny Lim was Permanent Secretary of the Ministry of National Development from 2011 to 2016, and held concurrent appointments as Permanent Secretary in the Prime Minister's Office and for National Security & Intelligence Coordination. Prior to that he was the Permanent Secretary of the Ministry of Home Affairs from 2005 to 2011. Mr Lim was awarded the Meritorious Service Medal in 2010. He retired from the Civil Service in 2016 and serves presently as Special Advisor to the Centre for Liveable Cities, Special Advisor to the National Security Studies Programme, RSIS/NTU as well as Chairman of Temasek Foundation Connects CLG.



MRS KOH-LIM WEN GIN
Board Member
(till 31 July 2018)

Mrs Koh-Lim was Chief Planner and Deputy Chief Executive of the Urban Redevelopment Authority (URA) from 2001 to 2008. Her career with URA spanned over three decades, during which she played a key role in the strategic planning and design of Singapore's city and urban landscape, and the conservation of Singapore's built heritage. She is currently Director of Keppel Land Limited, Chairman of Sentosa Cove Resort Management Ltd and Senior Advisor to private firms. In 2009, Mrs Koh-Lim was conferred the Meritorious Service Award by the Government of Singapore.



DR MALONE-LEE LAI CHOO
Board Member
(till 31 July 2018)

Dr Malone-Lee is Director of the Centre for Sustainable Asian Cities, School of Design and Environment at the National University of Singapore. She has previously worked in strategic planning, urban planning policies and heritage conservation. Her current research focuses on urban sustainability, and its nexus with development, economic growth and city culture. She supports various regional and international organisations in their work on sustainable urban development, including the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), APEC and World Bank.



SEAH KIAN PENG
Board Member
(till 31 July 2018)

Member of Parliament for the Marine Parade GRC, Mr Seah is also Chief Executive Officer of NTUC Fairprice Co-operative Limited. Mr Seah has worked in both the public and private sectors, and serves in various public and community organisations. He is on the board of Consumer Goods Forum, International Co-operative Alliance, Singapore Centre for Social Enterprises, Centre for Fathering and Singapore Olympic Foundation. He is a Fellow of the Singapore Institute of Directors and Chartered Institute of Marketing. He also chairs the Harvard Business School Club of Singapore and the Marine Parade Leadership Foundation.



ANDREAS SOHMEN-PAO
Board Member

Mr Sohmen-Pao is Chairman of BW Group Limited, BW LPG Limited, BW Offshore Limited and Singapore Maritime Foundation. He is also a non-executive director of Singapore Symphonia Company Ltd. Mr Sohmen-Pao was previously Chief Executive Officer of BW Group. He has also served as a non-executive director of the Hongkong Shanghai Banking Corporation, Maritime and Port Authority of Singapore, Sport Singapore and The Esplanade Co Ltd amongst others. Mr Sohmen-Pao holds an honours degree (BA Hons) from Oxford University and an MBA from Harvard Business School.



WARREN FERNANDEZ
Board Member

Mr Fernandez is Editor-in-Chief of The Straits Times and English/Malay/ Tamil Media Group of Singapore Press Holdings (SPH). He has been with SPH since 1990. Mr Fernandez graduated with First Class Honours from Oxford University, where he read Philosophy, Politics and Economics, and also has a Master's Degree in Public Administration from Harvard University. He is currently a board member of National Heritage Board, SPH (Overseas) Ltd, SPH (America) Ltd, The Straits Times Press Ltd, and is Chairman of the board for The Straits Times School Pocket Money Fund.



DR SURIANI SURATMAN
Board Member

Dr Suriani is Senior Lecturer at the Department of Malay Studies, National University of Singapore. She is trained as a social anthropologist. Her teaching and research cover areas on Malay culture and society. She has conducted research in Singapore, Malaysia and the Philippines. She is currently Deputy Chairman of the Malay Heritage Foundation Board of Directors. She is also a board member of the National Gallery Singapore and National Heritage Board. In addition, Dr Suriani is a potter and has done commissioned creative pieces for Temasek Holdings, The Sentosa Resort and Spa, National Heritage Board, Patron of the Year Award and Singapore International Foundation.



GUY HARVEY-SAMUEL
Board Member

Mr Harvey-Samuel was formerly Group General Manager, Chief Executive Officer of The Hongkong and Shanghai Banking Corporation Limited (HSBC), Singapore. A member of HSBC's Asian Executive Committee, Mr Harvey-Samuel was directly responsible for all HSBC operations based in Singapore. He continues to serve HSBC as a non-executive Director, and is also currently a member of the Advisory Board of the National Youth Achievement Award Council and National Arts Council, as well as the boards of Surbana Jurong Private Limited and Jurong Town Corporation.



GEORGE HUANG
Board Member

Mr Huang is Managing Director of Amoy Canning Corporation (S) Ltd, a pioneer in the food processing industry in Asia. An active leader and contributor in business and the community, he serves on the boards and committees of various organisations including Singapore Manufacturing Federation, Singapore Business Advisors & Consultants Council and Consumers Association of Singapore. He was also formerly the Honorary Consul General of the Federal Democratic Republic of Ethiopia to Singapore.



MS JAMIE ANG
Board Member
(till 31 July 2018)

Ms Ang currently heads the Fiscal Policy Directorate in the Ministry of Finance, where she oversees overall fiscal planning and the development of budget policies for ministries as well as strategic planning and economic analysis for the finance ministry. Prior to this, she served as Director for Land and Infrastructure Programmes as well as Director for Social Programmes in the ministry. She has also served in the Ministry of National Development and the Ministry of Health.



CHENG HSING YAO
Board Member
(from 1 August 2018)

Mr Cheng is the Group Managing Director of GuocoLand Singapore and a director of Eco World International Berhad. He joined GuocoLand Singapore in 2012. Prior to this, he was with the public service, holding leadership positions at the Centre for Liveable Cities and Urban Redevelopment Authority (URA). He is a member of URA's Design Advisory Committee as well as Heritage and Identity Partnership, and a member of the Urban Land Institute Singapore Executive Committee. He holds a Bachelor of Architecture from Newcastle University, UK, and a Master in Design Studies from Harvard University.



MS SHANTINI RAMACHANDRA
Board Member
(from 1 August 2018)

Ms Shantini is a Tax Partner at Deloitte & Touche LLP and the South East Asia Tax Leader for Deloitte Private. She has a Bachelor of Laws degree from the National University of Singapore and a Master of Laws degree from the University of London, King's College. She has been admitted as an Advocate and Solicitor of the Supreme Court of Singapore and is also an Accredited Tax Advisor (Income Tax) with the Singapore Institute of Accredited Tax Professionals Limited. Shantini practised law in the area of commercial and corporate law before joining a Big Four accounting firm and has about 20 years of international tax experience.



MUSA FAZAL
Board Member
(from 1 August 2018)

Mr Musa heads the SkillsFuture Division in the Ministry of Education where he is responsible for policy matters associated with adult training and the SkillsFuture movement. He holds a concurrent appointment in SkillsFuture Singapore (SSG) where he oversees the agency's strategic and resource planning efforts. Prior to this, he has served in various agencies in the public service, including the Ministry of Manpower, Ministry of Finance and Monetary Authority of Singapore.



KENNETH ER
Board Member and
Chief Executive Officer, NParks

Mr Er began his career in National Parks Board (NParks) and has been involved in the planning, implementation and management of parks and streetscapes in the city. In 2003, he was seconded to the Ministry of National Development, where he oversaw policies and was actively involved in the review of legislation pertaining to parks and greenery infrastructure, agri-veterinary issues, and building and construction. Mr Er was subsequently appointed General Manager at Gardens by the Bay, where he played a pivotal role in developing the Gardens from concept to form. He was also concurrently Assistant Chief Executive Officer (Corporate Development & Services) at NParks. He was appointed Chief Operating Officer of Gardens by the Bay in 2012. Mr Er is presently the Chief Executive Officer of NParks.

MANAGEMENT TEAM
AS OF SEPTEMBER 2018

LEFT TO RIGHT

- DR ADRIAN LOO

GROUP DIRECTOR,
CONSERVATION
- DR KIAT W TAN

ADVISOR TO NParks
- DR LEONG CHEE CHIEW

DEPUTY CHIEF EXECUTIVE OFFICER,
PROFESSIONAL DEVELOPMENT &
SERVICES CLUSTER; EXECUTIVE DIRECTOR,
NATIONAL PARKS, GARDENS
& NATURE RESERVES CLUSTER AND
COMMISSIONER OF PARKS & RECREATION
- KENNETH ER

CHIEF EXECUTIVE
OFFICER
- WONG TUAN WAH

GROUP DIRECTOR,
FORT CANNING PARK
& ISTANA AND
SENIOR CURATOR, ISTANA
- MS LEE PIN PIN

GROUP DIRECTOR,
COMMUNICATIONS &
COMMUNITY
ENGAGEMENT



LEFT TO RIGHT

- MS KARTINI OMAR

GROUP DIRECTOR,
PARKS DEVELOPMENT AND
JURONG LAKE GARDENS
- DAMIAN TANG

SENIOR DIRECTOR, DESIGN
- LIM LIANG JIM

GROUP DIRECTOR,
NATIONAL BIODIVERSITY
CENTRE
- KONG YIT SAN

ASSISTANT CHIEF
EXECUTIVE OFFICER,
PARK MANAGEMENT &
LIFESTYLE CLUSTER
- BIN HEE JUM

GROUP DIRECTOR,
FINANCE & PROCUREMENT
- OH CHEOW SHENG

GROUP DIRECTOR,
STREETSCAPE

THE MANAGEMENT TEAM PHOTOS WERE TAKEN AT FORT CANNING PARK.

LEFT TO RIGHT

- SIM CHENG HAI

GROUP DIRECTOR,
INDUSTRY/CUGE
- MS ANG WEI PING

GROUP DIRECTOR,
POLICY & PLANNING
- CHIA SENG JIANG

GROUP DIRECTOR,
PARKS 1
- CHUAH HOCK SEONG

GROUP DIRECTOR,
PARKS 2 AND
ASSOCIATE DIRECTOR,
CENTRE FOR URBAN
GREENERY AND
ECOLOGY (CUGE)
- DR NIGEL TAYLOR

GROUP DIRECTOR,
SINGAPORE BOTANIC
GARDENS
- MS TAN LAI KHENG

SENIOR DIRECTOR,
LIFESTYLE BUSINESS
- NG CHEOW KHENG

GROUP DIRECTOR,
HORTICULTURE &
COMMUNITY GARDENING



LEFT TO RIGHT

- YEO MENG TONG

SENIOR DIRECTOR,
DESIGN RESEARCH & DEVELOPMENT
AND ASSOCIATE DIRECTOR, CUGE
- TEVA RAJ

SENIOR DIRECTOR,
MUNICIPAL LANDSCAPES
- DR LENA CHAN

SENIOR DIRECTOR,
INTERNATIONAL
BIODIVERSITY CONSERVATION
- TAN CHONG LEE

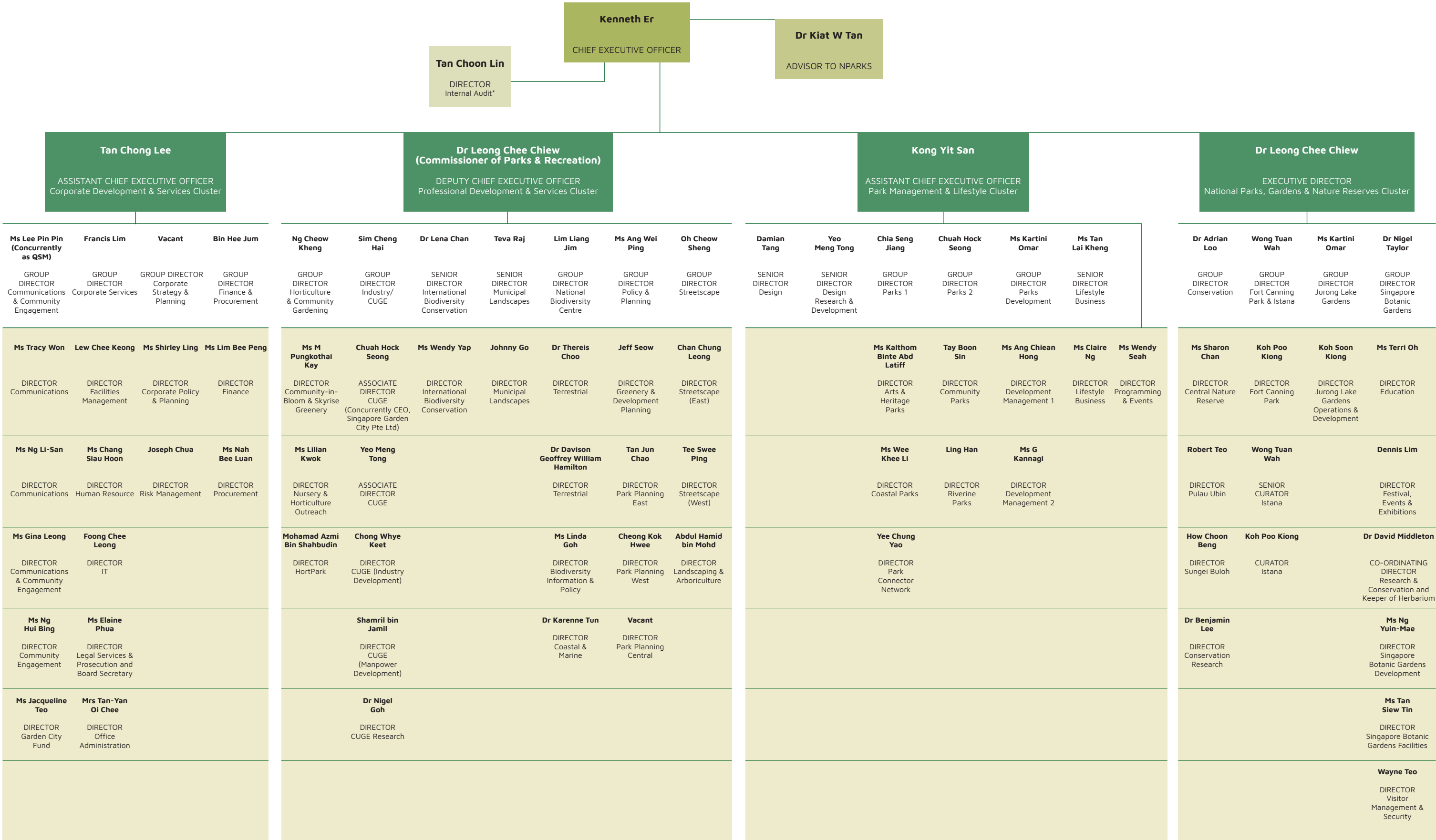
ASSISTANT CHIEF
EXECUTIVE OFFICER,
CORPORATE DEVELOPMENT &
SERVICES CLUSTER
- RYAN LEE*

ACTING GROUP DIRECTOR,
CORPORATE STRATEGY &
PLANNING AND
CO-ORDINATING DIRECTOR,
SINGAPORE BOTANIC
GARDENS OPERATIONS
- FRANCIS LIM

GROUP DIRECTOR,
CORPORATE SERVICES

*Seconded to JTC Corporation as of 3 September 2018.

ORGANISATION STRUCTURE
AS OF SEPTEMBER 2018



* Internal Audit reports functionally to the Audit Committee

A vibrant, low-angle photograph of a lush green landscape. In the foreground, large, dark green leaves of a tree frame the top and right sides of the image. Sunlight filters through the canopy, creating a bright, starburst effect in the upper left. The middle ground is filled with dense, green foliage, including ferns and various tropical plants. In the background, a white, lattice-structured tower or observation deck rises above the trees. Several people are visible walking along a path that winds through the greenery. The overall scene is bright and sunny, with a clear blue sky visible through the branches.

EXTENDING INFRASTRUCTURE

As the vision of a City in a Garden takes shape, greenery has become emblematic of the Singapore landscape. We have over 350 parks and four nature reserves covering some 2,000 hectares and our green footprint continues to grow, giving people easy access to nature.



1

Biophilic Play for Children

At the Singapore Botanic Gardens, the Jacob Ballas Children's Garden doubled in size to 4 hectares, making it the largest children's garden in Asia. Families with children up to 14 years old can enjoy the attractions and programmes which are designed to help the young understand the ecology of plants through nature play and experiential learning. The new extension was opened in November 2017.

Enhancement works have also begun at the National Orchid Garden with the development of a new Tropical Montane Orchidetum, increasing the combined display area by three times. The new orchidetum will enable visitors to admire a greater diversity of orchids, ranging from those found in rich mid- to high-elevation montane forest, in a single location in Singapore. These works will strengthen the Singapore Botanic Gardens' role in orchid conservation, breeding and research, as well as its visitor offering.

Learning from Living History

Three historical gardens will be recreated to restore the rich heritage of Fort Canning Park and its surroundings. From the time of the 14th century kings to the founding of modern Singapore, Fort Canning Park is deeply rooted in history. The community can soak in this rich cultural relevance, after the Royal Garden, the First Botanic Garden and Jubilee Park are recreated within and around the park.

These enhancements will be accompanied by new education and outreach programmes as well as improved accessibility to the park. Visitors can also look forward to an exhibition in Fort Canning Park, one of our two national parks, as part of the Singapore Bicentennial celebrations in 2019.

1. Children can learn about the ecology of plants in four new zones in the Jacob Ballas Children's Garden extension.
2. The new play features in Admiralty Park focus on the themes of exploration, adventure and nature.
3. Minister for National Development and Second Minister for Finance Mr Lawrence Wong working with students and girl guides to tend to plants during the opening of the new extension at the Jacob Ballas Children's Garden.
4. Visitors to Fort Canning Park can explore and soak in its rich history and heritage.



2



Community Ideas for Jurong Lake Gardens

More than 14,000 suggestions and feedback were received from the community on the proposed concept for Jurong Lake Gardens Central and East. To gather opinions from residents and members of the public, many of whom have cherished memories of the area, a series of townhalls and roving exhibitions was held in community centres from November 2016 to April 2017. NParks went on to refine the concept design and include more sustainability features and spaces for the community into the blueprint.

Public engagement for the detailed design of the gardens continued into the first half of 2018, with members of the public contributing many ideas for Singapore's first national gardens in the heartlands. Meanwhile, Jurong Lake Gardens West is expected to open in early 2019.

Families at Play

After two years of redevelopment, the 27-hectare Admiralty Park re-opened in October 2017 with 26 playground slides – the most number of slides in any park in Singapore. Located at the 7-hectare urban area of the park, the playground comprises three main play areas, for families and children of different ages to enjoy the diverse play equipment that encourage group and even multi-generation interactions.

A highlight is Singapore's first family slide, which is wide enough for a family of four to slide together. There is also a new inclusive playground that supports play between children with and without special needs. This, together with another new inclusive playground at the Jacob Ballas Children's Garden, increases the total number of inclusive playgrounds in Singapore to six.

Admiralty Park also includes a 20-hectare nature area featuring secondary forest, mangrove, riverine and open grassland habitats. It incorporates a mangrove boardwalk and viewing platform to allow visitors to get even closer to nature.

3



Enhancing East Coast Park

In another key enhancement project, NParks embarked on improvement works for three sites at East Coast Park - Raintree Cove, and the locations of the former Big Splash and Goldkist Chalets. When completed, families can enjoy a playground with water play features and open lawns for children to run about, while cyclists of varying skill levels can use a cyclist park with special circuits and trails.

The plans will be implemented progressively from 2017 to 2019, creating more open spaces, improving accessibility and enhancing amenities while retaining the unique character of East Coast Park.

Gardening Hub gets Better

Community gardeners know to head to HortPark for all things gardening-related. Since May 2017, they can visit a new Native Garden to learn more about Singapore's natural heritage. With more than 100 species of native plants, the highest concentration in a single location in Singapore, the garden includes edibles, shrubs and trees. Visitors can learn more about using native plants for food, medicine and industry, how they support native fauna, and how to grow them.

Those interested in picking up horticulture-related skills can also visit HortPark. The bungalow at No. 394

Alexander Road was restored and named HortHouse, serving as a training centre for the Centre for Greenery and Ecology (CUGE). The landscape fronting the building features 11 plant families, providing an outdoor showcase of horticultural varieties to complement the lessons at HortHouse.

Upcoming Green Spaces

In November 2017, NParks launched a public exhibition for Sembawang Hot Spring Park ahead of the start of works in early 2018. The 1-hectare site, which will feature the only natural hot spring on mainland Singapore, will retain a rustic feel familiar to visitors, many of whom are nearby residents, whilst introducing new facilities that make use of the geothermally-heated groundwater.

Work has also commenced on the Rail Corridor (Central) between the Hillview area and the conserved Bukit Timah Railway Station, focusing on the biodiversity, heritage and recreational aspects of the 4-km stretch. A public exhibition was held in October 2017 to showcase concept ideas and the preliminary design based on early feedback and contributions. To further engage the community, a Friends of Rail Corridor group was formed. Trail enhancements will be done by end-2019, with the rest of the work scheduled to be completed in phases by 2021.



1. An artist's impression of the Rail Corridor, which is known for its natural surroundings and heritage railway structures. Community feedback has been sought to shape its preliminary design.
2. Visitors heading in from the main road towards HortHouse can admire the vibrant display of flowers and foliage from some 11 plant families used for landscape design, along the pathway leading to the house.



FAMILY BONDING IN OUR PARKS



Family time is precious for communications manager Wong Cuiyan, 37, and both she and her husband Chiam Sing Yang feel it is best spent outdoors.

"It's important for the family to have the time together to create strong bonds," said Cuiyan, who has a daughter, Lis, 4, and twin sons Keith and James, aged 2. "Spending quality time with my children helps instil a feeling of security, inculcates values and fills them with confidence."

The time outdoors in parks and gardens also provides her children with opportunities to explore the natural environment and expend their energy. She said, "When indoors, they are restricted by space, and places like shopping malls are usually too crowded during the weekends."

Cuiyan and her husband make weekly trips to the parks with their children. "They love being outdoors, where they can run around and explore," she said. The family also goes cycling and jogging, and occasionally, has a

picnic or enjoys special park activities such as movie screenings or kids' craft activities.

Among the family's preferred green spaces are Pasir Ris Park, Sembawang Park and Singapore Botanic Gardens, but Cuiyan's personal favourite is Bishan-Ang Mo Kio Park. "The kids love the water playground, and there are two other playgrounds with interesting and colourful equipment. And when everyone gets tired, we can all sit down and admire the park's scenic surroundings!" she said.

"As working parents, it's always challenging to find the time to spend with our children. Each outing we have with them in the parks, is like a precious jewel that will be embedded in their memories, something they will cherish forever."



Creating Lush Streetscapes

Singapore's streetscapes continued to blossom with the planting of trees and the creation of more greenery. In the past year, more than 52,000 trees have been planted and 17 new species introduced to enhance the streetscape, rejuvenating more than 30 roads.

NParks rolled out 80 km of Nature Ways with the completion of Ang Mo Kio Nature Way Phase 1 and Sembawang Nature Way Phase 2 in 2017. This puts us on course to achieve our target of 180 km of Nature Ways by 2030.

In the year in review, seven new Heritage Trees were endorsed. The community had more opportunities to learn about our Heritage Trees and Heritage Roads; multiple learning journeys for teachers, seniors and the general public were conducted in 2017, giving them a deeper appreciation and understanding of Singapore's natural heritage.

Under the centralisation of greenery maintenance, the Municipal Landscapes Division under NParks completed a visual assessment of 23,000 trees in vacant state land situated alongside expressways and major roads. To minimise fire risks, 300 grass-cutting buffers are also being established at the edges of forested lands next to footpaths and private housing estates.

Connecting People to Nature

Three stretches of park connectors – Pang Sua to Junction 10, Punggol Park Connector Seawall, and Stadium Road – were completed, bringing the total length of the Park Connector Network to 313 km. Some 16 km of existing park connectors were also upgraded. These include the Ang Mo Kio, Bukit Panjang, Geylang and Whampoa Park Connectors.

Meanwhile, work on the Coastal Adventure Corridor began in April 2017 with the construction of key amenities at Rower's Bay Node. These park connectors help link communities to natural, cultural and recreational sites across the island.

Commuters rushing to work also have the chance to connect with nature – NParks greened up nine MRT stations, bringing the total number of greened MRT stations to 27. We also completed a trial cable trellis installation to screen MRT viaduct columns at the junction of Ang Mo Kio Ave 5 and Ave 8. The greening of 23 covered linkway roofs was also completed in 2017.



Developers' Growing Support for Greenery

Singapore's urban greenery footprint continued to grow with 100 hectares of skyrise greenery in 2017. We received a total of 29 applications for the Skyrise Greenery Incentive Scheme and a record 177 submissions for the Skyrise Greenery Awards 2017. This was 40% more than the 123 submissions received in 2015, underscoring the increasing

importance that developers and building owners place on skyrise greenery.

The Awards were presented to 14 developments during the GreenUrbanScape Asia and International Skyrise Greenery Conference 2017 in November. Kampung Admiralty was recognised as an Outstanding Project for showcasing how greenery can be incorporated into community facilities.

A total of 14 new and existing developments were also recognised for excellence in greenery provision and management under the Landscape Excellence Assessment Framework (LEAF), bringing the total number of LEAF-certified developments to 58. Among these, SkyParc@Dawson, Eco Sanctuary, The Glades and NUS Ventus were recognised as outstanding projects.

1. The beautiful pink and white flowers of the Trumpet Tree (*Tabebuia rosea*) along Jalan Ahmad Ibrahim give a soft touch to the surrounding industrial estate.
2. Singapore's busy expressways are brightened up by roadside plantings of lush greenery and colourful blooms.
3. Nature Ways, such as this one along Ang Mo Kio Avenue 8, connect areas of biodiversity to urban communities, bringing nature closer to residents.
4. Kampung Admiralty's design integrates amenities with a rooftop community park and edible garden, winning praise at the Skyrise Greenery Awards.

ENRICHING BIODIVERSITY

Efforts to protect and enrich Singapore's biodiversity continued to gain momentum with the creation of more green buffers to protect our nature reserves as well as closer collaboration with the community to conserve our natural heritage and drive citizen science initiatives.





Enjoying our Nature Parks

The community has more places to enjoy greenery with the opening of Singapore's sixth nature park, the 75-hectare Windsor Nature Park, in April 2017. The park extends the green buffer for the Central Catchment Nature Reserve, and features new trails such as the specially curated Hanguana Trail lined with rare native plants, and the Drongo Trail, which includes a sub-canopy walk.

Work has also started on the development of Thomson Nature Park, a green buffer located to the east of the Central Catchment Nature Reserve, while plans have been announced for the 67-hectare Rifle Range Nature Park which will complement Hindhede and Dairy Farm Nature Parks as green buffers for Bukit Timah Nature Reserve.

Overcrowding in the nature reserves can harm native flora and fauna and may lead to human-wildlife conflicts.

Nature parks function as alternative nature venues, drawing visitors away from the reserves. They also provide a safe haven for native species and pit-stops for migratory birds.

Caring for our Wetlands

Urban wetlands play important roles, functioning as vital habitats for biodiversity and improving our water and air quality. As part of the World Wetlands Day celebrations, visitors to Sungei Buloh Wetland Reserve, Kranji Marshes, Jurong Lake Gardens, Pasir Ris Park, Pulau Ubin, St John's Island and Singapore Botanic Gardens learned more about the significance of wetlands during the first two weekends in February 2018.

Visitors to these locations – where urban wetlands can be found in Singapore – attended workshops and participated in activities such as guided walks, bird watching and mangrove clean-ups.

In addition to the World Wetlands Day activities, staff from Sungei Buloh Wetland Reserve worked with the Friends of Sungei Buloh Wetland Reserve community to conduct the Mangrove Speaks public symposium in July and the Wonderful World of Waders event in September. Together, they showcase a series of walks, talks and exhibitions, highlighting the importance of wetlands to Singapore.

Conserving Ubin's Rustic Character

NParks is working with the research community on a comprehensive two-year biodiversity survey on Pulau Ubin. The study, which started in late 2017, involves staff, volunteers, researchers from the National University of Singapore, and citizen scientists from various nature groups.

Data from the survey will help update the species inventory of Pulau Ubin and aid in the planning of future research, habitat enhancements and species recovery projects. The results will also be used for systematic long-term monitoring and management of the island.

The community is taking the lead on some projects to revitalise Pulau Ubin. For instance, NParks will connect interested groups with experts in architecture, heritage and related fields as well as volunteer networks through the Friends of Ubin Network, as part of a multi-year kampung house restoration effort. Work will be aligned with the overall look and feel of the island, retaining its cultural heritage and rustic character.

Complementing these efforts is an in-depth archaeological survey, which started in December 2017 with the examination of artefacts at a World War II site. A collaboration between NParks and the ISEAS-Yusof Ishak Institute, the 18-month survey will document the archaeological and historical remains at selected sites on Pulau Ubin, which are expected to shed light on Singapore's history.



1. Lush greenery welcomes visitors to Windsor Nature Park.
2. Two young volunteers removing trash from the mangroves in Pasir Ris Park. This clean-up session was one of multiple programmes held to celebrate World Wetlands Day in February 2018.
3. Children and parents identifying water organisms found in Sungei Buloh Wetland Reserve and learning about the importance of wetlands in the process.
4. NParks staff Dr Benjamin Lee and Noel Thomas taking and recording the measurements of a Long-tongued Nectar Bat during a nocturnal mammal survey on Pulau Ubin to determine bat population density and distribution.

Diving into Singapore's Marine Biodiversity

The first curated trail and guided walk at St John's Island was launched in September 2017, showcasing the island's rich biodiversity as well as its colourful history. Visitors to the island can join a free 90-minute monthly guided tour of a 2.8 km trail conducted by volunteers, and explore the enhanced Sisters' Islands Marine Park Public Gallery for a deeper appreciation of Singapore's marine biodiversity. New features include an immersive 3D virtual reality dive experience, a mangrove mesocosm and a viewing pool where visitors can study sea anemones, sea cucumbers, feather stars and other intertidal organisms up close.

Strengthening International Partnerships in Biodiversity Conservation

NParks conducted a Wetland Management course, supported by the Ministry of Foreign Affairs, in September 2017. The course provided international participants with a better understanding of coastal wetland ecosystems, migratory bird flyways with a special focus on the East Asian-Australasian Flyway, as well as shorebird conservation.

1. Go diving without getting wet thanks to the immersive 3D virtual reality dive experience found in the enhanced Sisters' Islands Marine Park Public Gallery on St John's Island.
2. Connect with nature and take in the beautiful sights while exploring St John's Island on the first curated trail and guided walk launched in September 2017.
3. Participants of the Youth Voices Capacity Building Workshops went for field trips to understand conservation issues, such as how wildlife like otters can coexist with humans in an urban environment.
4. Youths from 18 countries such as Mongolia, Iran and Japan, brought their unique perspectives to the issue of biodiversity conservation during the Asian edition of the Youth Voices Capacity Building Workshops.
5. Participating in an intertidal watch to record creatures found in the intertidal zones is an initiative to celebrate the International Year of the Reef 2018.



In collaboration with the China-ASEAN Environmental Cooperation Center, NParks organised the ASEAN-China Symposium on ecologically-friendly Urban Development in November 2017.

The symposium focused on promoting the exchange of knowledge and experiences on ecologically friendly urban development as well as fostering partnerships internationally. Some 67 delegates and speakers, consisting of federal as well as city government officials, academics and private sector representatives from ASEAN and China, attended the symposium.

To engage youths, NParks hosted the Asian edition of the Youth Voices Capacity Building Workshops at the Singapore Botanic Gardens from 22 to 27 May 2017. Organised by the Global Youth Biodiversity Network, the workshop brought 25 young leaders in biodiversity conservation from 18 Asian countries together. They discussed timely topics such as the role of government in conservation as well as biodiversity targets, and developed project proposals which they subsequently implemented in their home countries.



Increasing Outreach and Awareness

As a biophilic city with rich biodiversity, it is important for its people to co-exist with wildlife. This is key for the continued protection and conservation of Singapore's natural heritage. This is also why the youth branch of the Biodiversity Roundtable, the Biodiversity Friends Forum, introduced a challenge focusing on human-wildlife co-existence. Launched in January 2018 at the Singapore Botanic Gardens, it attracted more than 80 youth participants.

In May 2017, more than 35,000 participants, including 20,000 students and 330 partners, joined in Biodiversity Week activities across Singapore.

In other education and outreach efforts, NParks collaborated with the Friends of the Marine Park community and other partners to launch a series of activities and programmes for the International Year of the Reef 2018. The year-long celebration, which kicked off in January, seeks to raise awareness of the impact of human activity on the marine environment and involve the community in conserving Singapore's marine ecosystems.

Staff, volunteers and students from Nanyang Junior College, Ngee Ann Polytechnic as well as the School of the Arts also helped to raise awareness of the negative impact of animal release on Singapore's biodiversity during Operation No Release in May 2017. A survey was conducted at 11 sites across nature parks and nature reserves and for the first time, it was administered on smartphones and tablets, in line with NParks' sustainability practices.



Ms Gayathri Dharamraj, 34, a principal at an early childhood education centre, believes in combining play with nature.

"Play is an important aspect of any child's development and learning. It reinforces lessons taught in the class and builds different skillsets in the child. And when you combine play with nature, that's even better!" she said.

At her school, the children are brought outdoors every day for at least 30 minutes, to visit a nearby garden and pond. "Being around greenery is good for their health, and gives them the chance to interact with the plants and animals around them. This enhances their learning and children better understand why they should take care of nature," said Ms Gayathri.

To tap their innate curiosity about the world around them, NParks has been producing a range of pre-school learning resources about the conservation of Singapore's flora and fauna for several years. This past year, some of the new material about human-wildlife interaction and appropriate behaviours

within our nature areas were showcased at the Early Childhood Conference 2017 and the Social Studies Primary Symposium which reached out to educators of primary schools.

A talk was also given to about 200 students from Ngee Ann Polytechnic's Early Childhood Education Diploma programme, introducing them to the importance of nature for a child's development.

Ms Gayathri supports such knowledge sharing, access to resources, as well as NParks' innovation grant for schools to set up outdoor nature-related activities for children. "They benefit us as educators, enabling us to better formulate our lesson plans, and to create even more fun and essential programmes for our children."



Involving the Community through Citizen Science

Citizen science continues to gain traction. In May 2017, the nationwide BioBlitz took place across more than 80 schools, parks, gardens and nature areas. For example, participants of the BioBlitz at Yishun Park concurrently conducted butterfly and plant surveys while the first marine BioBlitz was held at the Sisters' Islands Marine Park. These initiatives help different communities to bond with, and over, nature.

In all, more than 4,500 Community in Nature citizen scientists, including about 2,000 students, supported the various biodiversity projects throughout the year. Besides the BioBlitzes, these included the Butterfly Watch, Garden Bird Watch and the newly-introduced Dragonfly Watch in July 2017 which attracted more than 200 participants.

Citizen scientists also successfully completed 16 surveys at four intertidal areas in 2017, under the NParks Intertidal Watch programme. These involved around 250 volunteers including NParks officers, schools, and the general public.

1. Participation in Citizen Science programmes has gone up, indicating a healthy interest among the public to help in biodiversity conservation efforts.
2. The Common Grass Yellow (*Eurema hecabe contubernalis*) is a commonly-sighted butterfly found in our forests, mangroves, urban parks and gardens.
3. The Common Flameback (*Dinopium javanense*) has a golden brown back and wings and an orange-red rump. The male has a bright red crest which makes it easier to spot during Garden Bird Watches.
4. Participants of the first ever Dragonfly Watch spotted the Sapphire Flutterer (*Rhyothemis triangularis*) in the ponds at Ang Mo Kio Town Garden West and Bishan-Ang Mo Kio Park.

CONSERVATION EFFORTS BEAR FRUIT

A rare orchid and a bee species potentially new to science are just two of the more than 500 species that have been discovered and rediscovered in Singapore by staff, research partners and naturalists over the past five years. This was announced during the 6th edition of the Festival of Biodiversity in May 2017, organised in conjunction with the Biodiversity Roundtable to celebrate the efforts of the community to conserve Singapore's natural heritage.

Here's another success story: under the Conservation Strategy for the Critically-Endangered Singapore Freshwater

Crab (*Johora singaporensis*), NParks researchers saw the successful hatching and release of 45 juvenile crabs into an aquarium by a wild-caught mother. This was an important first step towards proving that the aquarium set-up is capable of sustaining a population of these crabs and will pave the way towards a viable captive-breeding programme for this species.

Intensified efforts to monitor and document turtle arrivals and to safeguard nests and hatchlings have also borne fruit. The multi-stakeholder Marine Turtle Working Group, formed in late

2016, recorded 18 Hawksbill Sea Turtle (*Eretmochelys imbricata*) sightings, including arrivals, nests and hatchlings, on Singapore's shores in 2017, compared to 43 sightings reported between 2011 and 2016. In January 2018, a rescued Hawksbill Sea Turtle hatchling was also rehabilitated and successfully released back into the wild.

Despite Singapore being highly urbanised, such discoveries show that there is a lot more biodiversity in our City in a Garden, with some species yet to be discovered and studied. This also indicates that the decades of effort to enhance our urban greenery and safeguard our nature reserves and green areas is paying off.

The international community has taken notice. In November, NParks received the 2017 UNESCO Sultan Qaboos Prize for Environmental Preservation.

An international jury noted that through its Nature Conservation Masterplan, NParks has conducted significant conservation biology research resulting in the discovery of new endemic plant and terrestrial invertebrate species, and the results have been used to design better management plans and to facilitate science-based decision-making.

NParks and the Secretariat of the Convention on Biological Diversity have also developed the Singapore Index on Cities' Biodiversity, an important self-assessment tool for the evaluation of biodiversity conservation efforts by cities.



The *Acropsis ridleyi*, rediscovered by an NParks staff in 2016, is currently being propagated at the National Orchid Garden nursery.



The *Ceratina sayang* was found to be potentially new to science in 2014.



The globally Critically Endangered Singapore Freshwater Crab is endemic to Singapore and only known from a few hill streams in Bukit Timah, Bukit Batok and Bukit Gombak.



There were 18 recorded Hawksbill Sea Turtle sightings, including arrivals, nests and hatchlings, on Singapore's shores in 2017.



NParks is exploring ways to translocate tadpoles of the Cinnamon Bush Frog (*Nyctixalus pictus*) to suitable nature parks, expanding its distribution outside the Bukit Timah and Central Catchment Nature Reserves.



The Climbing Pandan (*Freycinetia javanica*), once thought to be extinct in the wild in Singapore, has since been reintroduced into HortPark and the Singapore Botanic Gardens.

ENGAGING COMMUNITIES

Our parks and gardens are vibrant community spaces where people from all walks of life can step forward to take ownership of the environment, as well as enjoy a host of activities ranging from children's festivals to rock concerts.





Bringing people together in our green spaces

Communities with different preferences find common ground in our green spaces. History and heritage buffs were drawn to the inaugural Festival of the Fort, held over two weekends in February 2018, which brought the rich history of Fort Canning Park and its surroundings to life. The festival featured over 50 programmes including a commissioned indoor performance, an interactive roving outdoor performance as well as guided walks, talks, and a plant marketplace.

NParks also kicked off the 2018 Concert Series in the Park: Rockestra® at the Festival of the Fort. Held at Fort Canning Green on 3 February 2018, the concert was themed Saturday Night Retro Fever and featured hits from the 60s to the 90s.

The Rockestra instalment at Bishan-Ang Mo Kio Park anchored NParks' Parks Festival in October 2017. The event featured themes such as arts and culture, gardening, nature, and sports and wellness. These were delivered through satellite programmes to some 12,500 visitors across five major parks island-wide.

In July 2017, NParks Satay Night Live returned for its fourth edition at Empress Lawn, attracting a crowd of 3,500.

And for the first time, NParks teamed up with partners to bring a live screening of the English Premier League match-up between Manchester United and Liverpool on 14 October. A healthy crowd of more than 2,000 people attended this event at Empress Lawn along the Singapore River.

Further adding to the buzz in and around the civic district, NParks organised another edition of Artists' Night Out in August in conjunction with the annual Singapore Night Festival, transforming Dhoby Ghaut Green with interesting art installations and exhibitions by partners.

Heartlanders had the golden opportunity to experience the sights and flavours of our neighbouring countries in January 2018. To commemorate Singapore's hosting of the 2018 ASEAN Chairmanship, an Experience ASEAN Festival complete with food stalls and entertainment, was held at Bishan-Ang Mo Kio Park.

A unique Singapore Botanic Gardens orchid hybrid, *Renanthera* ASEAN 2018, was presented to Prime Minister Lee Hsien Loong at the launch of the festival, which was supported by the ASEAN embassies in Singapore. Visitors also enjoyed a unique We Are ASEAN landscape display that showcased plants that are symbolic to the Member States of ASEAN.

Residents also learnt more about how they can care for our common spaces and clean environment during the Clean & Green Singapore Carnival held in Boon Keng in November 2017. This event was jointly organised by NParks with the National Environment Agency, PUB and Community Development Council.



1. The NParks Concert Series in the Park: Rockestra® held at Fort Canning Park attracted more than 5,000 people.
2. NParks' Parks Festival was a good opportunity for children to get up close with some of the residents of our parks and gardens, like this praying mantis.
3. NParks CEO Kenneth Er presenting Prime Minister Lee Hsien Loong with a unique orchid hybrid, the *Renanthera* ASEAN 2018.
4. Deputy Prime Minister and Coordinating Minister for National Security Teo Chee Hean participating in a tree planting activity, leading the way in our continued efforts to green up Singapore.



Engaging Students

NParks conducted a series of educational and outreach initiatives in the reporting year. In addition to the multiple touch-points provided under the Community in Nature and citizen science umbrella, some 16,000 students learned more about the wonders of nature during assembly talks and roadshows.

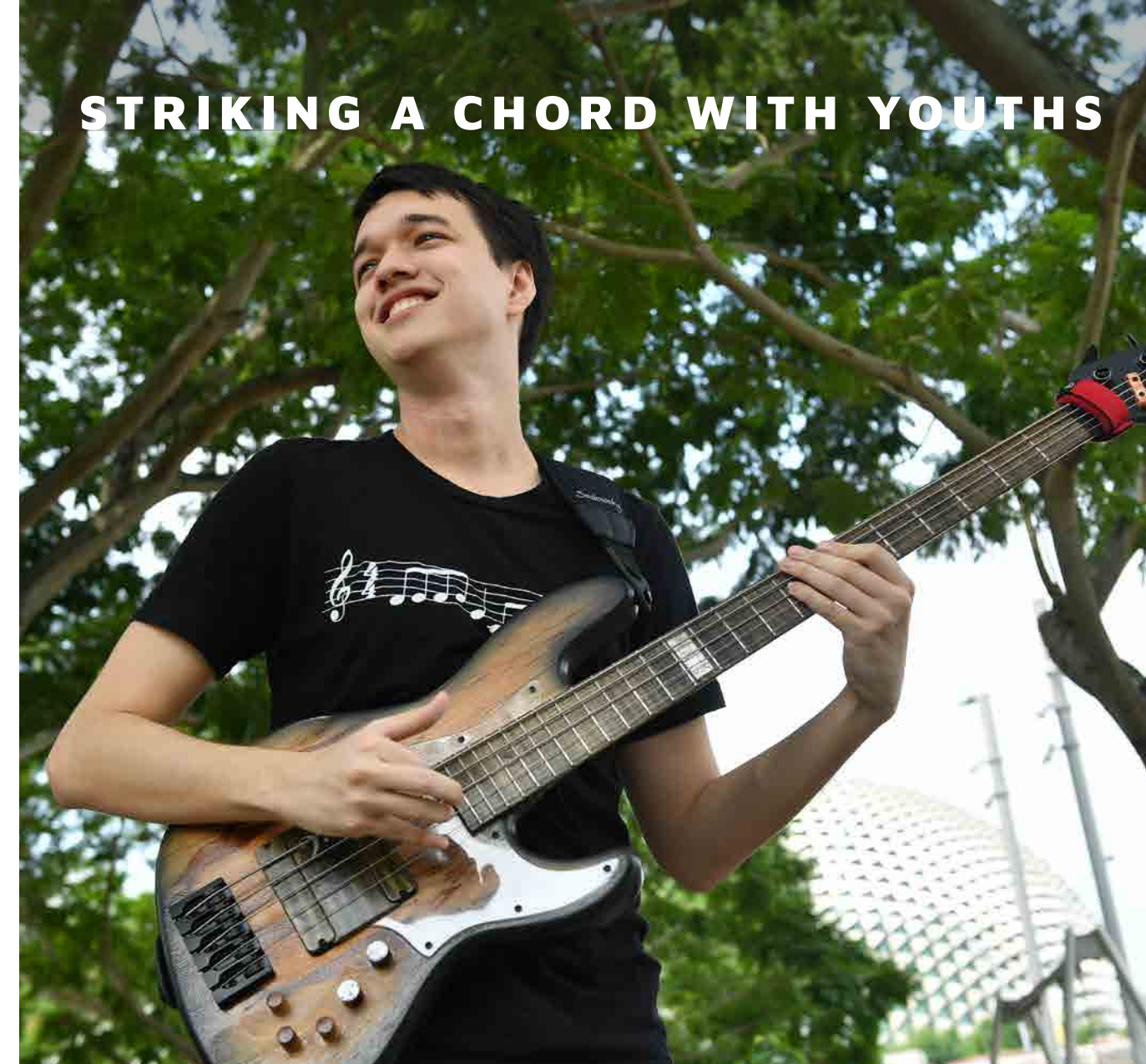
To raise the awareness of a biophilic Singapore, a new play was introduced for primary school students. This interactive performance highlights interesting facts about our native biodiversity and educates students on appropriate behaviours while in nature, for example, respecting wildlife by maintaining a safe distance from them and keeping to marked trails.

NParks also worked with the Singapore Press Holdings, publishing two stories that explain what biophilia is and providing little known facts about some of our green spaces. Together, the play and newspaper articles reached out to about 90,000 students.

There was also a conscientious effort to engage about 1,600 pre-schools and their educators. Programmes included customised talks, guided walks and activities to excite the young and their educators about our flora and fauna. This included interactive talks on plants and insects for pre-schoolers at the Children's Campus, Little Kinder Montessori and Little Greenhouse@Tampines.

1. Bukit View Secondary School students getting their hands dirty planting a locally important tree in their school compound as part of the Green Wave activity. This worldwide biodiversity campaign educates youths about the importance of protecting our natural environment.
2. Students from the Agape Little Uni child care centre were introduced to the concept of biodiversity conservation through a storytelling session followed by an accompanying activity book.

STRIKING A CHORD WITH YOUTHS



Imagine performing a gig where your audience includes animals! This was the experience that musician Matthew Reavley, 21, had when he performed at the Jazz for Dogs event at the Singapore Botanic Gardens in 2017.

"It was an incredible experience! We had a beautiful stage and it was a fantastic venue to perform at," said Matthew who plays the bass guitar. "It was also really cool to see so many pets in one place; everyone just having a good time with their fluffy companions."

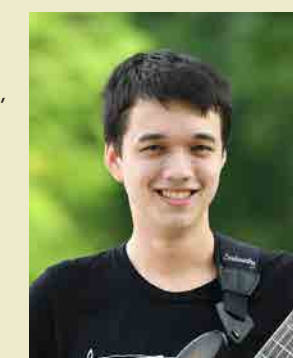
The Nanyang Technological University student can attest to the vibrancy of our green spaces as gathering spots for youths.

Youths looking to work up a sweat can choose to go for a run or cycle along the park connectors, while nature lovers can hike or go for guided walks. Avid photographers can also explore our green spaces to discover interesting angles and perfect sunsets for their insta-worthy shots.

Over the past 12 months, four NParks Concert Series in the Park: Rockestra® concerts attracted more than 30,000 attendees. Covering different genres of music and held in venues across the island such as Fort Canning Green, Jurong Central Park, Bishan-Ang Mo Kio Park and Choa Chu Kang Park, these events attract people outdoors to enjoy good music and company under a sky full of stars.

But visits to the parks and gardens need not always be about big productions. Matthew says he also enjoys just strolling about, chilling and de-stressing.

"While I enjoy performing in the gardens, other times, it's equally fulfilling just walking around and taking things in!" he quipped.





Meeting the Demand to Grow Edibles

NParks announced the Edible Horticulture Masterplan which focuses on creating spaces for gardening, providing training opportunities and resources for edible gardening, promoting new plant varieties and horticultural technology, as well as education and outreach. This complements the burgeoning interest in edibles among community gardeners.

For the first time, the Community Garden Festival centred on the theme of edibles. Held in November 2017, the festival featured a display of over 11,000 plants spread over 2,100 sq m. This was nearly twice the number displayed at the 2015 festival. A record number of 481 entries was received for the Community Garden Edibles Competition, a 33% increase over the previous year, again highlighting the growing interest in edibles.

To meet this growing demand, spaces for gardening will be increased with the introduction of allotment gardening plots in 11 parks island-wide.



Gardening enthusiasts quickly snapped up 400 plots at HortPark, Punggol Park, Clementi Woods Park and Bishan-Ang Mo Kio Park in November 2017. Some 220 more allotment plots, in Bedok Town Park, Choa Chu Kang Park, Pasir Ris Park, Sengkang Riverside Park and Yishun Park, were opened to gardeners in 2018, to grow edible and ornamental plants of their choice.

The aim is to make more than 1,000 allotment garden plots available to residents by 2019.

1. Some 40,000 people visited the Community Garden Festival at HortPark, which centred on the theme of edibles for the first time, highlighting the growing interest in edibles among locals.
2. The burgeoning interest in edibles is evident in the increasing number of entries for the NParks Community Garden Edibles Competition each year. Some 400 participants, a record, joined the competition in 2017.

Community Gardening Continues to Blossom

In 2017, more than 100 new Community in Bloom (CIB) gardening groups were set up. These outdoor and indoor gardening groups helped boost the total number of community gardens to 1,350, putting NParks on track to achieve the target of 2,000 community gardens by 2030.

Six community gardeners were accorded the CIB Ambassadorship 2017, bringing the total number of CIB Ambassadors to 66. This award celebrates individuals who made significant contributions to the local gardening scene, fostering a love for gardening among Singaporeans.

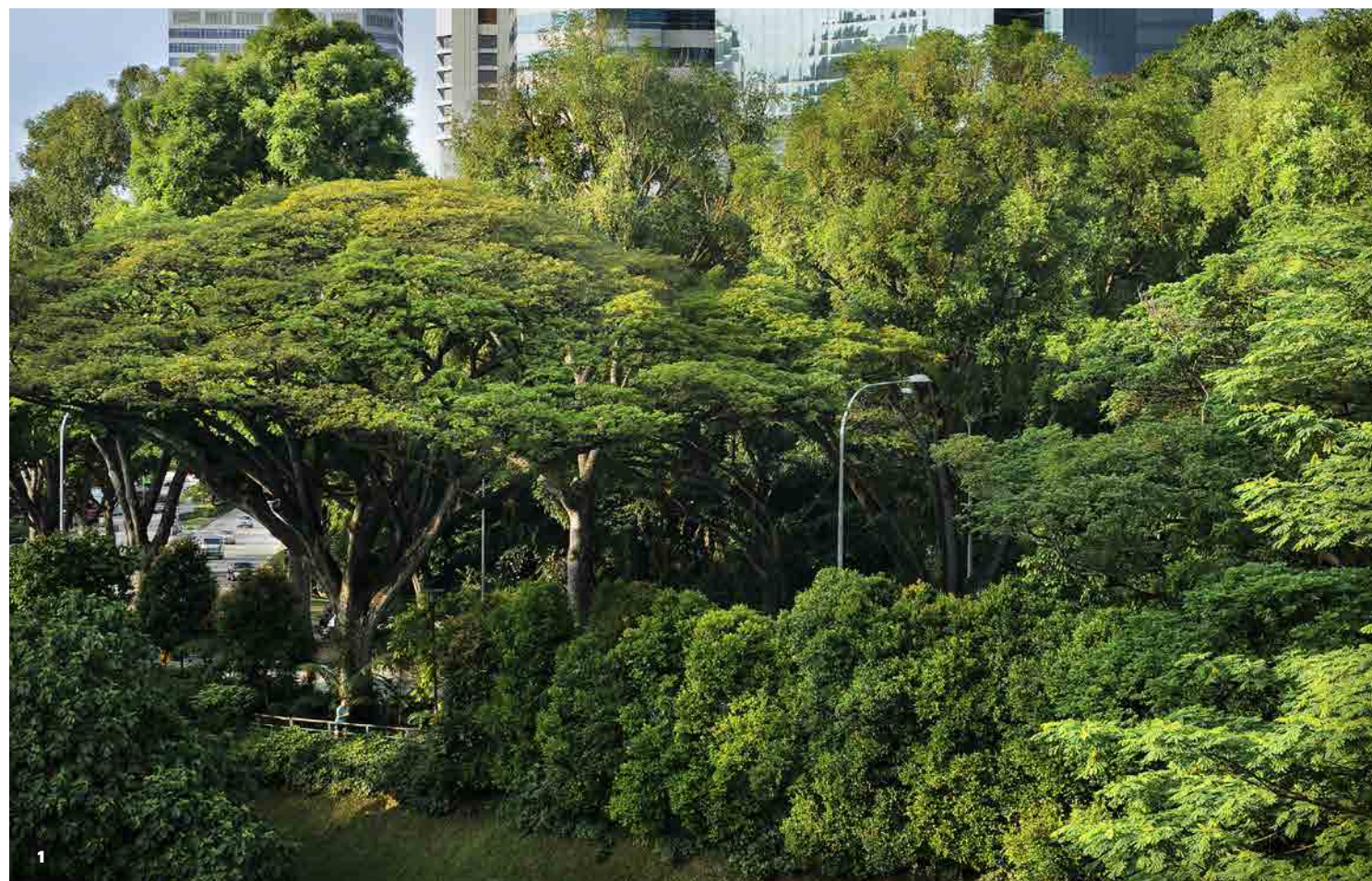
Members of the public curious about gardening in their neighbourhoods can join tours of the new Teck Ghee and Bukit Gombak-Hong Kah community garden trails. They can also meet the friendly gardeners in their community and hear firsthand how they can start their own gardens. There are now five community garden trails, including the ones at Bukit Panjang, Tampines, and Fengshan.

To promote horticultural knowledge and enhance their competency, more than 100 community gardeners were trained under the Community Garden Training Series Level 1 during the year in review. New courses on edible gardening have also been introduced as part of the tiered training programme and NParks will continue working with partners to provide training for growing leafy edibles through the Master Growers programme.

The monthly Gardeners' Day Out at HortPark continued to attract a strong response, pulling in over 30,000 visitors and gardening enthusiasts in 2017. The Gardeners' Bazaar saw an increase in the number of booths and variety of gardening-related offerings.

3. Launched in 2005, the Community in Bloom nationwide gardening movement now has some 1,350 community gardens across the island.
4. To raise the level of horticulture skills, community gardeners can take new courses on edible gardening as part of a tiered training programme under the Community in Bloom initiative. Gardeners who have developed more experience and skills can then share their knowledge with others.





Friends of the Parks Community

The Friends of the Parks community plays an important role in enabling people to take ownership of the parks and promoting safe and responsible behaviours to improve park users' experience.

The Friends of Ubin Network, Friends of the Marine Park, and Friends of Sungei Buloh Wetland Reserve communities have done much to contribute towards our conservation efforts.

In June 2017, the newly-formed Friends of Bishan-Ang Mo Kio Park community held its inaugural meeting and discussed ways to promote safe and responsible behaviours to improve park users' experience. A month later, the Friends of Park Connector Network (PCN) Community celebrated its first anniversary with a 20-km ride along the newly-opened Coastal Park Connector and the planting of 52 trees to celebrate Singapore's 52nd birthday.

Since its formation in 2016, the community has been involved in running several programmes including bike maintenance clinics, Share the Track events, and PCN Appreciation Days. They have also served as ambassadors for safety, spreading this message along various park connectors.

Another community, the Friends of Chestnut Nature Park, spearheaded a tree-planting initiative by Ridge View Residential College as part of the National University of Singapore's Day of Service. The newly-formed Friends of Bukit Timah Forest also held tree planting, weeding activities and trail maintenance sessions, as part of their efforts to promote the conservation and greater appreciation of Bukit Timah Nature Reserve and the nature parks adjacent to it.

The Friends of TreesSg members had their inaugural meeting in March 2018 and discussed how they would engage the wider community on the conservation of trees. The Friends of Rail Corridor community was also started this past year. Members will contribute ideas and kickstart initiatives to activate the green spaces surrounding the Rail Corridor.

1. Love the beautiful majestic trees found around you? Visit trees.sg to find out more about them. On this website, you can indicate if a tree is flowering, upload pictures of it or leave messages for the tree.
2. Staff and volunteers are working together to actively engage cyclists, pedestrians, runners and personal mobility device users, to promote safe and responsible use of the PCN and cycle paths.
3. Volunteers from the Friends of the Rail Corridor community came together to plant trees and help with the upkeep of the Rail Corridor.

Volunteers' Contributions

NParks has more than 40,000 active volunteers who serve at least 16 hours a year, participating in a wide range of activities such as visitor services, guided walks, gardening, outreach programmes, conservation programmes and marine biodiversity surveys. Volunteers help out regularly on horticulture maintenance works in different green spaces, including at Bishan-Ang Mo Kio Park and Fort Canning Park.

Jurong Lake Gardens set up a volunteer core this past year, to better engage with its visitors in anticipation of the gardens' upcoming opening. It organised its first volunteer session in October where participants carried out tasks such as re-potting, weeding and fertilising some of the plant collections.

To prepare for the Active Mobility Act, volunteers worked together with the Land Transport Authority's Active Mobility Unit to launch Active Mobility Patrol teams for the Park Connector Network (PCN). The first such team was launched in Clementi in June 2017, as part of an ongoing initiative that encourages the community to play an active role in promoting safe and responsible use of the PCN and cycle paths.

NParks volunteers were also involved in other efforts to advocate safety along the PCN. In June, more than 160 joggers and cyclists turned up for the NParks-OCBC Ride Safe Programme: Share the Track event along the North Eastern Riverine Loop, and in September, over 700 participants attended the annual OCBC-NParks Ride Safe Programme Cycle-in Movie in Punggol.

Online Engagement

Demonstrating engagement with youth and the online community, NParks' online presence continued to grow with a 16% increase on Facebook (to 96,000 fans), 43% increase on Instagram (to 21,000 fans) and 65% increase on Twitter (to 32,000 fans).

In March 2018, trees.sg, a new community engagement portal, was launched. Showcasing the location of, and information on, over 500,000 trees, it is the most extensive urban tree map in Asia. The public can locate trees on the map, discover interesting details about them and even interact with them by leaving messages for the trees. Beyond such virtual tree engagement, the public can also join guided walks of tree trails or volunteer to care for the trees.



ENHANCING COMPETENCIES

The landscape industry is an indispensable partner in NParks' efforts to grow a City in a Garden. To expand and strengthen the industry, NParks continues to drive training, skills upgrading and strategic research initiatives.





Growing the Industry

Singapore is setting aside more than 100 hectares of land for landscape nurseries. Located in Lim Chu Kang and Sungei Tengah, the land parcels have been released in stages starting from November 2017, and is part of ongoing efforts to grow the landscape industry. The announcement was made at the Landscape Industry Fair held at HortPark in August.

NParks has also taken on the management and development of the orchid sector from the Agri-Food and Veterinary Authority of Singapore from 1 January 2018. NParks will develop manpower plans and incentive policies, and manage the orchid industry's land needs. This move will consolidate resources and create better synergy for the industry.

In another industry update, more than S\$4 million has been committed to supporting 60 companies under the Landscape Productivity Grant, a co-funding scheme under the Landscape Productivity Roadmap to help landscape companies defray investments in machinery and technology.



To provide the industry with a platform for networking and to exchange ideas, GreenUrbanScape Asia, Asia's only hybrid greenery and landscape design event, was back for its third edition in November 2017.

The three-day event featured a trade exhibition and consumer components, as well as the fourth edition of the International Skyrise Greenery Conference. The event attracted more than 2,300 trade professionals and visitors from over 30 countries, and generated potential sales of about S\$6.3 million.

1. The collaborative efforts between the government and industry partners have resulted in Singapore reaching a milestone of 100 hectares of rooftop greenery. This was announced at the third edition of the GreenUrbanScape Asia event.
2. During the Landscape Industry Fair, Minister for Social and Family Development and Second Minister for National Development, Mr Desmond Lee (extreme left), observes a robotic mower that autonomously maintains lawns. The use of such technology can potentially reduce reliance on manpower by half.

PART OF A GROWING COMMUNITY



Burnt out by work? Try gardening as a good way to manage stress!

Muhammad Ridhwan, who works in finance, has been gardening for about 15 years, with a particular fondness for growing orchids. The 29-year-old said, "I enjoy gardening. It helps me de-stress and also teaches me patience. And it's a great way to increase your circle of friends."

Ridhwan helped set up a Community in Bloom (CIB) garden on the grounds of his mosque in 2017. Currently, a group of some 20 volunteers meet fortnightly to keep the gardening plots around the building, including an orchid sanctuary, lush and verdant.

Across the island, the momentum for community gardening has been growing. In 2017, more than 100 new CIB gardening groups were set up, and NParks has been working to ramp this up. For instance, we worked with partners to design and implement a 180 sqm rooftop community farm in Kampung Admiralty which features more than 30 species of

plants ranging from fruit trees to herbs and spices, leafy vegetables and medicinal plants.

Ridhwan is heartened by this rising interest in gardening, whether it is for edibles or ornamentals. He has been approached by nearby CIB gardeners hoping to learn more about growing orchids, and expects more youths will get involved over the next few years.

"I've met many youths who say they enjoy 'cool' activities outdoors, like exploring nature areas or going for long hikes. Gardening is a natural extension of this love of nature!

After all, gardens attract biodiversity like birds and butterflies and gardening forms the foundation of our vegetable and fruit source. Now that's what I call cool!" Ridhwan said with a laugh.





Promoting Skills Upgrading

In the reporting year, CUGE offered more than 4,300 Workforce Skills Qualifications (WSQ) training places and over 2,400 non-WSQ training places. Initiatives such as roadshows and a newly launched landscape industry page on the MySkillsFuture portal enable those interested to make informed choices on education and training opportunities as well as plan their career paths in the landscape industry.

Developing Expertise

In July 2017, CUGE organised the annual Regional Arboriculture Seminar at HortPark to boost knowledge development and expertise among practitioners. The one-day seminar covered various tree care management topics, new research findings, and updates on the latest industry standards.

NParks developed two new programmes under the Human-Wildlife Coexistence series focusing on interactions with snakes and bats, and launched a new workshop to help tree care workers spot signs of defects while performing arboriculture operations.

NParks continues to engage international expertise to enhance local know-how in urban ecology. Speakers from the United Kingdom, Australia and Belgium, among others, delivered workshops on topics such as environmental impact assessment, ecosystem services assessment in city planning, and the importance of insects in environmental assessments.

CUGE worked with other divisions to conduct a course on Greenery Planning and Biodiversity Conservation from 16 to 19 January 2018. Officials from 19 countries such as Cambodia, Panama and Turkey participated, visiting various parks and gardens to gain insight into how NParks provides quality greenery and enhances biodiversity in our urban environment.



Boosting Efficiency with Digitalisation

NParks continues to tap on data science, geospatial information and system databases, diagnostic tools as well as sensors, with the implementation of the Smart Technology Roadmap for Tree Management and Smart Parks Blueprint. To date, eight projects are being supported by S\$7 million in funding from various sources including Geo-Fund, Municipal Services Productivity Fund, National Research Fund and Transformation Support Fund.

In addition to equipping staff with portable tools such as telescopic cameras, mini drones have also been introduced for tree inspection. These tools boost work efficiency and reduce the need for staff to climb the trees.

1. International participants of the Greenery Planning and Biodiversity Conservation course visited Sungei Buloh Wetland Reserve to learn about mangrove conservation.
2. Led by Hort Champs, staff learn how to differentiate bees from wasps and flies by looking at the size of the eyes, wings and shape of the abdomen.
3. Developed in collaboration with the Singapore University of Technology and Design, the Tree Inspection Micro Drone is used to check for defects on trees.
4. With his helpful nature and good knowledge of the Gardens, Mr Thoha Zikri Bin Tamzin, Visitor Services Assistant at the Singapore Botanic Gardens, received the PS21 Star Service Award.
5. Recipient of the PS21 Star Manager Award, Mr Jason Soon, Deputy Director/Human Resources, is known for his friendly disposition and patient listening ear.
6. The National Orchid Garden's *Dendrobium* was awarded the Reserve Champion Plant trophy and a Certificate for Cultural Commendation at the Orchid Society of South East Asia orchid show.



Developing Talent and In-house Knowledge

To develop NParks' talent pipeline, three undergraduate scholarships, four overseas merit awards and three postgraduate scholarships were awarded to staff and external candidates in 2017. Over the same period, 12 scholarship recipients and award winners returned from their studies.

Selected staff went on a learning trip to the Chongming Dongtan National Nature Reserve in China in October 2017. This followed the signing of a Memorandum of Understanding between Sungei Buloh Wetland Reserve and Chongming Dongtan, establishing the two as sister wetland sites.

In other learning opportunities, staff attended the Good Horticultural Practices Workshop which focused on edible gardens and picked up good horticulture practices during learning trips to community gardens. Inter-divisional sharing sessions also enable staff to learn best practices and parks development knowledge from each other.

Hort Champs are staff who take part in horticultural workshops and field trips and then share this knowledge with other staff or visitors to our green spaces. This past year, Hort Champs shared about topics such as bee identification; management and conservation; mangrove ecology and management; managing pest and disease; composting; plant selection; as well as landscape design. The quarterly Hort Colloquiums continue to be important platforms for knowledge sharing. Besides covering topics such as conservation and biodiversity, as well as trends in the landscape industry, staff also shared experiences from overseas learning trips during these sessions.

Attended by about 800 officers from across the various divisions, the annual Staff Conference was held at Suntec Singapore Convention & Exhibition Centre on 18 April 2017. Speakers highlighted the importance of using innovation to help overcome challenges while the NParks Greenery Excellence Awards recognised the teams behind outstanding projects.

Recognising Our Best

Staff were recognised for their exemplary service to visitors and co-workers this past year. Mr Thoha Zikri Bin Tamzin, Visitor Services Assistant at the Singapore Botanic Gardens, received the PS21 Star Service Award, while Mr Jason Soon, Deputy Director/Human Resources, received the PS21 Star Manager Award. For its perseverance and quick thinking while attending to emergency incidents, particularly in the case of a hiker who was lost for three days in September 2015, the Central Nature Reserve Emergency Response Team received the PS21 Star Service Team Award.

Good design was also rewarded: For incorporating user-centric philosophy into its design principles, operations and maintenance, Parkland Green in East Coast Park picked up the GoldPlus Building and Construction Authority Universal Design Mark Certification. Marine Cove at East Coast Park and one-north Park also received the Gold standard under the same certification.

At the Orchid Society of South East Asia orchid show held at HortPark in September 2017, the team from the National Orchid Garden bagged 19 awards. This included the Grand Champion Trophy and a First Class Certificate Award for a specimen of *Aerides lawrenceae*, a species from the Philippines, which had 11 sprays of fragrant flowers. The National Orchid Garden's *Dendrobium* Samurai x *Dendrobium* leporinum picked up the Reserve Champion Plant trophy and a Certificate for Cultural Commendation.



Giving Back to the Community

During the annual Kindness Day held on 21 November 2017, staff offered their time towards various causes. Different groups of volunteers conducted a therapeutic horticulture session for seniors, helped to weed and prune the garden at the Handicaps Welfare Association and cleaned cages and walked dogs at the Society for the Prevention of Cruelty to Animals. As part of ongoing engagement with the community, over 10 kindness-related activities were conducted throughout the year, including regular blood donation drives that help replenish Singapore's blood bank.

1. Staff regularly visit the garden at the Handicaps Welfare Association to aid in the weeding and maintenance of the garden there, just one of many kindness-related activities to give back to the community.



Visitors to the therapeutic garden at Bishan-Ang Mo Kio Park have a chance to connect with nature and find respite from the stresses of everyday life.

GREENERY AS THERAPY

This past year, NParks opened therapeutic gardens in Bishan-Ang Mo Kio Park and Tiong Bahru Park.

Modelled on the first therapeutic garden at HortPark, the two new gardens were developed based on best practices and evidence-based design principles as well as research in environmental psychology. They not only incorporated elderly-friendly features but were also aimed at alleviating the onset of dementia through therapeutic horticulture to provide respite and help to improve the mental well-being of visitors, including seniors.

Research has shown that humans find comfort in, and are rejuvenated by, nature. This innate connection to nature, or biophilia, is an important part of therapeutic horticulture. Towards this aim, NParks has developed customised programmes to increase social interaction and promote healing and recovery through plant and nature-related activities.



Staff have been conducting hands-on activities like making scent bags for seniors, as part of the Therapeutic Horticulture Programme.



Visitors' sense of sight, touch and smell are heightened in the therapeutic garden, thereby helping to improve their mental well-being.

Bishan-Ang Mo Kio Park kicked off its Therapeutic Horticulture Programme in January 2018, introducing seniors from nearby activity centres to plants like the Laksa Plant (*Persicaria odorata*) and Dwarf Ylang Ylang Tree (*Cananga odorata* var. *fruticosa*) that evoke memories of kampung days, before engaging them in hands-on activities such as making scent bags and leaf collages. Tiong Bahru Park conducted a similar programme three months earlier. Since introducing the pilot programme at HortPark, over 50 sessions have been conducted, benefitting some 300 participants.

As part of capacity building, train-the-trainer workshops and tour sessions were conducted to introduce staff and volunteers to the therapeutic gardens and theories behind therapeutic horticulture, as well as to provide hands-on practice in conducting related activities.

To expand knowledge sharing, workshops were organised with experts and partners from the National University of Singapore, Nanyang Polytechnic and the University of Florida. These covered topics such as therapeutic gardening for geriatric settings, therapeutic garden design and developing goals and activities for

therapeutic horticulture programming. Therapeutic horticulture courses were also organised specially for staff and members of the Agency for Integrated Care and Singapore Association of Occupational Therapists.

The therapeutic benefits of greenery are not restricted to seniors. NParks is working with the Ministry of Health and Alexandra Health to develop the first purpose-built parkland for patient healing, part of the upcoming Woodlands Health Campus. The Healing Forest Garden will be adjacent to, and integrated with, the hospital. It is developed based on studies that show that a person's focus and attention is improved by spending time in, and looking at, nature, and is targeted to be completed in 2020.

To further promote the role of greenery in therapy, CUGE conducted its inaugural Certificate in Therapeutic Horticulture programme in November 2017, training professionals to create, implement and weave therapeutic horticulture activities and features at their facilities. This programme is open to health and social care practitioners, landscape designers, horticulturists and anyone interested to pick up useful skills in therapeutic horticulture.



Charity Registration Number/Unique Entity Number: T02CC1634C

Charity Registration Date: 19 November 2002

IPC Number: IPC000104

Auditor: Ernst & Young LLP

The Garden City Fund (GCF) is a registered charity and an Institution of Public Character (IPC), with its registered address at National Parks Board, Singapore Botanic Gardens, 1 Cluny Road, Singapore 259569.

The GCF seeks to enhance the enjoyment of our City in a Garden by working with corporations and individuals to support the development of amenities and special features in Singapore's green spaces; community activities and programmes that promote awareness, research and education in nature and conservation; and citizen involvement to encourage greater ownership of our City in a Garden.

The Board of NParks serves as the trustee of the GCF and has appointed the GCF Management Committee to plan, develop, promote and manage the GCF in accordance with its Trust Deed.

The Management Committee comprises mainly non-executive members except for the GCF Secretary Dr Leong Chee Chiew, who is also the Deputy Chief Executive Officer, Professional Development & Services Cluster at NParks; Executive Director, National Parks, Gardens & Nature Reserves Cluster; and the Commissioner of Parks & Recreation.

Between 1 April 2017 and 31 March 2018, the total amount of cash donation income through the GCF was about S\$3.2 million.

The members of the eighth GCF Management Committee appointed from 1 November 2016 to 31 October 2018 are:

Chairman: Professor Leo Tan Wee Hin

Treasurer: Mr Goh Kong Aik

Secretary: Dr Leong Chee Chiew

Members: Mr Tan Khin Nguan, Mrs Fu E-Len, Mrs Kirtida Mekani, Dr Malone-Lee Lai Choo, Mr Daren Shiau, Mr Vincent Lien Jown Jing

As part of the GCF Accountability and Governance Framework, any member of the Board, Committee or Sub-committee has to give prior written disclosure of any actual or potential conflict of interest for any transaction or project in connection with the GCF, and will not be able to participate or cast a vote in the transaction/project.



1. OCBC Bank volunteers commit their time and effort to propagate native shrubs that will help to rejuvenate the landscape, part of a pioneer habitat enhancement programme at Coney Island Park.
2. NParks staff accompany seniors in the therapeutic garden in HortPark. Tote Board is sponsoring the development of eight more therapeutic gardens, with the first located at Choa Chu Kang Park.
3. Children up to 14 years old can enjoy the programmes and attractions, like the flying fox, at the Jacob Ballas Children's Garden extension.

Towards Conservation and Enhancing Biodiversity

NParks' biodiversity and conservation efforts were boosted, thanks to the strong support from individuals and corporate sponsors, through the GCF. In the year in review, these sponsors included Ascendas, ExxonMobil, HSBC Bank, OCBC Bank, Sembcorp Industries and Temasek, among others.

In June 2017, OCBC Bank partnered NParks to pioneer a habitat enhancement programme at Coney Island Park, committing S\$250,000 in funding and volunteer efforts. Under this project, over 50 species of native coastal plants will be planted, to increase the biodiversity in the area.

Over the next five years, an estimated 1,400 OCBC staff volunteers will work with NParks on various activities in the park, ranging from plant propagation to coastal clean-ups.

At the Singapore Botanic Gardens, the new extension of the Jacob Ballas Children's Garden was opened in November 2017. This project was partially supported by the Jacob Ballas Estate and Friends; and other fundraisers. With the contributions, the children's garden will now support programmes for youngsters up to 14 years old. This will enable them to continue to play outdoors and have a greater connection with our natural heritage.

GARDEN CITY FUND

Outreach, Education and Hands-on Support

Ascendas contributed over S\$300,000 towards the Concert Series in the Park: Rockestra®, and the construction of a Therapeutic Garden in Choa Chu Kang Park, among other NParks projects, to enhance the park-going experience for the young and old.



This past year, long-term GCF partner HSBC Bank continued its support for the conservation and growth of our natural heritage. Some 80 staff volunteers helped propagate coral nubbins at workshops held at the Sisters’ Islands Marine Park Outreach and Education Centre on St John’s Island in May 2017. The bank also contributed S\$100,000 to seed collections for the conservation of important plant species in the Southeast Asia region.

Greening Up our City

The GCF’s Plant-A-Tree (PAT) programme continued to garner strong support from individuals and corporations with over 33,000 trees pledged by more than 600 corporations and some 2,700 individuals since the programme’s inception in 2007. The programme provides a platform for corporations to plant trees on various occasions.

To celebrate World Environment Day on 5 June, over 40 participants from the World Wildlife Fund planted 50 trees along Rower’s Bay at Lower Seletar Reservoir Park. In August, 109 participants from Great Eastern Life celebrated its 109th anniversary by planting 51 trees at East Coast Park.

Other regular participants of the PAT programme who came on board to do their bit for the environment included Standard Chartered Bank which planted 100 trees at Labrador Park; UPS with 87 trees at Dairy Farm Nature Park; and Shimano (Singapore) which planted 50 trees along the Pang Sua Park Connector.



Path Forward

Looking ahead, the GCF remains committed to engaging different segments of the community, supporting NParks’ conservation and research efforts, as well as its outreach and educational initiatives. The aim continues to be to cultivate a love for the environment, promote a sense of ownership, and encourage the community to play a larger role in preserving Singapore’s legacy as a City in a Garden. Visit www.gardencityfund.org for more information.

- 1. In the past year, park goers had the opportunity to enjoy thrilling performances during the Concert Series in the Park: Rockestra®.
- 2. HSBC Bank staff helped to propagate coral nubbins in a nursery at the Sisters’ Islands Marine Park Outreach and Education Centre. These coral fragments, when grown to a suitable size, can be transplanted onto a reef at the Marine Park.

GARDEN CITY FUND DONORS’ ACKNOWLEDGEMENT (FY 2017)

We acknowledge and thank the following donors who have generously supported our City in a Garden efforts, including those who wish to remain anonymous.

\$1 million and above

Keppel Care Foundation

\$100,000 and above

Ascendas Land (Singapore) Pte Ltd
Lim Soo Ngee
OCBC Management and Staff
Rosslyn Leong Sou Fong
Symasia Singapore Fund - Mingxin Foundation
Takashimaya Singapore Ltd
Temasek Capital Management Pte Ltd
The Hongkong and Shanghai Banking Corporation Limited

\$10,000 and above

Advance Sports Technologies Pte Ltd
Amorepacific Singapore Pte Ltd
Applied Materials SEA Pte Ltd
Asia Geographic Magazines Pte Ltd
ExxonMobil Asia Pacific Pte Ltd
Goldbell Foundation
Ikano Pte Ltd
Jessie Wu
Kimly-Shimizu Joint Venture
Louis Vuitton (Singapore) Pte Ltd
Malayan Banking Berhad
Mao Sheng Quanji Construction Pte Ltd
Moove Media Pte Ltd
Nikon Singapore Pte Ltd
Oversea-Chinese Banking Corporation Limited
ParexGroup Pte Ltd
Shell Companies in Singapore
Shimano (Singapore) Pte Ltd
Singapore Press Holdings Foundation Limited
Singapore Pools (Pte) Ltd
Singapore Telecommunications Limited
SMCC Overseas Singapore Pte Ltd
Standard Chartered Bank
Tan Jiew Hoe
The Great Eastern Life Assurance Company Limited
The Norinchukin Bank
The UPS Foundation
Unison Construction Pte Ltd
WWF Singapore

Below \$10,000

Ademco Investments Pte Ltd
Amriteswari Society
Ang Puay Kim Jami

Apollo Tyres Holdings (Singapore) Pte Ltd
Carl Ward
Central Singapore Community Development Council
Charles & Keith Commercial Pte Ltd
Chem-Trend Singapore Pte Ltd
Chodai & Buro Engineering Pte Ltd
Chung Pui Hoong Joan Teresa
Elisabeth Clarice Esther Gustava de Rothschild
Foo May Yee
Gooi Seong Lim
Harohalli Nagaraj Ravikiran
Heather Leigh-Ann Emslie
Hidehiko Kojima
Hilti Far East Pte Ltd
Hotel Fort Canning
Ino Arts & Communications Pte Ltd
Kang Wen Ling
Kion Engineering Pte Ltd
Leaena Tambyah Nee Chelliah
Lee Yun Qin
Leo Tan Wee Hin
Lesley Ho (in memory of)
L’Oreal Singapore Pte Ltd
Lum Wai Meng
Marianne Marais
Michael Foreman
MindChamp Pre-School
MKTG (Finland)
Metech Recycling (Singapore) Pte Ltd
Mohan Management Consultants Pte Ltd
Ng Peng Fong
oBike Asia Pte Ltd
OrthoSports@Novena
Pierre Fabre Dermo-Cosmetique Singapore Pte Ltd
RSP Architects Planners & Engineers (Pte) Ltd
Sato Asia Pacific Pte Ltd
Singapore Exchange Ltd
Smart Co. Holding Pte Ltd
Squire Mech Pte Ltd
Sri Vinayaka Exports Pte Ltd
Sunray Woodcraft Construction Pte Ltd
Tan Eng Bee Sylvia
Tan Eng Keng
Tan Jiew Sin
The Klorane Botanical Foundation
Thiruchelvam Jegathesan
Three Bond Singapore Pte Ltd
United Test and Assembly Center Ltd
UTAC Manufacturing Services Singapore Pte Ltd
Yap Lan Hiang Vicki
Yap Lian Hiang Vivien
Yuvabharathi International School Pte Ltd

Donations listed above are of a minimum amount of \$1,000.
We thank all other individuals and organisations who have given to the charity.



LEARNING FOREST, SINGAPORE BOTANIC GARDENS

Our Sustainability Story

Greenery has become our national identity and makes Singapore highly liveable. Our parks, gardens, nature reserves and verdant streetscapes are valuable assets that contribute to improving the quality of our living environment.

NParks is committed to conserving nature and biodiversity; nurturing greater community stewardship; and building capabilities within the organisation and industry to sustain the momentum of our City in a Garden programme.

Our sustainability strategies are:



Sustaining our City in a Garden

Creating the best possible living environment through excellent greenery and recreation.



Nurturing Communities

Strengthening Singapore's greenery and biodiversity in partnership with the community.



Creating a Great Workplace

Developing our staff and taking care of their well-being.

Sustaining Our City In A Garden

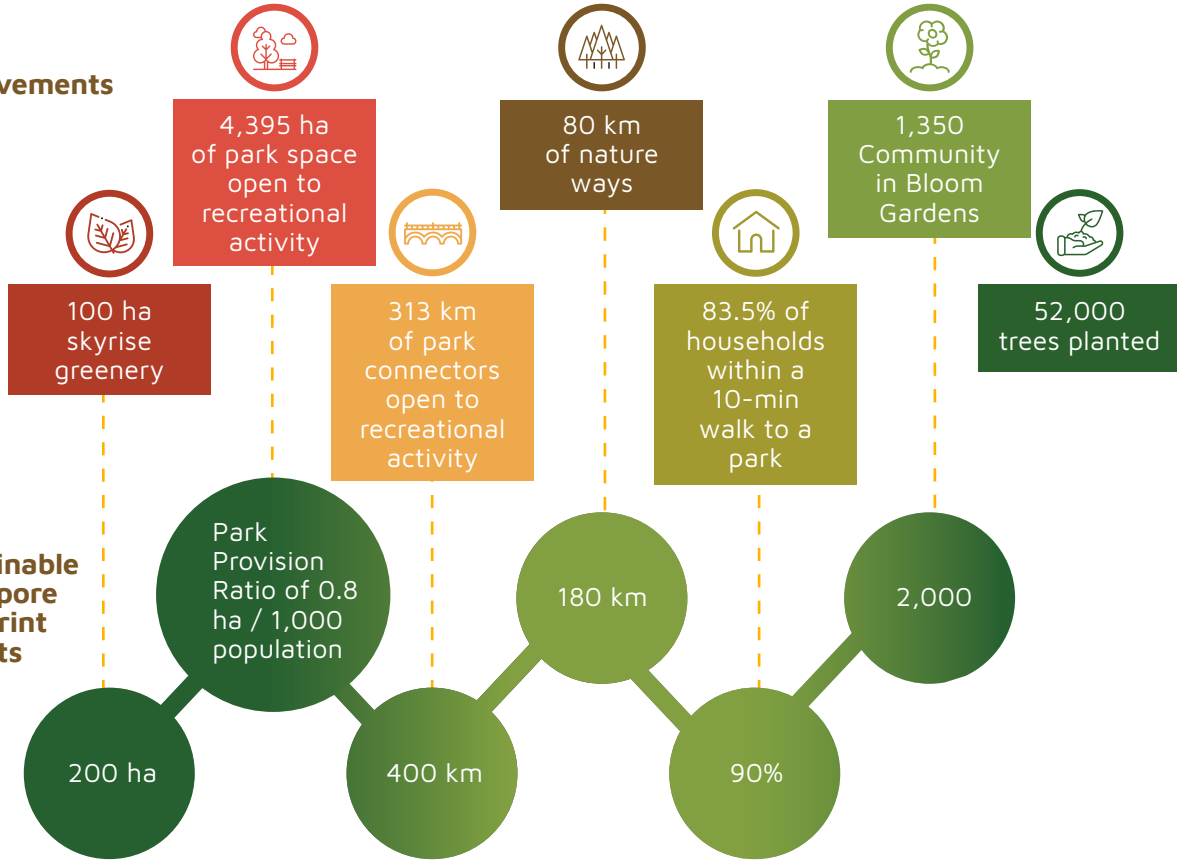
CREATING A NETWORK OF GREENERY

With over 350 parks and four nature reserves under our care, NParks is responsible for maintaining and enhancing the greenery for future generations. Our nature reserves function as hotspots of rich biodiversity where the public can discover a plethora of wildlife in their natural habitats.

As part of our holistic conservation approach, nature parks have been established on the margins of the nature reserves, acting as green buffers. We enhance the habitats within these buffers so that they remain rustic and forested, while providing an alternative venue for visitors to enjoy recreational activities. Nature parks also buffer the nature reserves against developments that abut the reserves.

Complementing this is an extensive network of roadside greenery and strategic green corridors. These Nature Ways connect areas of high biodiversity and facilitate the movement of biodiversity such as birds and butterflies. They also connect green areas to urban communities, bringing them closer to nature. In addition, NParks champions the integration of skyrise greenery into our built environment, as well as the creation of community gardens to connect residents with nature.

2017 Achievements



CREATING URBAN ECOSYSTEMS

Our greening approach is aimed at restoring natural habitats and bringing people closer to nature. For example, the wetland and forest habitats at the Singapore Botanic Gardens' Learning Forest were restored and recreated to conserve a wide variety of native flora and fauna.

A network of park connectors, roadside greenery and Nature Ways also help strengthen the ecological resilience of our nature reserves, the primary repository of native biodiversity.

SAVING SPECIES

A species recovery programme was initiated in 2015 to conserve native flora and fauna by targeting locally endemic, rare or threatened native species through reintroduction, habitat enhancement and protection efforts. Some of these species occur in small populations in only a few places, and the programme aims to increase these populations and help them survive adverse environmental changes.

Over the past five years, staff, research partners and naturalists have discovered and rediscovered more than 500 marine, terrestrial and plant species in Singapore. This consists of species that are potentially new to science, those recorded in Singapore for the first time, and those previously thought to be extinct.

Newly discovered and rediscovered species:



Marine species

~100 species possibly new to science
>300 new records to Singapore
~10 rediscoveries



Terrestrial fauna

37 species new to science
37 new records to Singapore
3 rediscoveries



Terrestrial flora

7 species new to science
5 new records to Singapore
10 rediscoveries

SUSTAINABILITY REPORT

Nurturing Communities

ACTIVATING GREEN SPACES

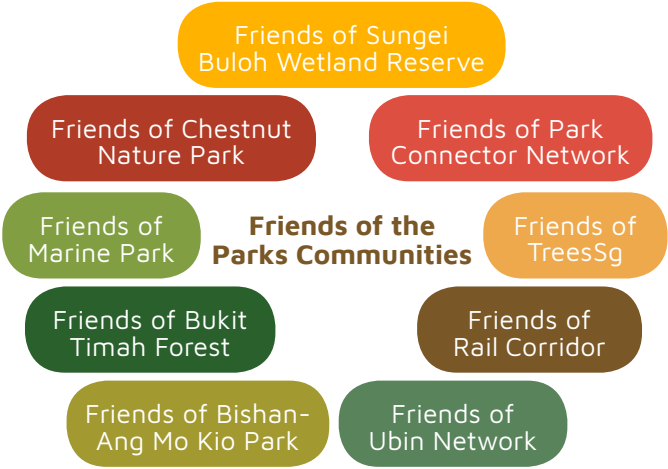
Our gardens and parks are important shared spaces for different communities. These common green spaces provide access to people from all walks of life to come together and enjoy time amidst nature. NParks hosts an average of 3,700 activities, events and programmes at our parks and gardens island-wide yearly. Through such outreach, we actively engage the community, beyond just enjoying our green spaces, but to be a stakeholder in them.

GETTING INVOLVED

To date, we have more than 40,000 volunteers who play an integral role in helping us achieve our vision of making Singapore our City in a Garden. Aged from nine to over 80, they range from students, homemakers, working professionals to retirees. Many volunteer because they appreciate the opportunity to learn about, and contribute towards, our conservation efforts. Volunteers often become advocates of our messages, and share with others about important biophilic issues.



Volunteers contribute time and effort to our many programmes and activities, doing their part in building a City in a Garden.



STRENGTHENING COMMUNITY STEWARDSHIP

Introduced in 2016, the Friends of the Parks initiative builds on the groundswell of community participation. There are now nine Friends of the Parks communities; each comprises local stakeholders, volunteers and enthusiasts coming together to develop ground-led initiatives to promote stewardship and responsible use of our parks and nature reserves.

Creating A Great Workplace

LEARNING AND DEVELOPMENT

Staff are encouraged to grow their professionalism, build capabilities and provide service excellence. NParks develops staff through a competency development framework focusing on business, operational and people excellence. In 2017, each staff received an average of 42.3 hours of training, equating to some 41,291 hours of training across the whole organisation.

The Centre for Urban Greenery and Ecology (CUGE) and professional certification bodies conduct in-depth training for operational staff, including formulating a specialised roadmap to develop professional arborist competency.

Corporate staff can get certified by industry-recognised agencies such as the Institute of Singapore Chartered Accountants and Institute for Human Resource Professionals.

Staff with Professional Operational Certifications (in 2017)

- 114 Certified Park Manager
- 209 ISA Certified Arborist
- 35 Certified Playground Safety Inspector
- 101 Certified Practising Horticulturist



Healthy Lifestyle

Promotes active and healthy living by encouraging staff to participate in sports interest groups and through lunchtime talks.

Kindness Movement

Nurtures a culture of kindness, compassion and volunteerism among staff for the less privileged in our society.

Social & Recreation

Provides avenues for self-improvement and learning while networking with others through learning journeys and workshops.

STAFF WELL-BEING

The Staff Well-Being Committee works with the Human Resource branch and Staff Union to organise activities that engage our workforce. Each sub-committee comprises approximately 20 members from various divisions who volunteer their time and effort to curate a calendar of events and activities for staff.

In the reporting year, more than 200 staff members contributed over 1,200 hours of their time towards kindness-related activities. Besides ongoing engagements at the Handicaps Welfare Association and with VWOs, staff also participated in a befriender programme for children from low-income families and provided tuition classes for at-risk youths.



In the reporting year, more than 200 staff members contributed over 1,200 hours of their time towards kindness-related activities, including an ongoing engagement with the Handicaps Welfare Association.

RECOGNITION AND AWARDS

Each year, deserving staff are recognised for their exemplary service and work with the Excellent Service Award and Divisional Star Award. In 2017, 27 staff were commended for providing excellent service to internal and external customers, while 12 teams, including members across units and functions, were awarded the Greenery Excellence Awards for their outstanding teamwork and operational standards.

This past year, 161 staff received their Long Service Award for their contributions towards building and caring for our City in a Garden.



“I enjoy working with plants daily!”

Mdm Aminah binte Mansor
Singapore Botanic Gardens,
Longest Service Staff of five decades

FACTS & FIGURES FY 2017

ASEAN Biodiversity Heroes

Professor Leo Tan
Chairman
Garden City Fund
Advisor, Lee Kong Chian Natural History Museum
Director of Special Projects, Faculty of Science,
National University of Singapore

National Day Awards

PUBLIC ADMINISTRATION MEDAL (SILVER)

Oh Cheow Sheng
Group Director
Streetscape

PUBLIC ADMINISTRATION MEDAL (BRONZE)

Ms M Pungkothai Kay
Director (Community-In-Bloom & Skyrise Greenery)
Horticulture and Community Gardening

Ms Linda Goh
Director (Biodiversity Information & Policy)
National Biodiversity Centre

COMMENDATION MEDAL

Mrs Poh-Lim Siew Lan
Senior Manager (Development Management)
Parks Development

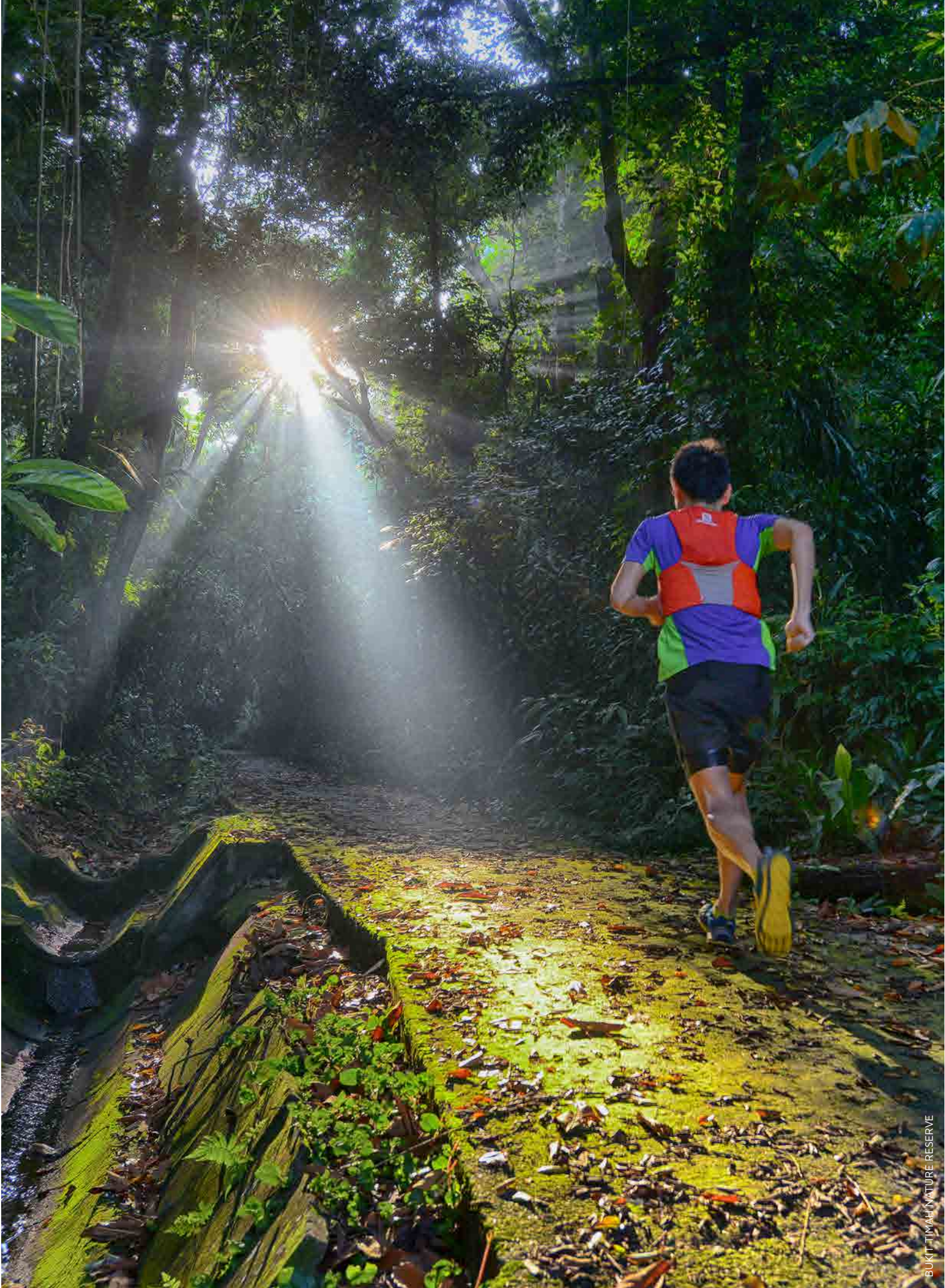
Ms Koh Ah Chin
Deputy Director (Budget/Expenditure)
Finance & Procurement

Ms Lin Wenmi Dawn
Deputy Director (Human Resource)
Corporate Services

EFFICIENCY MEDAL

Ng Lee Khiang
Senior Manager (Streetscape)
Streetscape

Sa'im bin Sarbu
Senior Officer (Horticulture)
Fort Canning Park & Istana



Long Service Medals

Gan Wan Ming James Terence
Director (Wildlife Management)
National Biodiversity Centre

Ms Siti Zubaida binte Mumhude
Senior Officer (Streetscape)
Streetscape

Ms Halilah binte Ahmad
Senior Officer (Conservation (Outreach))
Conservation

Tan Chai Yong
Manager (Garden City Fund, Cash Management
& Assets)
Finance and Procurement

Yee Chung Yao
Director (Park Connector Network)
Parks 1

Liew Chan Hing
Manager (Herbarium)
Singapore Botanic Gardens

Awards and Accolades

EXCELLENT SERVICE AWARD 2017

Attractions
3 Star, 4 Gold, 6 Silver

EXCELLENCE IN PUBLIC SERVICE AWARD 2017

PS21 Star Service Award 2017
Thoha Zikri Bin Tamzin

PS21 Star Manager Award
Soon Hwee Yeow Jason

PS21 Star Service Team Award
Central Nature Reserve Emergency Respond Team

MND FAMILY MINISTER'S AWARD (TEAM) 2017
Singapore Botanic Gardens Learning Forest
Singapore Garden Festival 2016

MUNICIPAL SERVICES AWARDS 2017
Construction of Staircase at Ulu Pandan
Park Connector

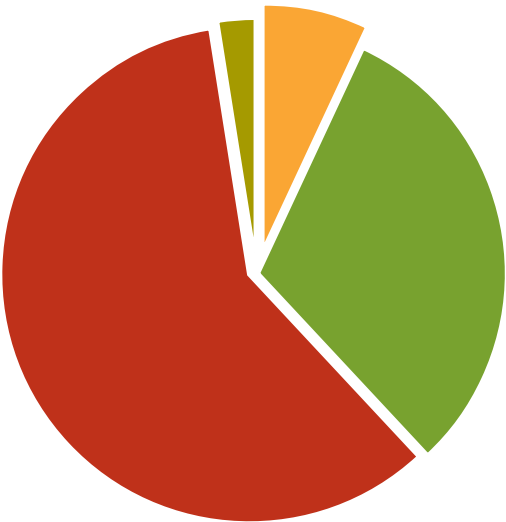
COMMUNITY CHEST SHARE GOLD AWARD 2017

SINGAPORE HEALTH AWARD (PLATINUM) 2014
(Valid for four years)

FACTS & FIGURES FY 2017

CUGE Training Programmes

The Centre for Urban Greenery and Ecology (CUGE) was established by NParks as a regional centre of excellence to advance an urban and green living environment, and a one-stop training and knowledge hub in urban greenery and ecology.



International Briefings/
Overseas Executive Programmes

500

-

Short Courses, Seminars, Workshops
& Professional Speaker Series

2,407

-

WSQ Courses

4,395

-

Certification Programmes

194

-

TOTAL NUMBER OF TRAINING PLACES

7,496

Workforce Skills Qualification (WSQ) Courses

- WSQ Certificate in Landscape Operations
- WSQ Higher Certificate in Landscape Operations (Arboriculture)
- WSQ Advanced Certificate in Landscape Supervision (Arboriculture)
- WSQ Advanced Certificate in Landscape Supervision (Landscape Design and Construction)
- WSQ Advanced Certificate in Landscape Supervision (Nursery)
- WSQ Advanced Certificate in Landscape Supervision (Parks, Reserves and Gardens)
- WSQ Advanced Certificate in Landscape Supervision (Turf, Sports Grounds and Greens)
- WSQ Diploma in Landscape Management (Arboriculture)
- WSQ Diploma in Landscape Management (Landscape Design and Construction)
- WSQ Diploma in Landscape Management (Nursery)
- WSQ Diploma in Landscape Management (Parks, Reserves and Gardens)
- WSQ Diploma in Landscape Management (Turf, Sports Grounds and Greens)
- WSQ in Nature Interpretation

Professional Certification Programmes

- Certificate in Therapeutic Horticulture
- Certified Park Manager Programme
- Certified Playground Safety Inspector Programme
- Certified Practising Horticulturist Programme
- ISA Certified Arborist Preparatory Programme
- ISA Tree Risk Assessment Qualification

International Briefings and
Overseas Executive Programmes

- CUGE Overseas Executive Programme on Greenery Planning & Management
- Briefings for Overseas Delegates

Seminars / Professional Speaker Series / Workshops

- 7th Regional Arboriculture Seminar
- ABCs to Setting Up Green Roofs and Green Walls
- An Overview of Marxan
- Assessment of Tree Forks
- Basic Tree Defects Identification
- Biomimicry - Designing with Nature in the Built Environment
- Biochar- An Effective Soil Amendment for Urban Soils and Tree Growth
- CUGE Professional Speaker Series
- Developing Goals and Activities on Horticultural Therapy Programmes
- Edible Landscaping using Permaculture Techniques
- Environmental Impact Assessment: Focus on Biodiversity and Ecosystems
- Ecosystem Services Assessment in City Planning
- Ecology of Singapore Termites
- Formative Pruning for Young Trees
- Fundamentals of Soil Science and Urban Soils
- Habitat Enhancement Seminar
- Health and Safety for Landscape Industry
- Horticulture Standards for NParks Staff
- Human-wildlife Coexistence - Bats in Anthropocene
- Human-wildlife Coexistence - The Wild Boar
- Human-wildlife Coexistence - Interacting with Snakes
- IML-Resi PD Series Certification Workshop
- IML-Resi MD300 Certification Workshop
- Importance of Insects in Environmental Assessment
- Implementing Green Roofs and Vertical Garden Projects - the Why, How and What
- Integrating Skyrise Greenery with Sustainable Building Solutions
- International Standards and Trends in Impact Assessment for Biodiversity

- Landscape Safety Orientation Course
- Lightning Damage: Preventing and Battling Bolts From the Blue
- Managing Irrigation Systems for Skyrise Greenery
- NParks Legislation & Enforcement Management Course
- Occupational First Aid
- Plant Diversity and Nomenclature - Part I, II, III, IV, V, VI, VII
- Playground Maintenance Technician Course
- Risk Assessment for Skyrise Greenery
- Pruning Strategies for Urban Mature Trees
- Skyrise Greenery Module 2 - Design for Safety on Rooftop Greenery
- Safety in Arboriculture Practices
- Soil & Substrates for Green Infrastructure
- Soils and Tree Roots - Principles and Practices
- Systematic Conservation Planning with Marxan
- Therapeutic Gardening for Geriatric Setting
- Therapeutic Garden Design
- Themed Gardens - Attracting Birds into Gardens
- Themed Gardens - Butterfly Gardens: A Practical Design
- Themed Gardens - Fragrant Garden
- Tree Decay - The Fundamentals
- Tree Inspection Level 1
- Tree Inspection Level 2
- Tree Inspection - Failure Documentation and Analysis
- Tree Transplanting Level 1
- Turfing Know How - *Axonopus Compressus*
- Urban Ecology Strategies for Coexistence with Bees
- Urbanisation and Biodiversity Conservation: Examples from Global Studies and New York City
- Veteran Tree Care

FACTS & FIGURES FY 2017

Regional Parks Maintained by NParks

	Area (ha)		Area (ha)
Admiralty Park	25.67	Lower Seletar Reservoir Park	8.49
Ang Mo Kio Town Garden East	4.88	MacRitchie Reservoir Park	12.00
Ang Mo Kio Town Garden West	20.63	Marsiling Park	10.94
Bedok Reservoir Park	42.39	Mount Faber Park	58.80
Bedok Town Park	12.26	My Waterway @ Punggol	12.30
Bishan-Ang Mo Kio Park	62.00	one-north Park	3.39
Bukit Batok Nature Park	35.74	Pasir Ris Park	73.39
Bukit Batok Town Park – Little Guilin	42.16	Pasir Ris Town Park	12.36
Bukit Timah Nature Reserve	162.64	Pearl’s Hill City Park	8.50
Central Catchment Recreation Area	455.00	Pulau Ubin Recreation Area	692.13
Changi Beach Park (including Changi Point Promenade)	28.52	Punggol Park	16.66
Chestnut Nature Park	81.00	Rifle Range Nature Park	67.00
Choa Chu Kang Park	11.81	Sembawang Park	15.58
Clementi Woods Park	11.48	Sengkang Riverside Park	21.08
Coney Island Park	50.00	Singapore Botanic Gardens	82.00
Dairy Farm Nature Park	63.00	Sisters’ Islands Marine Park	47.68
East Coast Park	238.08	Springleaf Nature Park	10.78
Esplanade Park	2.40	Sun Plaza Park	9.60
Fort Canning Park	18.04	Sungei Buloh Wetland Reserve	193.31
Hindhede Nature Park	9.00	Tampines Eco Green	36.61
Hong Lim Park	1.28	Telok Blangah Hill Park	36.88
HortPark	24.57	Tiong Bahru Park	3.33
Istana Park	1.29	Toa Payoh Town Park	4.91
Jurong Central Park	7.98	Upper Peirce Reservoir Park	4.00
Jurong Lake Gardens West and Jurong Lake Gardens Central	84.69	Upper Seletar Reservoir Park	15.00
Kallang Riverside Park	5.16	War Memorial Park	1.74
Kent Ridge Park	48.40	West Coast Park	50.13
Kranji Marshes	56.29	Windsor Nature Park	75.00
Kranji Reservoir Park	4.13	Woodlands Waterfront Park	11.22
Labrador Park and Nature Reserve	25.88	Yishun Park	13.22
Lower Peirce Reservoir Park	10.00	Zhenghua Nature Park	17.30
Total		3,271.70*	

* subject to rounding adjustments

Total Number of Parks

Regional Parks	62
Neighbourhood Parks	310
Total	
372	

Total Area Maintained

	Area (ha)
Parks, playgrounds, open spaces, fitness corners and park connectors**	2,807
Nature reserves	3,347
Istana and Parliament	42
House grounds	
Roadside greenery	2,124
Vacant state land	66
State land taken over from Mar 2018***	3,749
Government premises	7
Total	
12,142	



DAIRY FARM NATURE PARK

** Excludes Bukit Timah Nature Reserve, Central Catchment Nature Reserve, Sungei Buloh Wetland Reserve and Labrador Nature Reserve which have been computed under "Nature reserves"
*** Greenery on vacant land taken over from agencies

CORPORATE GOVERNANCE FY 2017

Board Members

NParks is overseen by a Board comprising 11 members. The current Chairman is Mrs Christina Ong.

All the Board members are non-executive members, except the Chief Executive Officer, Mr Kenneth Er. The Board derives its strength from the extensive and complementary backgrounds, qualifications and experience of its members.

The Board’s key responsibilities are to:

- Endorse broad directions, policies and strategies relating to NParks’ achievement of its vision, mission and objectives, and performance of its functions;
- Oversee NParks’ operating and financial performance taking into account NParks’ budget, expenditure, assets, transactions and projects;
- Provide guidance on matters relating to NParks’ parks and infrastructure development programmes; and
- Approve NParks’ tenders (as members of the relevant Tender Boards).

The Board has established the following committees to assist it in carrying out its duties:

- Human Resource and Compensation Committee;
- Audit Committee;
- Operations Risk Committee; and
- Garden City Fund Management Committee.

The Human Resource and Compensation Committee’s role is to review key human resource policies and provide strategic oversight of

related risks. The Audit Committee ensures a high standard of corporate governance through independent reviews of internal controls, financial reporting processes and financial risks. In addition, the Audit Committee reviews the audited financial statements, as well as the audit plans and observations of external and internal auditors, and also reviews the effectiveness of internal audit. The Operations Risk Committee provides strategic oversight on NParks’ operations risk management framework and conducts reviews of NParks’ operations risks. The Operations Risk Committee also oversees the implementation of risk mitigation plans, policies and practices. The Garden City Fund Management Committee plans, develops, promotes and manages the Garden City Fund in accordance with its Trust Deed.

Board’s Conduct of its Affairs

The Board meets four times a year and as and when necessary to address any significant matters that may arise. To enable the Board to fulfil its responsibilities, the Management Team provides the Board members adequate information during Board meetings and on an ongoing basis. The Board also has direct and independent access to the Management Team if further information and explanation are required.

Accountability and Audit

The Board’s accounts are audited by the Auditor-General or such other auditor who may be appointed annually by the Minister in consultation with the Auditor-General. The auditor engaged for the financial year which ended on 31 March 2018 was Ernst & Young LLP. The audited financial statements and the auditor’s report were submitted to the Board and the Ministry of National Development, and also presented to Parliament.



Internal Control Framework

NParks’ internal control system ensures that assets are safeguarded, proper accounting records are maintained, and financial information is reliable. The overall control framework includes:

- An organisation structure with clearly defined authority and delegation limits and reporting mechanisms to higher levels of management and to the Board;
- An annual budgeting and quarterly financial reporting system for all operating units that enables progress against annual plans and objectives to be monitored;
- Compliance with the provisions of the National Parks Board Act (Chapter 198A), Statutory Board Financial Reporting Standards, Government Instruction Manuals, Finance and PSD Circulars and Minutes for policies and procedures related to operations, human resource management and financial controls and regulations; and
- A risk management framework which ensures close monitoring with proper mitigating measures for all identified high risk areas.

PUBLICATIONS



Books

1.

Singapore Garden Photographer of the Year

Singapore Garden Photographer of the Year won the Grand Award in the 2016 APEX Awards for Publication Excellence under the category of One-of-a-Kind Publication – Green.
2.

Rainforest in a City
By Chua Ee Kiam

Rainforest in a City won the Bronze medal in the 2015 Independent Publisher Book Awards under the category of Environment/Ecology/Nature, and the Silver award in the 2015 Nautilus Book Awards under the category of Ecology/Environment.
3.

Footprints on an Island – Rediscovering Pulau Ubin
By Chua Ee Kiam, Choo Mui Eng and Wong Tuan Wah

Footprints on an Island – Rediscovering Pulau Ubin won the Nautilus 2016 Silver Award in the Multicultural & Indigenous category.
4.

Gingers of Cambodia, Laos & Vietnam
By Jana Leong-Škorníčková and Mark Newman
5.

A Walk Through History – A Guide to the Singapore Botanic Gardens
By Nigel Taylor and Ada Davis
6.

Migratory Birds of Sungei Buloh Wetland Reserve
By James Gan, Mendis Tan and David Li
7.

My Green Space: Indoor Gardening Made Simple
By Lily Chen, Ng Shan Jun, Ang Wee Foong, et al.
8.

A Guide to the Common Epiphytes and Mistletoes of Singapore
By Jean W.H. Yong, James Wang Wei, Joanne Y.T. Khew, Sheue Chiou Rong and Wong Wei San
9.

Tall Tales: Singapore Botanic Gardens Heritage Trees Trail Guide
By Shee Zhi Qiang, Ang Xing Qi, Lahiru Wijedasa and Nigel Taylor (Singapore Botanic Gardens)
10.

Native Orchids of Singapore – Diversity, Identification and Conservation
By Dr Yam Tim Wing
11.

Dragonflies of Our Parks and Gardens
By Robin Ngiam

12.

The Hunt for the Green Boomerang
By Neil Humphreys and illustrated by Cheng Puay Koon
13.

Secrets of the Swamp
By Neil Humphreys and illustrated by Cheng Puay Koon

Secrets of the Swamp won the Best Book award for 6-8 year olds in the 2014 Harper’s Bazaar Junior Toy Awards.
14.

Living in a Garden – The Greening of Singapore
By Timothy Auger
15.

Trees of Our Garden City
Edited by Tee Swee Ping
16.

Caterpillars of Singapore’s Butterflies
By Horace Tan and Khew Sin Khoon
17.

1001 Garden Plants in Singapore
By Lily Chen, Ang Wee Foong, Arthur Ng, Jessica Teo and Dr Jennie Tang
18.

Hornbills in the City – A Conservation Approach to Hornbill Study in Singapore
By Marc Cremades and Ng Soon Chye
19.

Our Fragile Rainforest
By Dr Leong Tzi Ming and James Gan

Journals

20.

The Gardens’ Bulletin Singapore, May 2017 & November 2017 Supplement 1 to the Gardens’ Bulletin Singapore, March 2018

CUGE Standards

21.

CS E12:2017- Design Guides to Promote Biodiversity on Roof Gardens

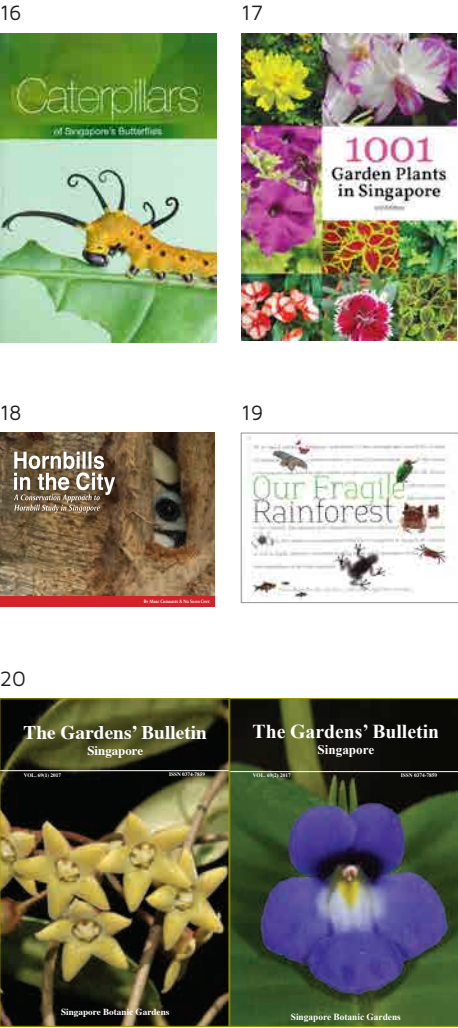
Periodicals

22.

Gardenwise, August 2017 & February 2018
23.

CITYGREEN, issue 14 - Nature In Urban Spaces CITYGREEN, issue 15 - Verdant Cities

The CUGE publication CITYGREEN won the APEX Awards for Publication Excellence in 2017, 2016, 2015, 2014, 2013 and 2012.



These publications are available for sale at the Gardens Shops at the Singapore Botanic Gardens and the online shop www.botanicgardensshop.sg. Visit www.sbg.org.sg for more information.

STAFF PUBLICATIONS

Papers and Other Publications

Abdul Karim, N. (2017). Around the Gardens: Learning and sharing of knowledge ... *Gardenwise* 48: 25.

Abdul Karim, N. (2017). Around the Gardens: NParks signs a Memorandum-of-Understanding with the Sabah Forestry Department. *Gardenwise* 49: 38.

Abdul Karim, N. (2017). Around the Gardens: Reaching out to connect ... *Gardenwise* 49: 37.

Abdul Karim, N. (2017). Beyond the Gardens: The 6th Southeast Asia Botanic Gardens Network Conference. *Gardenwise* 49: 39–40.

Abdul Karim, N. (2017). Beyond the Gardens: Consultation workshop on the conservation of woody ‘exceptional species’ in Southeast Asia. *Gardenwise* 48: 26.

Abdul Karim, N. (2017). What’s Blooming: A blooming giant alien ... *Gardenwise* 49: 36.

Abdul Karim, N. (2017). What’s Blooming: Something foul is afoot ... *Gardenwise* 48: 21.

Averyanov, L.V., Pham V.T., Maisak, T.V., Le, T.A., Nguyen, V.C., Nguyen, H.T., Nguyen, P.T., Nguyen, K.S., Nguyen, V.K., Nguyen, T.H. & **Rodda, M.** (2017). Preliminary checklist of *Hoya* (Asclepiadaceae) in the flora of Cambodia, Laos and Vietnam. *Turczaninowia* 20(3): 103–147.

Baas, P., Pereira, J.T., **Wong, K.M.**, Hovenkamp, P.H., Kessler, P.J.A. & Newbery, D.M. (2017). In memoriam Colin Ernest Ridsdale (18 January 1944 – 5 January 2017). *Blumea* 62: i–iv.

Bai, L., **Leong-Škorničková, J.** & Li, D.Z. (2017). Taxonomic studies on *Zingiber* (Zingiberaceae) in China IV: *Z. pauciflorum*, a new species from Yunnan. *Nordic Journal of Botany*. Advanced online publication. <http://doi.org/10.1111/njb.01534>

Burcham, D. C., Abarientos Jr, N. V., Wong, J. Y., Ali, M. I. M., **Fong, Y. K.**, & Schwarze, F. W. (2017). Field evaluation of *Trichoderma* spp. as a biological control agent to prevent wood decay on Benin mahogany (*Khaya grandifoliola*) and rain tree (*Samanea saman*) in Singapore. *Biological Control*, 114, 114–214. doi: 10.1016/j.biocontrol.2017.08.004

Cabactulan, D.D., **Rodda, M.**, Pimentel, R. (2017). *Hoya* of the Philippines part I. *Hoya miqueladvilii* (Apocynaceae, Asclepiadoideae), a new species from Northern Mindanao, Philippines. *PhytoKeys* 80: 105–112.

Calvente, A., Moraes, E.M., Lavor, P., Bonatelli, I.A.S., Nacaguma, P., Versieux, L., **Taylor, N.P.** & Zappi, D.C. (2017). Phylogenetic analysis of Pilosocereus (Cactaceae) inferred from plastid and nuclear sequences. *Botanical Journal of the Linnean Society* 183(1): 25–38.

Chan, H. Y., Ho, R. C., Mahendran, R., Ng, K. S., Tam, W. W., Rawtaer, I., Tan, C. H., Larbi, A., Feng, L., **Sia, A.**, Ng, M. K. W., Gan, G. L., Kua, E. H. (2017). Effects of horticultural therapy on elderly’ health: protocol of a randomized controlled trial. *BMC Geriatrics*, 17(1). doi: 10.1186/s12877-017-0588-z

Chen, C.-W., **Lindsay, S.**, Kuo, L.-Y., Fraser-Jenkins, C., Ebihara, A., Luu, H.T, Park, C.W., Chao, Y.-S., Huang, Y.-M. & Chiou, W.-L. (2017). A systematic study of East Asian vittarioid ferns (Pteridaceae: Vittarioideae). Botanical Journal of the Linnean Society 183(4): 545–560.

Chen, L.-N., Cui, Y.-Z., **Wong, K.M.**, Li, D.-Z. & Yang, H.-Q. (2017). Breeding system and pollination of two closely related bamboo species. *AoB PLANTS* 9: plx021. <http://doi.org/10.1093/aobpla/plx021>

Chen, W.H., **Middleton, D.J.**, Nguyen, H.Q., Nguyen, H.T., Averyanov, LV., Chen, R.Z., Nguyen, K.S., Möller, M. & Shui, Y.M. (2017). Two new species of *Oreocharis* (Gesneriaceae) from Northwest Vietnam. *Gardens’ Bulletin Singapore* 69(2): 295–305.

Chia, J.J.E., Ooi, Z.Y., Lua, H.K., Loo, A.H.B., Ang, W.F., Ong, K.-H. & **Wong, K.M.** (2017). *Glochidion obscurum* Bl. (Phyllanthaceae), a new record for Singapore. *Nature in Singapore* 10: 49–53.

de Kok, R.P.J. (2017). Two new records of *Litsea* (Lauraceae) from Singapore and the lectotypification of twenty-two names from several Lauraceae genera. *Gardens’ Bulletin Singapore* 69(2): 167–177.

Er, K., Qiang, S.Z., Wright, J. & Sia, A. (2017). The Learning Forest: Fostering Connections with Nature. *CITYGREEN* 14: 40–49.

Franco, F.F., Jojima, C.L., Perez, M.F., Zappi, D.C., **Taylor, N.** & Moraes, E.M. (2017). The xeric side of the Brazilian Atlantic Forest: The forces shaping phylogeographic structure of cacti. *Ecology and Evolution* 2017: 1–13. <http://doi.org/10.1002/eece3.3458>

Franco, F.F., Silva, G.A.R., Moraes, E.M., **Taylor, N.**, Zappi, D.C., Jojima, C.L. & Machado, M.C. (2017). Plio-Pleistocene diversification of *Cereus* (Cactaceae, Cereae) and closely allied genera. *Botanical Journal of the Linnean Society* 183(2): 199–210.

Ganesan, S.K. (2017). *Pterospermum blumeanum*. The IUCN Red List of Threatened Species 2017: e.T113756459A113756488.

Ganesan, S.K. (2017). *Pterospermum celebicum*. The IUCN Red List of Threatened Species 2017: e.T114547963A114547974.

Ganesan, S.K. (2017). *Pterospermum cumingii*. The IUCN Red List of Threatened Species 2017: e.T113756520A113756522.

Ganesan, S.K. (2017). *Pterospermum elmeri*. The IUCN Red List of Threatened Species 2017: e.T113756531A113756533.

Ganesan, S.K. (2017). *Pterospermum elongatum*. The IUCN Red List of Threatened Species 2017: e.T61786964A61786966.

Ganesan, S.K. (2017). *Pterospermum fuscum*. The IUCN Red List of Threatened Species 2017: e.T113756573A113756576.

Ganesan, S.K. (2017). *Pterospermum longipes*. The IUCN Red List of Threatened Species 2017: e.T113756708A113756710.

Ganesan, S.K. (2017). *Pterospermum megalanthum*. The IUCN Red List of Threatened Species 2017: e.T113756722A113756725.

Ganesan, S.K. (2017). *Pterospermum obliquum*. The IUCN Red List of Threatened Species 2017: e.T113756791A113756793.

Ganesan, S.K. (2017). *Pterospermum parvifolium*. The IUCN Red List of Threatened Species 2017: e.T113756813A113756815.

Ganesan, S.K. (2017). *Pterospermum stapfianum*. The IUCN Red List of Threatened Species 2017: e.T113756842A113756845.

Ganesan, S.K. (2017). *Pterospermum subpeltatum*. The IUCN Red List of Threatened Species 2017: e.T113756859A113756862.

Ganesan, S.K. (2017). *Pterospermum sumatranum*. The IUCN Red List of Threatened Species 2017: e.T113756894A113756896.

Gray, B. & **Low, Y.W.** (2017). First record of *Geosiris* (Iridaceae: Geosiridoideae) from Australasia : a new record and a new species from the Wet Tropics of Queensland, Australia. *Candollea* 72(2): 249–255.

Gray, B. & **Low, Y.W.** (2017). *Gastrodia umbrosa* B.Gray (Orchidaceae, Gastrodieae): A new mycoheterotrophic orchid endemic to the Atherton Tableland, Queensland, Australia. *Austrobaileya* 10(1): 86–92.

Guo, X., Hoekstra, P.H., Tang, C.C., **Thomas, D.C.**, Wieringa, J.J., Chatrou, L.W. & Saunders, R.M.K. (2017). Cutting up the climbers: Evidence for extensive polyphyly in *Friesodielsia* (Annonaceae) necessitates generic realignment across the tribe Uvarieae. *Taxon* 66(1): 3–19.

Guo, X., Tang, C.C., **Thomas, D.C.**, Couvreur, T.L.P., & Saunders, R.M.K. (2017). A mega-phylogeny of the Annonaceae: taxonomic placement of five enigmatic genera and support for a new tribe, Phoenicanthaeae. *Scientific Reports* 7(1): 7323.

Hambali, G.G., Sunarti, S. & **Low, Y.W.** (2017). *Syzygium jiewhoei* (Myrtaceae), a new endemic tree from Western New Guinea, Indonesia. *Gardens’ Bulletin Singapore* 69(2): 201–210.

He, J., Lim, R.M.P., Dass, S.H.J. Dass & **Yam, T.W.** (2017). Photosynthetic acclimation of *Grammatophyllum speciosum* to growth irradiance under natural conditions in Singapore. *Botanical Studies* 58: 58–69. <http://doi.org/10.1186/s40529-017-0210-x>

Ho, B.C. (2017). Beyond the Gardens: Scratchpads workshop at Ubon Ratchathani University. *Gardenwise* 48: 28–29.

Ho, B.C., Lee, S. & Goh, W.K. (2017). Dr Benito Ching-Tan (1946–2016). *Gardenwise* 48: 2.

Ho, B.C. & Yeo, R. (2017). An infinitesimal flowering plant on our little red dot. *Gardenwise* 49: 2–3.

Justin C.H. Tan, Joseph K.H. Koh & Chris S.P. Ang (2018). New record of a pseudo-orb weaver, *Fecenia ochracea* (Doleschall, 1859) in Singapore (Araneae: Psechridae). *Nature in Singapore* 2018 11: 15–26

Khan, G., Godoy, M.O., Franco, F.F., Perez, M.F., **Taylor, N.P.**, Zappi, D.C. Machado, M.C. & Moraes, E.M. (2017). Extreme population subdivision or cryptic speciation in the cactus *Pilosocereus jauruensis*? A taxonomic challenge posed by a naturally fragmented system. *Systematics and Biodiversity* 2017: 1–12. <http://doi.org/10.1080/14772000.2017.1359215>

Khine, P.K., Fraser-Jenkins, C., **Lindsay, S.**, **Middleton, D.**, Miehe, G., Thomas, P. & Kluge, J. (2017). A Contribution Toward the Knowledge of Ferns and Lycophytes from Northern and Northwestern Myanmar. *American Fern Journal* 107(4): 219–256. <http://doi.org/10.1640/0002-8444-107.4.219>

Klegarth, A. R., Ezeonwu, C. A., Rompis, A., **Lee, B. P. Y-H.**, Aggimarangsee, N., Chalise, M., Cortes, J., Feeroz, M., Molini, B. J., Godoros, B. C., Marks, M., Schillaci, M., Engel, G., Knauf, S., Lukehart, S. A., & Jones-Engel, L. (2017). Survey of Treponemal Infections in Free-Ranging and Captive Macaques, 1999–2012. *Emerging Infectious Diseases*, 23(5), 816–819. doi: 10.3201/eid2305.161838

Klegarth, A. R., Hollocher, H., Jones-Engel, L., Shaw, E., **Lee, B. P. Y-H.**, Feeney, T., Holmes, D., Laguea, D., & Fuentes, A. (2017). Urban primate ranging patterns: GPS-collar deployments for Macaca fascicularis and M. sylvanus. *American Journal of Primatology*, 79 (5). doi: 10.1002/ajp.22633

Koh, T.S. & Abdul Karim, N. (2017). Beyond the Gardens: Planting of *Globba leucantha* at the Methodist Girls’ School. *Gardenwise* 48: 27.

Kua, E. & **Sia, A.** (2017). Green Environment and Mental Health in the City. In Okkels, N., B. Kristiansen, C., M. Jorgensen, P. (Eds.), *Mental Health and Illness in the City* (Chp 2). Springer.

Kurzweil, H. (2017). ‘*Habenaria limprichtii*’ (Orchidaceae) in Thailand, encompassing two distinct species. *Thai Forest Bulletin (Botany)* 45(1): 18–24.

Kurzweil, H., Raskoti, B.B., Watthana, S. & Thitiporn Pingyot. (2017). *Habenaria iyoensis* (Orchidaceae), a new record for Thailand and Nepal. *Thai Forest Bulletin (Botany)* 45(2): 108–112.

Kurzweil, H. & Tripetch, P. (2017). *Peristylus intrudens* (Orchidaceae) newly recorded from Thailand and Myanmar. *Thai Journal of Botany* 9(1): 25–30.

Laing, E. D., Mendenhall, I. H., linster, M., Low, D. H., Chen, Y., Yan, L., Sterling, S. L., Borthwick, S., Neves, E. S., Lim, J. S. L., Skiles, M., **Lee, B. P. Y-H.**, Wang, L-F., Broder, C. C., & Smith, G. J. (2018). Serologic Evidence of Fruit Bat Exposure to Filoviruses, 2011–2016. *Emerging Infectious Diseases*, 24(1), 114–117. doi:10.3201/eid2401.170401

Lau, J.Y.Y., Pang, C.-C., Guo, X., Tang, C.-C., **Thomas, D.C.**, & Saunders, R.M.K. (2017). Time-Dependent Trapping of Pollinators Driven by the Alignment of Floral Phenology with Insect Circadian Rhythms. *Frontiers in Plant Science* 8: 1119.

Lee, B. P. Y-H., Davies, Z. G., & Struebig, M. J. (2017). Smoke pollution disrupted biodiversity during the 2015 El Niño fires in Southeast Asia. *Environmental Research Letters*, 12(9), 094022. doi: 10.1088/1748-9326/aa87ed

Lee, S. (2017). Collaborators in Research: Kick starting the Flora of Singapore project. *Gardenwise* 49: 27–28.

Lee, S. (2017). From the Earth: The ‘elusive silver eggs’ of the Bird’s Nest Fungus. *Gardenwise* 49: 29–30.

Lee, S. (2017). From the Earth: Tales from the other side. *Gardenwise* 48: 32.

Leong, E. C., **Fong, Y. K.**, Lee, D. T. T., Rahardjo, H., & Nong, X. F. (2017). Expedited Soil-Water Characteristic Curve Tests Using Combined Centrifuge and Chilled Mirror Techniques. *Geotechnical Testing Journal*, 41(1), 207–217.

Leong, P. Rodda, M., Sang, J. & Ragai, R. (2017). A preliminary forest survey of the Lanjak-Entimau Wildlife Sanctuary and Batang Ai National Park in Sarawak. *Gardenwise* 48: 8–11.

Leong, P. Rodda, M., Wilkie, P. (2017). Six interesting plants encountered in Nanga Bloh of the Lanjak-Entimau Wildlife Sanctuary. *Gardenwise* 49: 4–7.

Leong, P.K.F., Lee, C., Tay, F.E.L., Ang, P., & Yam, T.W. (2017). *Pinalia floribunda* (Lindl.) Kuntze (Orchidaceae): Rediscovery and conservation of a species thought extinct in Singapore. *Nature in Singapore* 10: 67–71.

Leong-Škorničková, J., Middleton, D.J., Triboun, P. & Suddee, S. (2017). *Curcuma prasina* (Zingiberaceae), a new species from Thailand. *Edinburgh Journal of Botany* 74(2): 245–250. <http://doi.org/10.1017/S0960428617000117>

Leong-Škorničková, J. & Niissalo, M.A. (2017). Identity and typification of *Hanguana malayana* and *H. anthelminthica* and notes on other early names in Hanguanaceae. *Plant Systematics and Evolution* 303(9): 1213–1223. <http://doi.org/10.1007/s00606-017-1432-9>

Li, D. (2017). First record of the little stint, *Calidris minuta*, in Singapore. *Singapore Biodiversity Records* 2017: 171–173.

Li, P.-S., **Thomas, D.C.**, & Saunders, R.M.K. (2017). Historical biogeography and ecological niche modelling of the *Asimina-Disepalum* clade (Annonaceae): role of ecological differentiation in Neotropical-Asian disjunctions and diversification in Asia. *BMC Evolutionary Biology* 17(1): 188.

Lim, S.A. (2017). The launch of the Learning Forest. *Gardenwise* 49: 8–12.

Lin, C.-W., **Thomas, D.C.**, Ardi, W.H. & Peng, C.-I. (2017). *Begonia ignita* (sect. *Petermannia*, *Begoniaceae*), a new species with orange flowers from Sulawesi, Indonesia. *Gardens’ Bulletin Singapore* 69(1): 89–95.

Lindsay, S., Hovenkamp, P. & **Middleton, D.J.** (2017). New combinations and typifications in *Aglaomorpha* (Polypodiaceae). *Gardens’ Bulletin Singapore* 69(1): 149–155.

Loc, P.K., The, P.V., Long, P.K., Regalado, J., Averyanov, L.V. & **Maslin, B.R.** (2017). Native Conifers of Vietnam – a review. *Pakistan Journal of Botany* 49(5): 2037–2068.

Loe, S. & Lin, C. (2017). From Education Outreach: Planting giants, seeding dreams. *Gardenwise* 49: 31.

Low, Y.W., Muhammad Ariffin, A.K., Joffre, A.A. & Duratul Ain, D. (2017). Novitates Bruneienses. 8. *Macrosolen brunsing* (Loranthaceae), a new hemiparasitic shrub from Brunei Darussalam. *Gardens’ Bulletin Singapore* 69(1): 67–73.

Luu, H.T., Trần, H.D., Nguyễn, T.Q.T & **Leong-Škorničková, J.** (2017). *Curcuma cotuana* sp. nov. (Zingiberaceae: Zingibereae) from central Vietnam. *Nordic Journal of Botany* 35: 552–556. <http://doi.org/10.1111/njb.01594>

Mendenhall, I. H., Skiles, M. M., Neves, E. S., Borthwick, S. A., Low, D. H., Liang, B., **Lee, B. P. Y-H.**, Su, Y. C. F., & Smith, G. J. (2017). Influence of age and body condition on astrovirus infection of bats in Singapore: An evolutionary and epidemiological analysis. *One Health*, 4, 27–33. doi:10.1016/j.onehlt.2017.10.001

Merklinger, F.F., Chhang, P. & **Wong, K.M.** (2017). *Schizostachyum cambodianum*, a new species of bamboo (Poaceae: Bambusoideae) from Cambodia. *Phytotaxa* 298(1): 83–88.

Merklinger, F.F., Loo, A.H.B., Ang, W.F., Tan, H.T.W., **Wong, K.M.** & Baker, W.J. (2017). *A Guide to the Exotic Palms of Singapore*. Science Centre Singapore.

Middleton, D. (2017). From the Taxonomy Corner: Describing new plant species. *Gardenwise* 48: 16–17.

Middleton, D. (2017). From the Taxonomy Corner: The Flora of Singapore. *Gardenwise* 49: 25–26.

Middleton, D. & Abdul Karim, N. (2017). Around the Gardens: The Gardens/Kew Tropical Plant Identification Course. *Gardenwise* 48: 22–24.

Middleton, D.J., Puglisi, C. & Suddee, S. (2017). Two new taxa of *Ornithoboea* (Gesneriaceae) from Thailand. *Edinburgh Journal of Botany* 74(2): 229–243.

Middleton, D., Rodda, M. & Thomas, D. (2017). Beyond the Gardens: The Flora Malesiana Symposium at the Royal Botanic Garden Edinburgh. *Gardenwise* 48: 30–31.

Neo, L., Chong, K.Y., Koh, C.Y., Tan, S.Y., Loh, J.W., **Lim, R.C.J, Seah, W.W.** & Tan, H.T.W. (2017). Short-term external effects of increment coring on some tropical trees. *Journal of Tropical Forest Science* 29(4): 519–529.

Neo, L., **Wong, K.M.** & Tan, H.T.W. (2017). Studies in Southeast Asian *Melastoma* (Melastomataceae), 3. A new species of *Melastoma* from Peninsular Malaysia. *Phytotaxa* 317(4): 286–291.

Niissalo, M.A. & Leong-Škorničková, J. (2017). *Hanguana podzolicola* (Hanguanaceae), a new record for Singapore. *Gardens’ Bulletin Singapore* 69(2): 157–165.

Niissalo, M.A., Leong-Škorničková, J., Khew, G. & Webb, E.L. (2017). Very small relict populations suggest high extinction debt of gingers in primary forest fragments of a tropical city. *American Journal of Botany* 104(1): 182–189.

Oh, R. R. Y., Richards, D. R., & **Yee A. T. K.** (2018). Community-driven skyrise greenery in a dense tropical city provides biodiversity and ecosystem service benefits. *Landscape and Urban Planning*, 169, 115–123. doi: 10.1016/j.landurbplan.2017.08.014

Ng, E. Y. X., Garg, K. M., Low, G. W., Chattopadhyay, B., **Oh, R. R. Y.**, Lee, J. G. H., & Rheindt, F. E. (2017). Conservation genomics identifies impact of trade in a threatened songbird. *Biological Conservation*, 214, 101–108.

Ow, L.F. & Ghosh, S. (2017). Growth of street trees in urban ecosystems: structural cells and structural soil. *Journal of Urban Ecology*, 3(1).

Ow, L.F. & Ghosh, S. (2017). Comparing the morphology and physiology of trees planted in containers and in-ground sites. *Arboricultural Journal*, 39(4), 198–207.

Ow, L. F. & Ghosh, S. (2017). Urban tree growth and their dependency on infiltration rates in structural soils and structural cells. *Urban Forestry & Urban Greening*, 26, 41–47. doi: 10.1016/j.ufug.2017/06.005.

Ow, L. F. & Ghosh, S. (2017). Performance of three warm season turfgrasses under linear gradient irrigation. *Weed & Turfgrass Science*, 6 (1), 61 – 66. doi: 10.5660/WTS.2017.6.1.61

Poulsen, A.D. & **Leong-Škorničková, J.** (2017). Two new *Orchidantha* species (Lowiaceae) from Borneo. *Blumea* 62: 157–162.

Puglisi, C. & Middleton, D.J. (2017). A revision of *Boea* (Gesneriaceae). *Edinburgh Journal of Botany*, 1–31. <http://doi.org/10.1017/S0960428617000336>

Puglisi, C. & Middleton, D.J. (2017). A revision of *Damrongia* (Gesneriaceae) in Thailand. *Thai Forest Bulletin (Botany)* 45(2): 79–93.

Puglisi, C. & Middleton, D.J. (2017). A revision of *Dorcoceras* (Gesneriaceae) in Thailand. *Thai Forest Bulletin, Botany* 45(1): 10–17.

Puglisi, C. & Middleton, D.J. (2017). A revision of *Microchirita* (Gesneriaceae) in Thailand. *Gardens’ Bulletin Singapore* 69(2): 211–284.

Puglisi, C. & Middleton, D.J. (2017). A revision of *Middletonia* (Gesneriaceae) in Thailand. *Thai Forest Bulletin (Botany)* 45(1): 35–41.

Rahardjo, H., Amalia, N., Jian, D. W., Leong, E. C., **Ow, L. F.**, Tan, P. Y. (2017). Effect of soil hydraulic properties on water infiltration of containerized soil. *Landscape and Urban Planning*, 165, 41–47.

Rahayu, S. & **Rodda, M.** (2017). *Hoya narcissiflora* (Apocynaceae, Asclepiadoideae), a new species from Borneo. *Reinwardtia* 16(1): 5–10.

These papers and other publications are from January 2017 to December 2017.

Rodda, M. (2017). Book Reviews: The genus *Melastoma* in Borneo. *Gardenwise* 48: 33.

Rodda, M. (2017). Index of names and types of *Hoya* (Apocynaceae: Asclepiadoideae) of Borneo. *Gardens’ Bulletin Singapore* 69(1): 33–65.

Rodda, M. (2017). Nature printing, the art, craft and science of making leaf prints. *Gardenwise* 48: 4–7.

Rundel, P.W. & **Middleton, D.J.** (2017). The Flora of the Bokor Plateau, southeastern Cambodia: a homage to Pauline Dy Phon. *Cambodian Journal of Natural History* 2017: 17–37.

Sia, A. (2017, October). Therapeutic Horticulture growing in Singapore. *AHTA Magazine*, 45(4), 12–14.

Simonsson Juhonewe, N. & **Rodda, M.** (2017). Contribution to a revision of *Hoya* (Apocynaceae: Asclepiadoideae) of Papuasia. Part I: ten new species, one new subspecies and one new combination. *Gardens’ Bulletin Singapore* 69(1): 96–147.

Soh, C. (2017). From the Archives: The Orchid enclosure. *Gardenwise* 48: Back Cover.

Soh, C. (2017). From the Archives: The Tea Kiosk. *Gardenwise* 49: Back Cover.

Souvannakhoummane, K. & **Leong-Škorničková, J.** (2017). Eight new records of *Zingiber* Mill. (Zingiberaceae) for the flora of Lao P.D.R. *Edinburgh Journal of Botany*, 1–16. <http://doi.org/10.1017/S0960428617000312>

Tan, C. H., Goh, J. T. H., Ang, W. J., Lee, J. L., **Lin, E. S.**, Soh, G. S. & Foong, S. (2017). Design and Development of Micro-Aerial Vehicle for Tree Inspections. Proceedings of 2017 IEEE International Conference on Cybernetics and Intelligent Systems (CIS) and IEEE Conference on Robotics, Automation and Mechatronics (RAM), Ningbo.

Taylor, N. (2017). Edibles: Dragon Fruit explained. *Gardenwise* 49: 35. [Reprinted in *The Grapevine*, October 2017: 1–2]

Taylor, N.P. (2017). Gardens and Empire, the Singapore Botanic Gardens as an example. *Moving Worlds* 17(1): 2–11.

Taylor, N. (2017). New art at the Botanic Gardens. *Gardenwise* 49: 13–22.

Taylor, N.P. (2017). New to cultivation in Singapore. *Gardenwise* 48: 14–15.

Taylor, N. (2017). *Pereskia violacea* upgraded. *Cactaceae Systematics Initiatives* 38: 4–5.

Taylor, N. (2017). *Peresklopsis brandegeei* reinstated. *Cactaceae Systematics Initiatives* 38: 5–7.

Taylor, N.P. (2017). The Singapore Gardening Society celebrates 80 years. *Gardenwise* 48: 3.

Taylor, N.P. & Hofacker, A. (2017). *Rhipsalis agudoensis* – a mystery solved. *Bradleya* 35: 248–251.

Thomas, D.C., Tang, C.C. & Saunders, R.M.K. (2017). Historical biogeography of *Goniathalamus* and Annonaceae tribe Annoneae: dispersal-vicariance patterns in tropical Asia and intercontinental tropical disjunctions revisited. *Journal of Biogeography* 44(12): 2862–2876.

Turner I.M. (2017). From India to Madeira and back again: a new combination for a wide-ranging *Spergularia* (Caryophyllaceae). *Willdenowia* 47: 213–216.

Turner, I.M. (2017). Nomenclatural note on a Brazilian aroid. *Skvortsovia* 4(2): 38–39.

Turner, I.M. & Utteridge, T.M.A. (2017). A new species of *Alphonsea* (Annonaceae). *Thai Forest Bulletin (Botany)* 45(1): 42–46.

Vogt, C. A., **Kho, C.**, & **Sia, A.** (2017). Urban Greening and Its Role in Fostering Human Well-Being. In Tan, P. Y. & Jim, C. Y. (Eds.), *Greening Cities* (pp. 95–111). Singapore: Springer.

Wong, W. (2017). Edibles: Bean business. *Gardenwise* 49: 32–34.

Wong, K.M. (2017). The Genus *Saurauia* in Borneo, A revision with 62 new species. Natural History Publications (Borneo), in association with National Parks Board Singapore. 310 pp.

Wong, W. (2017). *Singapore Chronicles – Flora and Fauna*. A. Mahizhan & A. Latif (Eds.). Straits Times Press & Institute of Policy Studies.

Yam, T.W. (2017). Hybrids of *Paraphalaenopsis laycockii* – some old, some new. *Malayan Orchid Review* 51: 71–76.

Yam, T.W., Ang, P. & Tay, F. (2017). Conservation and reintroduction of *Bulbophyllum pulchellum* – an orchid thought to be extinct in Singapore for more than fifty years. *Gardenwise* 48: 12–13.

Yam, T.W., Ang, P. & Tay, F. (2017). Orchid Conservation and Reintroduction in a Changing Environment – a Singapore Experience. *Proceedings of the 12th Asia Pacific Orchid Conference*: 117–121.

Yam, T.W., Ang, P. & Tay, F. (2017). The propagation and reintroduction of *Thrixspermum amplexicaule* in Singapore. *Gardenwise* 49: 23–24.

Yam, T.W. & Arditti, J. (2017). *Micropropagation of orchids* (3rd ed). John Wiley & Sons Inc, Oxford, U.K.

Yau, J. & Wong, W. (2017). From Education Outreach: Partnership with schools – Tanglin Secondary School and the Singapore Botanic Gardens. *Gardenwise* 48: 20.

Ye, X.-E., **Leong-Škorničková, J.** & Xia, N.H. (2017). Taxonomic studies on *Amomum* (Zingiberaceae) in China I: *Amomum velutinum*, a new species from Yunnan previously misidentified as *A. repoeense* and *A. subcapitatum*. *Nordic Journal of Botany*. Advanced online publication. <http://doi.org/10.1111/njb.01661>

Zappi, D.C. & **Taylor, N.P.** (2017). Flora das cangas da Serra dos Carajás, Pará, Brasil: Cactaceae. *Rodriguésia* 68(3): 925–929.

Zou, P., Xiao, C-F., Luo, S-X, Cui, C-J, Xu, K., Yer, Y-S., Liao, J-P. & **Leong-Škorničková, J.** (2017). *Orchidantha yunnanensis* (Lowiaceae), a new species from China, and notes on the identity of *Orchidantha laotica*. *Phytotaxa* 302(2): 181–187.

Posters

Chantanaorrapint, S., Yong, K.-T. & **Ho, B.-C.** An account of Hornworts (Anthocerotophyta) in the Malay Peninsula. XIX International Botanical Congress, Shenzhen, China, July 2017.

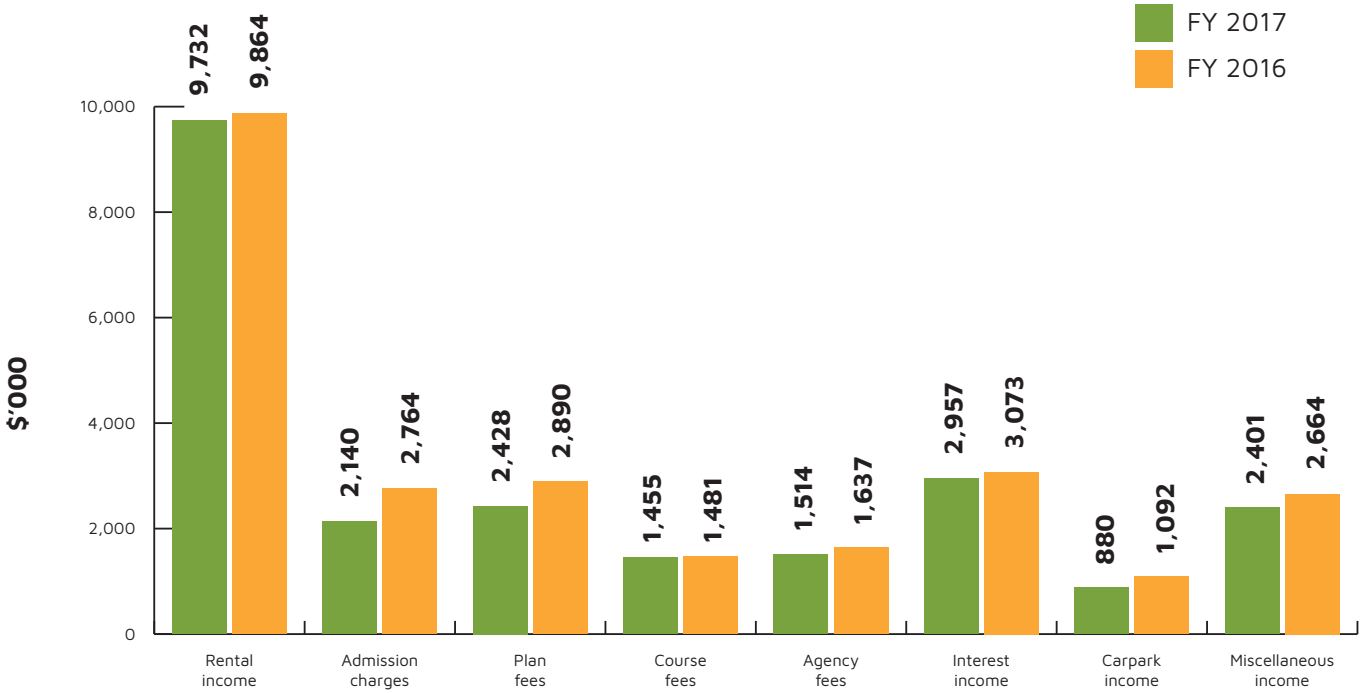
Yeo, R., **Ho, B.-C., Koh, T.-S.** & Chen, Z. A journey of evolution: Phytohormones responses in wound-induced regeneration of land plants. XIX International Botanical Congress, Shenzhen, China,

FINANCIAL REVIEW

Income

The Group’s income comprised mainly rental income from souvenir kiosks and food & beverage outlets in Singapore Botanic Gardens and Fort Canning Park. The income for the year was \$23.5 million. The decrease from last year’s income was mainly due to the decrease in admission charges and plan fees.

INCOME FOR FY 2017 & FY 2016

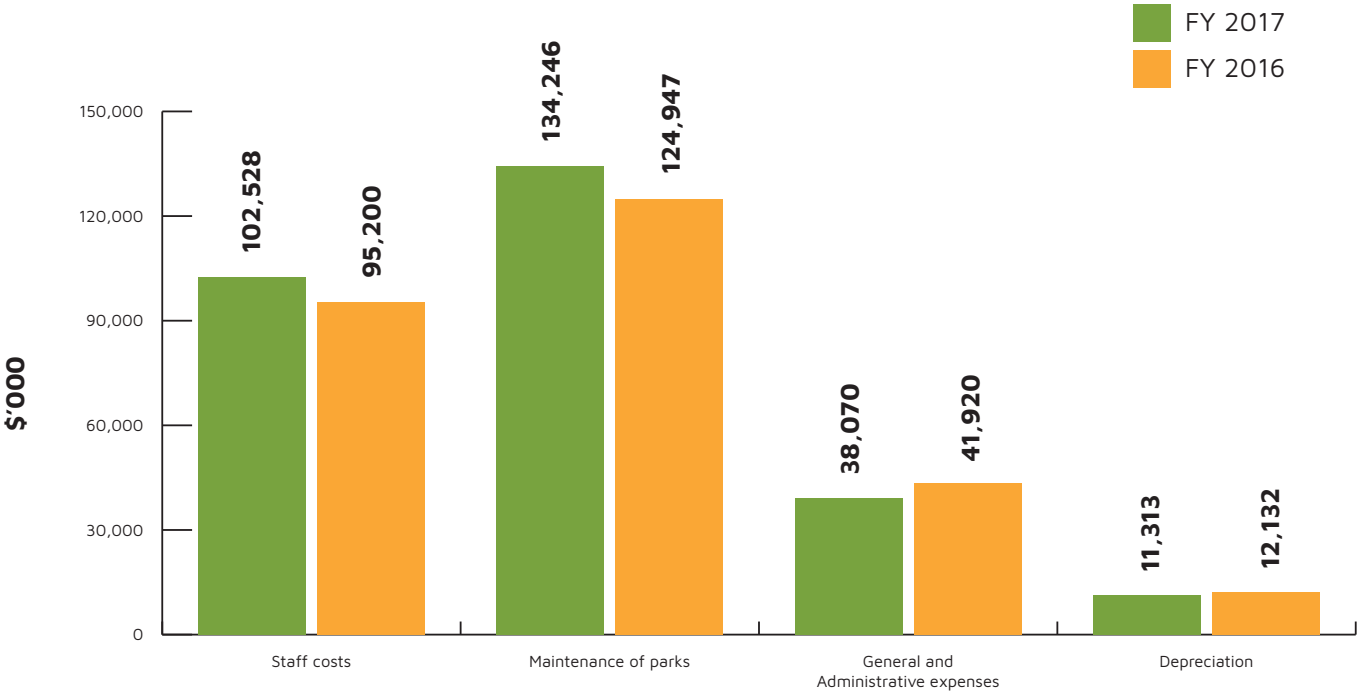


	FY 2017	FY 2016	Increase/(Decrease)	
Income	\$ '000	\$ '000	\$ '000	% Change
Rental income	9,732	9,864	(132)	(1)
Admission charges	2,140	2,764	(624)	(23)
Plan fees	2,428	2,890	(462)	(16)
Course fees	1,455	1,481	(26)	(2)
Agency fees	1,514	1,637	(123)	(8)
Interest income	2,957	3,073	(116)	(4)
Carpark income	880	1,092	(212)	(19)
Miscellaneous income	2,401	2,664	(263)	(10)
	23,507	25,465	(1,958)	(8)

Operating Expenditure

The Group’s operating expenditure for the year was \$286.2 million. The 4% increase from last year’s expenditure was mainly due to an increase in maintenance of parks and staff costs, offset by a decrease in general and administrative expenses.

OPERATING EXPENDITURE FOR FY 2017 & FY 2016



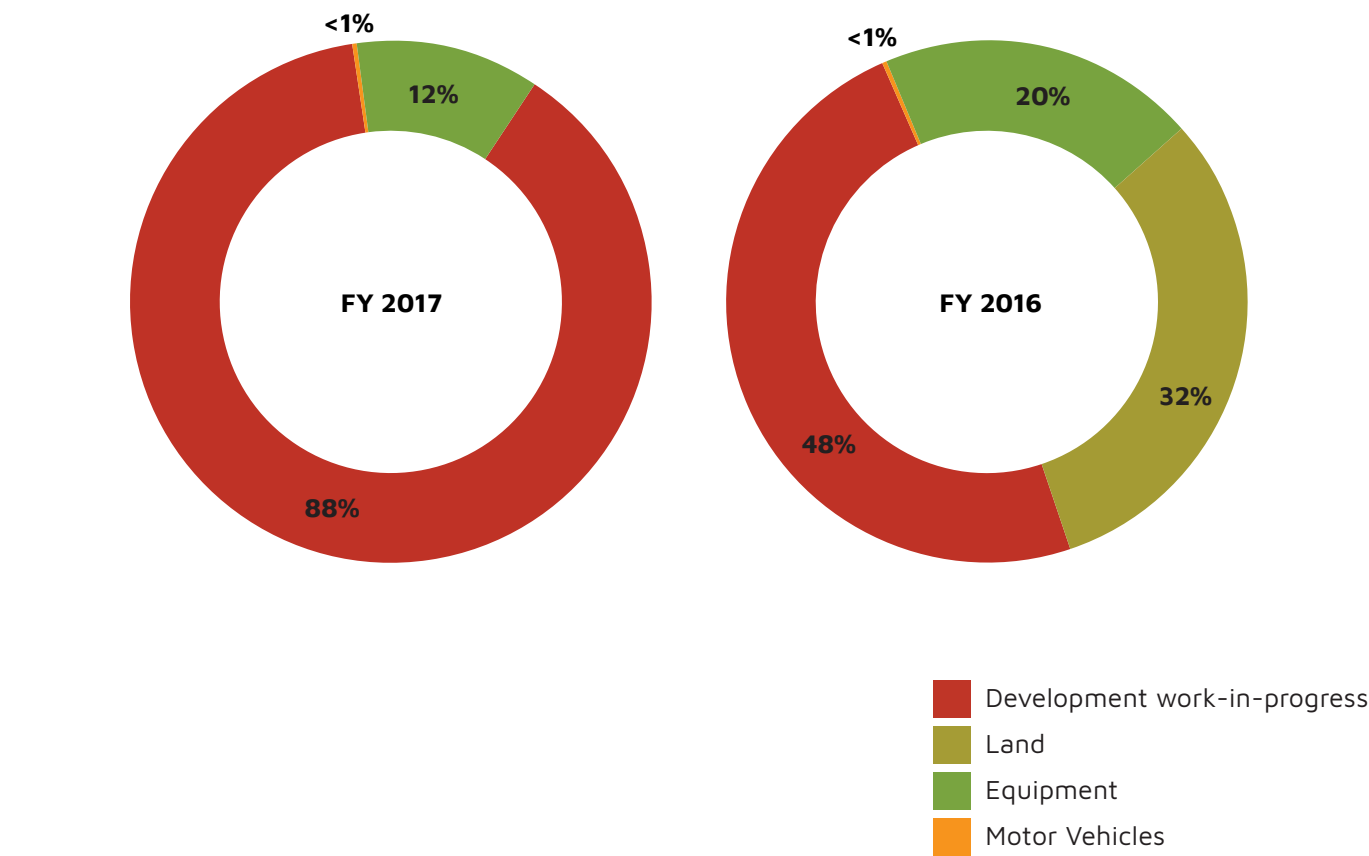
	FY 2017	FY 2016	Increase/(Decrease)	
Operating Expenditure	\$ '000	\$ '000	\$ '000	% Change
Staff costs	102,528	95,200	7,328	8
Maintenance of parks	134,246	124,947	9,299	7
General and Administrative expenses	38,070	41,920	(3,850)	(9)
Depreciation	11,313	12,132	(819)	(7)
	286,157	274,199	11,958	4

FINANCIAL REVIEW

Capital Expenditure

The Group’s capital expenditure for the year was \$16.8 million. The increase in capital expenditure was mainly due to an increase in development work-in-progress.

CAPITAL EXPENDITURE FOR FY 2017 & FY 2016

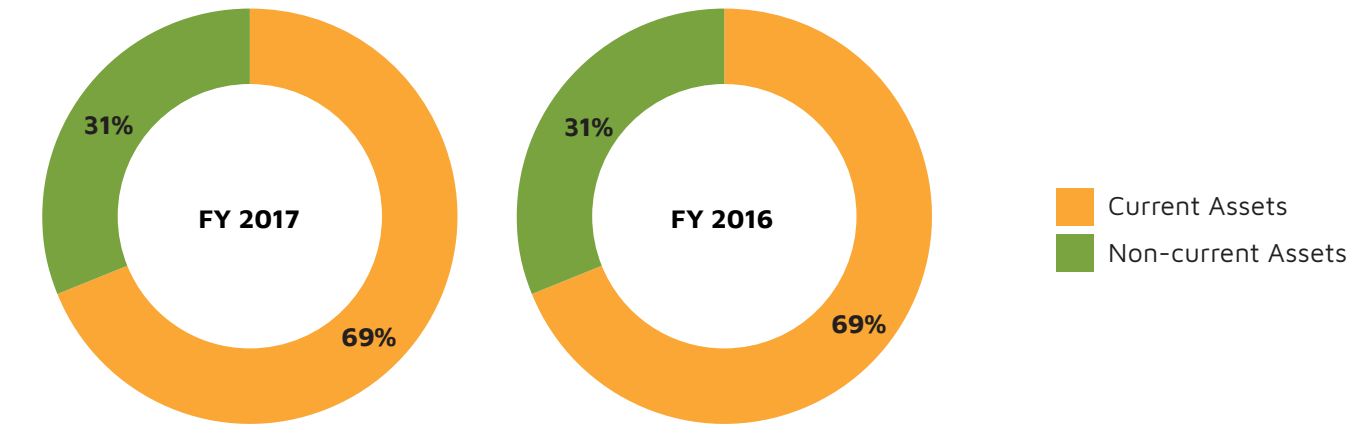


	FY 2017	FY 2016	Increase/(Decrease)	
Capital Expenditure	\$ '000	\$ '000	\$ '000	% Change
Land	-	3,957	(3,957)	(100)
Equipment	2,024	2,487	(463)	(19)
Motor Vehicles	66	37	29	78
Development work-in-progress	14,691	6,010	8,681	144
	16,781	12,491	4,290	34

Financial Position

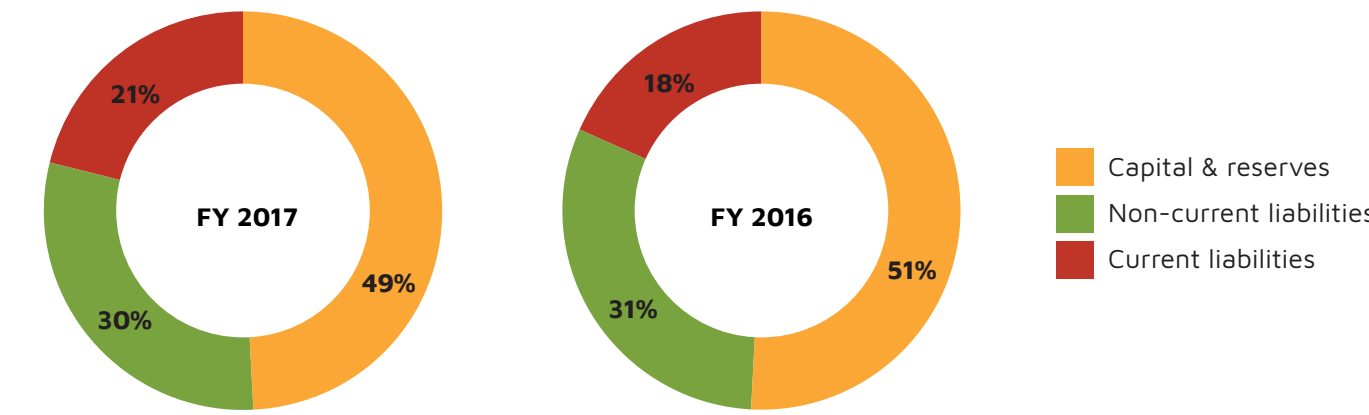
As at 31 March 2018, the Group’s total assets stood at \$391 million, an increase of 4% over last year. Non-current assets and current assets represent 31% and 69% of total assets respectively. Non-current assets consisted mainly of leasehold land and buildings and structures at Singapore Botanic Gardens and Fort Canning Park. Capital and reserve stood at \$192 million, while current and non-current liabilities stood at \$83.6 million and \$115.5 million respectively.

TOTAL ASSETS



	FY 2017	FY 2016	Increase/(Decrease)	
Assets	\$' 000	\$' 000	\$' 000	% Change
Non-current Assets	121,880	117,137	4,743	4
Current Assets	269,282	257,843	11,439	4
	391,162	374,980	16,182	4

TOTAL LIABILITIES & EQUITY



	FY 2017	FY 2016	Increase/(Decrease)	
Equity & Liabilities	\$' 000	\$' 000	\$' 000	% Change
Capital & reserves	192,042	191,436	606	<1
Non-current liabilities	115,496	115,393	103	<1
Current liabilities	83,624	68,151	15,473	23
	391,162	374,980	16,182	4

FINANCIAL STATEMENTS

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STATEMENT BY NATIONAL PARKS BOARD

In our opinion,

- (a) the accompanying financial statements of National Parks Board (“NParks”) and its subsidiary (the “Group”), are properly drawn up in accordance with the provisions of the National Parks Board Act, Chapter 198A (the “Act”) and Statutory Board Financial Reporting Standards (“SB-FRS”) so as to present fairly, in all material respects, the financial position of the Group and NParks as at 31 March 2018, and the financial performance, changes in equity of the Group and NParks and cash flows of the Group for the financial year ended on that date;
- (b) proper accounting and other records have been kept, including records of all assets of NParks whether purchased, donated or otherwise; and
- (c) the receipt, expenditure, investments of moneys and the acquisition and disposal of assets by NParks during the financial year have been in accordance with the provisions of the Act.

On behalf of the National Parks Board and its subsidiary:



Christina Ong
Chairman



Kenneth Er Boon Hwee
Chief Executive Officer

Singapore
16 July 2018

INDEPENDENT AUDITOR'S REPORT FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

Independent auditor's report to the members of National Parks Board

Report on the audit of the financial statements

Opinion

We have audited the financial statements of National Parks Board ("NParks") and its subsidiary (collectively, the "Group"), which comprise the statements of financial position of the Group and NParks as at 31 March 2018, the statements of comprehensive income, statements of changes in equity of the Group and NParks and the consolidated cash flow statement of the Group for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements of the Group, the statement of financial position, statement of comprehensive income and statement of changes in equity of NParks are properly drawn up in accordance with the provisions of the National Parks Board Act, Chapter 198A (the "Act") and Statutory Board Financial Reporting Standards ("SB-FRS") so as to present fairly, in all material respects, the state of affairs of the Group and NParks as at 31 March 2018 and the results and changes in equity of Group and NParks and cash flows of the Group for the year ended on that date.

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 are independent of the Group in accordance with the Accounting and Corporate Regulatory Authority ("ACRA") 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. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other Information

Management is responsible for the other information. The other information comprises the information included in the annual report and the statement by the members of the Board, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information and we do 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 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, 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.

Responsibilities of management for the financial statements

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

A statutory board is constituted based on its Act and its dissolution requires Parliament's approval. In preparing the financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless there is intention to wind up the Group or for the Group to cease operations.

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

INDEPENDENT AUDITOR'S REPORT FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

Independent auditor's report to the members of National Parks Board

Report on the audit of the financial statements (cont'd)

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.
- 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 management 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.

INDEPENDENT AUDITOR'S REPORT FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

Independent auditor's report to the members of National Parks Board

Report on other legal and regulatory requirements

Opinion

In our opinion:

- (a) the receipts, expenditure, investments of moneys and the acquisition and disposal of assets by the Board during the year are, in all material respects, in accordance with the provisions of the Act.
- (b) proper accounting and other records have been kept, including records of all assets of the Board whether purchased, donated or otherwise.

Basis for opinion

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

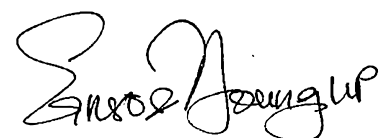
Responsibilities of management for compliance with legal and regulatory requirements

Management is responsible for ensuring that the receipts, expenditure, investments of moneys and the acquisition and disposal of assets, are in accordance with the provisions of the Act. This responsibility includes implementing accounting and internal controls as management determines are necessary to enable compliance with the provisions of the Act.

Auditor's responsibilities for compliance audit

Our responsibility is to express an opinion on management's compliance based on our audit of the financial statements. We planned and performed the compliance audit to obtain reasonable assurance about whether the receipts, expenditure, investments of moneys and the acquisition and disposal of assets, are in accordance with the provisions of the Act.

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



Ernst & Young LLP

Public Accountants and Chartered Accountants

Singapore
16 July 2018

STATEMENT OF FINANCIAL POSITION AS AT 31 MARCH 2018

	Note	2017/2018 \$	Group 2016/2017 \$	2017/2018 \$	NParks 2016/2017 \$
ASSETS					
Current assets					
Cash and cash equivalents	6	259,682,009	243,191,909	259,444,803	242,959,956
Trade receivables	7	1,977,871	2,778,841	1,973,491	2,778,841
Other receivables	8	7,622,261	11,872,628	7,642,873	11,890,238
Total current assets		269,282,141	257,843,378	269,061,167	257,629,035
Non-current assets					
Trade receivables	7	1,008,000	1,176,000	1,008,000	1,176,000
Property, plant and equipment	10	120,871,628	115,961,229	120,871,628	115,961,229
Investment in a subsidiary	9	–	–	2	2
Total non-current assets		121,879,628	117,137,229	121,879,630	117,137,231
Total assets		391,161,769	374,980,607	390,940,797	374,766,266
LIABILITY AND EQUITY					
Current liabilities					
Trade and other payables	12	63,600,055	54,922,379	63,594,975	54,914,771
Provision for pension costs	13	1,871,099	120,000	1,871,099	120,000
Government grants received in advance	11	14,062,331	8,025,598	14,062,331	8,025,598
Deferred revenue	14	2,746,762	2,460,082	2,746,762	2,451,390
Contribution to consolidated fund	15	1,344,069	2,623,341	1,344,069	2,623,341
Total current liabilities		83,624,316	68,151,400	83,619,236	68,135,100
Non-current liabilities					
Deferred capital grants	16	111,467,742	109,408,827	111,467,742	109,408,827
Deferred revenue	14	2,453,345	2,664,478	2,453,345	2,664,478
Provision for pension costs	13	1,574,789	3,319,672	1,574,789	3,319,672
Total non-current liabilities		115,495,876	115,392,977	115,495,876	115,392,977
Capital and other funds					
Capital account	17	4,528,275	4,528,275	4,528,275	4,528,275
Share capital	18	2,958,095	1,032,800	2,958,095	1,032,800
Accumulated surplus		134,198,163	135,294,568	133,982,271	135,096,527
Sinking fund	19	50,357,044	50,580,587	50,357,044	50,580,587
Total capital and other funds		192,041,577	191,436,230	191,825,685	191,238,189
Total liabilities and equity		391,161,769	374,980,607	390,940,797	374,766,266
Net assets of Garden City Fund	20	9,675,357	11,982,668	9,675,357	11,982,668
Net assets of National Productivity Fund	21	79,485	382,766	79,485	382,766

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

STATEMENT OF COMPREHENSIVE INCOME FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

		Group		NParks	
	Note	2017/2018	2016/2017	2017/2018	2016/2017
		\$	\$	\$	\$
Income or expenditure					
Operating income					
Rental income		9,732,140	9,863,972	9,732,140	9,863,972
Admission charges		2,139,599	2,764,409	2,139,599	2,764,409
Plan fees		2,428,400	2,889,900	2,428,400	2,889,900
Course fees		1,455,048	1,480,954	1,455,048	1,480,954
Agency fees		1,514,300	1,636,666	1,514,300	1,636,666
Interest income		2,957,252	3,072,604	2,957,252	3,072,604
Carpark income		880,058	1,092,352	880,058	1,092,352
Miscellaneous income	22	2,400,452	2,664,401	2,352,092	2,598,696
		23,507,249	25,465,258	23,458,889	25,399,553
Operating expenditure					
Staff costs	23	(102,528,245)	(95,199,601)	(102,528,245)	(95,199,601)
Maintenance of parks		(134,245,722)	(124,947,560)	(134,245,722)	(124,947,560)
General and administrative expenses		(38,070,420)	(41,920,186)	(38,039,911)	(41,905,418)
Depreciation of property, plant and equipment	10	(11,312,999)	(12,132,038)	(11,312,999)	(12,132,038)
		(286,157,386)	(274,199,385)	(286,126,877)	(274,184,617)
Deficit from operations	24	(262,650,137)	(248,734,127)	(262,667,988)	(248,785,064)
Government operating grants	11	256,546,780	248,495,313	256,546,780	248,495,313
Other government grants	11	2,868,693	3,855,111	2,868,693	3,855,111
Deferred capital grants amortised	16	11,158,802	11,866,060	11,158,802	11,866,060
		270,574,275	264,216,484	270,574,275	264,216,484
Surplus before contribution to consolidated fund		7,924,138	15,482,357	7,906,287	15,431,420
Contribution to consolidated fund	15	(1,344,069)	(2,623,341)	(1,344,069)	(2,623,341)
Surplus for the year, representing total comprehensive income for the year		6,580,069	12,859,016	6,562,218	12,808,079

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

STATEMENTS OF CHANGES IN EQUITY FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

Group	Capital account \$	Share capital \$	Accumulated surplus \$	Sinking fund \$	Total \$
At 1 April 2016	4,528,275	191,000	123,729,704	52,285,040	180,734,019
Surplus for the year, representing total comprehensive income for the year	-	-	12,859,016	-	12,859,016
Transactions with owners, recognised directly in equity					
Equity injection (Note 18)	-	841,800	-	-	841,800
Funding for government projects (Note 25)	-	-	(2,998,605)	-	(2,998,605)
Total transactions with owners, in their capacity as owners	-	841,800	(2,998,605)	-	(2,156,805)
Net transfer from sinking fund to accumulated surplus (Note 19)	-	-	1,704,453	(1,704,453)	-
At 31 March 2017 and 1 April 2017	4,528,275	1,032,800	135,294,568	50,580,587	191,436,230
Surplus for the year, representing total comprehensive income for the year	-	-	6,580,069	-	6,580,069
Transactions with owners, recognised directly in equity					
Equity injection (Note 18)	-	1,925,295	-	-	1,925,295
Funding for government projects (Note 25)	-	-	(7,900,017)	-	(7,900,017)
Total transactions with owners, in their capacity as owners	-	1,925,295	(7,900,017)	-	(5,974,722)
Net transfer from sinking fund to accumulated surplus (Note 19)	-	-	223,543	(223,543)	-
At 31 March 2018	4,528,275	2,958,095	134,198,163	50,357,044	192,041,577

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

STATEMENTS OF CHANGES IN EQUITY FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

NParks	Capital account \$	Share capital \$	Accumulated surplus \$	Sinking fund \$	Total \$
At 1 April 2016	4,528,275	191,000	123,582,600	52,285,040	180,586,915
Surplus for the year, representing total comprehensive income for the year	–	–	12,808,079	–	12,808,079
Transactions with owners, recognised directly in equity					
Equity injection (Note 18)	–	841,800	–	–	841,800
Funding for government projects (Note 25)	–	–	(2,998,605)	–	(2,998,605)
Total transactions with owners, in their capacity as owners	–	841,800	(2,998,605)	–	(2,156,805)
Net transfer from sinking fund to accumulated surplus (Note 19)	–	–	1,704,453	(1,704,453)	–
At 31 March 2017 and 1 April 2017	4,528,275	1,032,800	135,096,527	50,580,587	191,238,189
Surplus for the year, representing total comprehensive income for the year	–	–	6,562,218	–	6,562,218
Transactions with owners, recognised directly in equity					
Equity injection (Note 18)	–	1,925,295	–	–	1,925,295
Funding for government projects (Note 25)	–	–	(7,900,017)	–	(7,900,017)
Total transactions with owners, in their capacity as owners	–	1,925,295	(7,900,017)	–	(5,974,722)
Net transfer from sinking fund to accumulated surplus (Note 19)	–	–	223,543	(223,543)	–
At 31 March 2018	4,528,275	2,958,095	133,982,271	50,357,044	191,825,685

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

CONSOLIDATED STATEMENT OF CASH FLOWS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

	Note	2017/2018 \$	2016/2017 \$
Operating activities			
Deficit from operations		(262,650,137)	(248,734,127)
Adjustments for:			
Depreciation of property, plant and equipment	10	11,312,999	12,132,038
Loss on disposal of property, plant and equipment	24	556,602	154,746
Provision for pension costs	13	126,216	156,350
Amortisation of lease premium received in advance		(83,333)	(83,333)
Interest income		(2,957,252)	(3,072,604)
Operating cash flow before movement in working capital		(253,694,905)	(239,446,930)
Trade and other receivables		647,802	3,564,255
Trade and other payables		8,768,188	903,938
Deferred revenue		158,880	(696,077)
Payment for pension costs	13	(120,000)	(2,011,050)
Amounts due from MND		2,519,904	12,741,525
Amounts due from Garden City Fund		1,428,191	(1,634,477)
Cash used in operating activities		(240,291,940)	(226,578,816)
Contribution to Consolidated Fund paid		(2,623,341)	(2,793,718)
Net cash flows used in operating activities		(242,915,281)	(229,372,534)
Investing activities			
Proceeds from disposal of property, plant and equipment		1,286	44,283
Purchase of property, plant and equipment		(16,781,286)	(12,491,222)
Interest received		3,500,436	3,120,902
Net cash flows used in investing activities		(13,279,564)	(9,326,037)
Financing activities			
Grants received (less payment on behalf)	11	278,856,816	259,074,945
Grants receivable	11	(176,155)	–
Unutilised grants returned	11	(189,727)	(10,910)
Other funding	16	168,733	–
Equity injection	18	1,925,295	841,800
Funding for government projects	25	(7,900,017)	(2,998,605)
Net cash flows from financing activities		272,684,945	256,907,230
Net increase in cash and cash equivalents		16,490,100	18,208,659
Cash and cash equivalents at beginning of the year		243,191,909	224,983,250
Cash and cash equivalents at end of the year (Note 6)		259,682,009	243,191,909

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

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

1. General

National Parks Board ("NParks") is a statutory board under the Ministry of National Development ("MND") established under the National Parks Board Act (Chapter 198A).

The Board has its registered office at Singapore Botanic Gardens, 1 Cluny Road, Singapore 259569.

The primary activities of NParks are to develop, manage and promote the National Parks and Nature Reserves as valuable reserves for recreation, conservation, research and education and to develop, upgrade, manage and maintain the public parks, open spaces on behalf of the Government.

There has been no significant changes in the nature of these activities during the financial year.

The principal activities of the subsidiary are described in Note 9 to the financial statements.

2. Summary of significant accounting policies

2.1 Basis of accounting

The financial statements have been prepared in accordance with the historical cost basis, except as disclosed in the accounting policies below, and are drawn up in accordance with the provisions of the Act, and SB-FRS, including Interpretation of SB-FRS ("INT SB-FRS") and SB-FRS Guidance Notes.

Historical cost is generally based on the fair value of the consideration given in exchange for goods and services.

2.2 Adoption of new and revised standards

On 1 April 2017, the Group adopted all the new and revised SB-FRSs and INT SB-FRS and SB-FRS Guidance Notes that are effective from that date and are relevant to its operations. The adoption of these new/ revised SB-FRSs, INT SB-FRSs and SB-FRS Guidance Notes does not result in changes to the Group's accounting policies and has no material effect on the results or position of the Group and NParks.

Management has considered and is of the view that the adoption of the SB-FRSs, INT SB-FRSs and Amendments to SB-FRSs that were issued as at the date of authorisation of these financial statements but not effective until future periods below will have no material impact on the financial statements of the Group and NParks in the period of their initial adoption.

Description	Effective for annual periods beginning on or after
SB-FRS 109 <i>Financial Instruments</i>	1 January 2018
SB-FRS 115 <i>Revenue from Contracts with Customers</i>	1 January 2018
SB-FRS 1001 <i>Accounting and Disclosure for Non-Exchange Revenue</i>	1 January 2018
SB-FRS Guidance note 7 <i>Accounting for Sponsorship Received</i>	1 January 2018
SB-FRS 116 <i>Leases</i>	1 January 2019

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

2. Summary of significant accounting policies (cont'd)

2.2 Adoption of new and revised standards (cont'd)

The nature of the impending changes in accounting policy on adoption of SB-FRS 109, SB-FRS 115 and SB-FRS 116 are described below.

SB-FRS 109 *Financial Instruments*

SB-FRS 109 introduces new requirements for assessing impairment for financial instruments. The impairment requirements in SB-FRS 109 are based on an expected credit loss model and replace the SB-FRS 39 incurred loss model.

The Group plans to adopt the new standard on the required effective date without restating prior periods' information and recognises any difference between the previous carrying amount and the carrying amount at the beginning of the annual reporting period at the date of initial application in the opening retained earnings.

SB-FRS 109 requires the Group to record expected credit losses on all of its debt securities, loans, trade receivables and financial guarantees, either on a 12-month or lifetime basis. The Group expects to apply the simplified approach and record lifetime expected losses on all trade receivables. Upon application of the expected credit loss model, the Group does not expect any significant changes in the allowance for impairment losses.

SB-FRS 115 *Revenue from Contracts with Customers*

SB-FRS 115 establishes a five-step model to account for revenue arising from contracts with customers, and introduces new contract cost guidance. Under SB-FRS 115, revenue is recognised at an amount that reflects the consideration which an entity expects to be entitled in exchange for transferring goods or services to a customer. The new revenue standard is effective for annual periods beginning on or after 1 January 2018.

The revenue standard will supersede all current revenue recognition requirements under SB-FRS. Either a full retrospective application or a modified retrospective application is required on the initial application of the standard.

The Group has performed a preliminary impact assessment of adopting SB-FRS 115 based on currently available information. This assessment may be subject to changes arising from ongoing analysis until the Group adopts SB-FRS 115 in 2018. Based on the Group's preliminary assessment, no significant impact is expected to arise on initial adoption of SB-FRS 115.

SB-FRS 116 *Leases*

SB-FRS 116 requires lessees to recognise most leases on balance sheets to reflect the rights to use the leased assets and the associated obligations for the lease payments as well as the corresponding interest expense and depreciation charges. The standard includes two recognition exemption for lessees – leases of 'low value' assets and short-term leases. The new standard is effective for annual periods beginning on or after 1 January 2019.

The Group has performed a preliminary impact assessment of the adoption of SB-FRS 116 and expects that the adoption of SB-FRS 116 will result in increase in total assets and total liabilities and Earnings Before Interest, Taxes, Depreciation and Amortisation ("EBITDA").

The Group plans to adopt the new standard on the required effective date by applying SB-FRS 116 retrospectively with the cumulative effect of initial application as an adjustment to the opening balance of retained earnings as at 1 January 2019.

The Group is currently in the process of analysing the transitional approaches and practical expedients to be elected on transition to SB-FRS 116 and assessing the impact upon adoption.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

2. Summary of significant accounting policies (cont'd)

2.3 Basis of consolidation and subsidiary

The consolidated financial statements incorporate the financial statements of NParks and entities (including special purpose entities) controlled by NParks (its subsidiary). Control is achieved when NParks:

- Has power over the investee;
- Is exposed, or has rights, to variable returns from its involvement with the investee; and
- Has the ability to use its power to affect its returns.

In NParks's separate financial statements, investment in subsidiary is carried at cost less any impairment in net recoverable value that has been recognised in income or expenditure.

NParks reassesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control listed above.

Consolidation of a subsidiary begins when NParks obtains control over the subsidiary and ceases when NParks loses control of the subsidiary. Specifically, income and expense of a subsidiary acquired or disposed of during the year are included in the consolidated statement of comprehensive income from the date NParks gains control until the date when NParks ceases to control the subsidiary.

Where necessary, adjustments are made to the financial statements of the subsidiary to bring its accounting policies into line with the Group's accounting policies. The financial statements of the subsidiary used in the preparation of the consolidated financial statements are prepared for the same reporting date as NParks.

All intra-group balances, income and expenses resulting from intra-group transactions and dividends are eliminated in full.

2.4 Financial instruments

Financial assets and financial liabilities are recognised on the statement of financial position when the Group becomes a party to the contractual provisions of the instrument.

Financial assets

All financial assets are recognised initially measured at fair value plus directly attributable transaction costs.

Non-derivative financial assets with fixed or determinable payments that are not quoted in an active market are classified as "loans and receivables". Loans and receivables (including trade and other receivables, cash at bank and deposits with AGD) are subsequently measured at amortised cost using the effective interest method less impairment. Interest is recognised by applying the effective interest method, except for short-term receivables when the effect of discounting is immaterial. Gains or losses are recognised in income or expenditure when the loans and receivables are de-recognised or impaired, and through the amortisation process.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

2. Summary of significant accounting policies (cont'd)

2.4 Financial instruments (cont'd)

Financial assets (cont'd)

Impairment of financial assets

Financial assets are assessed at each reporting period whether there is indications for impairment. Financial assets are impaired where there is objective evidence that, as a result of one or more events that occurred after the initial recognition of the financial asset, the estimated future cash flows of the financial assets have been impacted.

If there is objective evidence that an impairment loss on financial assets which carried at amortised cost, the amount of the impairment is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the original effective interest rate.

For financial assets that are carried at cost, the amount of the impairment loss is measured as the difference between the asset's carrying amount and the present value of the estimated future cash flows discounted at the current market rate of return for a similar financial asset. Such impairment loss will not be reversed in subsequent periods.

The carrying amount of the financial asset is reduced by the impairment loss directly for all financial assets with the exception of trade receivables where the carrying amount is reduced through the use of an allowance account. When a trade receivable is uncollectible, it is written off against the allowance account. Subsequent recoveries of amounts previously written off are credited to the income or expenditure. Changes in the carrying amount of the allowance account are recognised in income or expenditure.

For financial assets measured at amortised cost, if, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, the previously recognised impairment loss is reversed through income or expenditure to the extent that the carrying amount of the financial asset at the date the impairment is reversed does not exceed what the amortised cost would have been had the impairment not been recognised.

De-recognition of financial assets

The Group de-recognises a financial asset only when the contractual rights to the cash flows from the asset expire, or it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. On de-recognition of a financial asset in its entirety, the difference between the carrying amount and the sum of the consideration received and any cumulative gain or loss that had been recognised in other comprehensive income is recognised in income or expenditure.

Financial liabilities and equity instruments

Classification as debt or equity

Financial liabilities and equity instruments issued by the Group are classified according to the substance of the contractual arrangements entered into and the definitions of a financial liability and an equity instrument.

Equity instruments

An equity instrument is any contract that evidences a residual interest in the assets of the Group after deducting all of its liabilities. Equity instruments are recorded at the proceeds received, net of direct issue costs.

Pursuant to the Finance Circular Minute ("FCM") No. 26/2008 on Capital Management Framework ("CMF"), equity injection from the Government is recorded as share capital.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

2. Summary of significant accounting policies (cont'd)

2.4 Financial instruments (cont'd)

Financial liabilities and equity instruments (cont'd)

Financial liabilities

Financial liabilities are initially measured at fair value, net of directly attributable transaction costs, and are subsequently measured amortised cost, using the effective interest method, with interest expense recognised on an effective yield basis.

De-recognition of financial liabilities

The Group de-recognised financial liabilities when, and only when, the Group's obligations are discharged, cancelled or they expire. When an existing financial liability is discharged by another from the same lender on substantially different terms, or the terms of an existing liability are original liability and the recognition of a new liability, and the difference in the respective carrying amounts is recognised in income or expenditure.

2.5 Leases

The Group as lessor

Rental income from operating leases is recognised on a straight-line basis over the term of the relevant lease unless another systematic basis is more representative of the time pattern in which use benefit derived from the leased asset is diminished. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognised as an expense over the lease term on the same basis as the lease income. The accounting policy of rental income is set out in Note 2.11.

The Group as lessee

Rentals payable under operating leases are charged to income or expenditure on a straight-line basis over the term of the relevant lease unless another systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed. Contingent rentals arising under operating leases are recognised as an expense in the period in which they are incurred.

In the event that lease incentives are received to enter into operating leases, such incentives are recognised as a liability. The aggregate benefit of incentives is recognised as a reduction of rental expense on a straight-line basis, except where another systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed.

2.6 Property, plant and equipment

All items of property, plant and equipment are initially recorded at cost. Subsequent to recognition, property, plant and equipment are measured at cost less accumulated depreciation and any accumulated impairment losses.

Depreciation is computed on a straight-line basis over the estimated useful lives of the assets as follows:

Leasehold land	– Over the lease periods of 87 to 99 years
Buildings, structures, capital and other improvements	– 20 years
Office equipment, furniture and fittings	– 5 to 10 years
Laboratory and gardening equipment	– 7 years
Motor vehicles	– 8 to 10 years

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

2. Summary of significant accounting policies (cont'd)

2.6 Property, plant and equipment (cont'd)

Construction-in-progress included in property, plant and equipment is not depreciated as these assets are not available for use. These are carried at cost, less any recognised impairment loss.

The carrying amount of property, plants and equipment are reviewed for impairment when events or changes in circumstances indicate that the carrying amount may not be recoverable.

The estimated useful lives, residual values and depreciation method are reviewed at the end of each reporting period, with the effect of any changes in estimates accounted for on a prospective basis.

An item of property, plant and equipment is de-recognised upon disposal or when no future economic benefits are expected from its use or disposal. The gain or loss arising on disposal or retirement of an item of property, plant and equipment is determined as the difference between the sales proceeds and the carrying amounts of the asset and is recognised in income or expenditure.

2.7 Impairment of non-financial assets

At the end of each reporting period, the Group assesses whether there is any indication that an assets may be impaired. If any of such indication exists, or when an annual impairment testing for an asset is required, the Group makes an estimate of an assets recoverable amount.

An asset's recoverable amount is the higher of an asset's or cash-generating unit's fair value less costs of disposal and its value in use and is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. Where the carrying amount of an asset or cash-generating unit exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount. An impairment loss is recognised immediately as an expense.

Where an impairment loss subsequently reversed, the carrying amount of the asset (cash-generating unit) is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset (cash-generating unit) in prior years. A reversal of an impairment loss is recognised immediately as income.

2.8 Provisions

Provisions are recognised when the Group has a present obligation (legal or constructive) as a result of a past event, it is probable that the Group will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

The amount recognised as a provision is the best estimate of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation. Where a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows. If it is no longer probable that an outflow of economic resources will be required to settle the obligation, the provision is reversed. If the effect of the time value of money is material provisions and discounted using a current pre-tax rate that reflects, where appropriate, the risk specific to the liability when discounting is used, the increase in the provision due to the passage of time is recognised as a finance cost.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

2. Summary of significant accounting policies (cont'd)

2.9 Government grants

Government grants are not recognised until there is reasonable assurance that the Group will comply with the conditions attaching to them and the grants will be received. Government grants whose primary condition is that the Group should purchase, construct or otherwise acquire non-current assets are recognised as deferred capital grant in the statement of financial position and transferred to income or expenditure on a systematic and rational basis over the useful lives of the related assets. This treatment also applies to assets transferred from other government organisations and other donated assets.

Other government grants are recognised as income over the periods necessary to match them with the costs for which they are intended to compensate, on a systematic basis. Government grants that are receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the Group with no future related costs are recognised in income or expenditure in the period in which they become receivable.

The value of land at the Singapore Botanic Gardens and the Fort Canning Park that vested in NParks when it was established in June 1990 was taken to the deferred capital grants account. The value of all other assets net of liabilities transferred from the former Parks and Recreation Department of Ministry of National Development (PRD) to NParks in June 1990 and July 1996 amounting to \$4,528,275 was taken to the capital account.

2.10 Trust and agency funds

Trust and agency funds are set up to account for funds held in trust where NParks is not the owner and beneficiary of the funds received from the Government and other organisations. The receipts and expenditure in respect of agency funds are taken directly to the funds accounts and the net assets relating to the funds are shown as a separate line item in the statement of financial position. Trust and agency funds are accounted for on the accrual basis.

NParks administers the funds on behalf of the holders of these funds. Upon dissolution of these funds, the remaining moneys in these funds shall be returned to the owners of the funds.

2.11 Revenue recognition

Revenue is recognised to the extent that it is probable that the economic benefits will flow to the Group and the revenue can be reliably measured. Revenue is measured at the fair value of consideration received or receivable.

Rental income

Rental income receivable under operating leases is recognised in surplus or deficit on a straight-line basis over the term of the lease. Lease incentives granted are recognised as an integral part of the total rental income, over the term of the lease.

Admission charges

Admission charges are recognised upon the sale of admission tickets to visitors.

Agency fees

Where it is probable that the economic benefits will flow to the Group and the revenue and costs, if applicable, can be reliably measured, agency fees are recognised over the period in which the services are completed.

Plan fees

Plan fees are recognised over the period in which services are completed.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

2. Summary of significant accounting policies (cont'd)

2.11 Revenue recognition (cont'd)

Interest income

Interest income is accrued on a time basis, by reference to the principal outstanding and at the effective interest rate applicable.

Course fees

Course fees are recognised over the duration of the course.

Carpark income

Carpark income is recognised when transacted.

Miscellaneous income

Miscellaneous income comprising income derived from consultancy fees, sale of publications, souvenirs and orchid plantlets, and park usage and barbeque permit fees are recognised in the period in which they are earned. Liquidated damages are recognised as income when the right to claim such liquidated damages from contractors are established. Compensation collected from contractors whose work resulted in damage to trees and plants are recognised upon issuance of the notice of offence.

2.12 Retirement benefits costs

Payments to defined contribution plans are charged as an expense when employees have rendered the services entitling them to the contributions. Payments made to state-managed retirement benefit schemes, such as the Singapore Central Provident Fund, are dealt with as payments to defined contribution plans where the Group's obligations under the plans are equivalent to those arising in a defined contribution retirement benefit plan.

Defined benefit obligations due to pensionable officers are recognised in the statement of financial position in accordance with the Pensions Act (Cap. 225, 2004 Revised Edition). Provision for pension costs for eligible retired employees is estimated by management based on the most recent valuation performed once every three years by professional actuaries. For pension costs, the cost of providing benefits is determined using the projected unit credit method. Remeasurement, comprising actuarial gains and losses is reflected immediately in the statement of financial position with a charge or credit recognised in other comprehensive income in the period in which they occur.

Remeasurement recognised in other comprehensive income is reflected immediately in accumulated surplus and will not be reclassified to income or expenditure. Net interest is calculated by applying the discount rate at the beginning of the period to the net defined benefit liability or asset. Defined benefit costs are categorised as follows:

- Service cost (including current and past service cost);
- Net interest expense or income; and
- Remeasurement.

For all active members of the scheme, the "projected accrual benefit" is based on the scheme's accrual formula and upon service as of the valuation date, but using the employee's scheme salary, projected to the age at which the employee is assumed to leave active service. For inactive members, it is the total benefit. The defined benefit obligation/project benefit obligation/plan liability is the discounted present value of the "projected accrued benefits". The service cost is the corresponding value of benefits earned by active members over the year as a result of one more year of service.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

2. Summary of significant accounting policies (cont'd)

2.13 Employee leave entitlement

Employee entitlements to annual leave are recognised when they are accrued to employees. A provision is made for the estimated liability for annual leave as a result of services rendered by employees up to the end of the reporting period.

2.14 Contribution to consolidated fund

Under Section 13(1)(e) and the First Schedule of the Singapore Income Tax Act, Chapter 134, the income of the Group is exempt from income tax.

In lieu of income tax, NParks is required to make contribution to the Government Consolidated Fund in accordance with the Statutory Corporations (Contributions to Consolidated Fund) Act, Chapter 319A. The provision is based on the guidelines specified by the Ministry of Finance and is computed based on the net surplus of the Group for each of the financial year at the prevailing corporate tax rate for the Year of Assessment. Contribution to consolidated fund is provided for on an accrual basis.

2.15 Cash and cash equivalents

Cash and cash equivalents comprise cash at bank and deposits placed with the Accountant-General's Department ("AGD") that are readily convertible to a known amount of cash and are subject to an insignificant risk of changes in value.

2.16 Deferred revenue

Income from rental and lease premium received in advance are stated at initial amount less accumulated amortisation. Amortisation is calculated on a straight-line basis to reduce the initial amount over the lease term and is recognised in income or expenditure.

Income from plan fees received in advance is stated at initial amount collected and is recognised in income or expenditure over the period in which services are completed.

2.17 Contingencies

A contingent liability is:

- (a) a possible obligation that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group; or
- (b) a present obligation that arises from past events but is not recognised because:
 - (i) It is not probable that an outflow of resources embodying economic benefits will be required to settle the obligation; or
 - (ii) The amount of the obligation cannot be measured with sufficient reliability.

A contingent asset is a possible asset that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group.

Contingent liabilities and assets are not recognised on the balance sheet of the Group, except for contingent liabilities assumed in a business combination that are present obligations and which the fair values can be reliably determined.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

2. Summary of significant accounting policies (cont'd)

2.18 Funding for government projects

Government projects funded using NParks's accumulated surplus are considered distribution to owners. Accordingly, the amount are recognised directly in the statement of changes in equity.

2.19 Sinking fund

The sinking fund is designated to fund the future replacement and capital improvement of property, plant and equipment.

Funds are transferred from accumulated surplus to sinking fund upon receipt from MND. Upon utilisation for projects approved by the Board, these are transferred back to accumulated surplus.

3. Critical accounting judgements and key sources of estimation uncertainty

In the application of the Group's accounting policies, which are described in Note 2, management is required to make judgements, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

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

The Group did not make any material judgements that have significant effect on the amounts recognised in the financial statements.

Key sources of estimation uncertainty

The key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year, are discussed below:

Depreciation of and impairment loss on property, plant and equipment

The cost of property, plant and equipment are depreciated on a straight-line basis over their useful lives. The Group estimates the useful lives of these property, plant and equipment to be within 5 to 99 years, based on the estimated useful lives of the assets. The carrying amounts are disclosed in Note 10 of the financial statements. Changes in the expected level of usage, technological developments and economic conditions could impact the economic useful lives and the residual values of these assets, therefore future depreciation charges could be revised.

Impairment losses would be made for property, plant and equipment whenever there is objective evidence that the assets are impaired. The required level of impairment losses to be made is estimated by reference to the estimated value in use or price quotations from independent third parties.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

3. Critical accounting judgements and key sources of estimation uncertainty (cont'd)

Key sources of estimation uncertainty (cont'd)

Impairment loss on trade receivables

The Group evaluates whether there is any objective evidence that trade receivables are impaired and determines the amount of impairment loss as a result of the inability of the debtors to make required payments. The Group bases the estimates on the ageing of the trade receivables balance, credit-worthiness of the debtors and historical write-off experience. If the financial conditions of the debtors were to deteriorate, actual write-offs would be higher than estimated.

The carrying amount of the trade receivables for the Group and NParks as at 31 March 2018 are \$2,985,871 (2016/2017: \$3,954,841) and \$2,981,491 (2016/2017: \$3,954,841) respectively.

Provision of defined benefits obligations

The Group and the Singapore Government jointly finance the payment of gratuity, pension or allowance to pensionable officers at their retirement. The split of pension costs is determined based on the accumulated pensionable emoluments earned by the pensionable employee while in government services as compared with the employee's service with the Group up to retirement.

The valuation of the defined benefits obligations is determined using the projected unit credit method. The most recent full actuarial valuation of the defined benefits obligations was carried out as at 31 March 2016 in accordance with SB-FRS 19 *Employee Benefits*.

The assumptions which have the most significant effect on the results of the valuation are those relating to discount rate, future salary increase rate and post-retirement mortality. The assumptions used by the actuary are the best estimates chosen from a range of possible actuarial assumptions, which due to the timescale covered, may not necessarily borne out in practice. The present value of the liabilities is derived from cash flows projections over long periods and is inherently uncertain. Further details about the assumptions used are provided in Note 13.

4. Financial instruments, financial risks and capital risks management

(a) Categories of financial instruments

The following table sets out the financial instruments as at the end of the reporting period:

	<u>Group</u>		<u>NParks</u>	
	2017/2018	2016/2017	2017/2018	2016/2017
	\$	\$	\$	\$
Financial assets – loans and receivables				
Cash and cash equivalents (Note 6)	259,682,009	243,191,909	259,444,803	242,959,956
Trade receivables (Note 7)	2,985,871	3,954,841	2,981,491	3,954,841
Other receivables (Note 8)	4,167,660	8,779,793	4,190,963	8,797,403
	<u>266,835,540</u>	<u>255,926,543</u>	<u>266,617,257</u>	<u>255,712,200</u>
Financial liabilities at amortised cost				
Trade and other payables (Note 12)	<u>60,418,819</u>	<u>52,231,898</u>	<u>60,413,739</u>	<u>52,226,398</u>

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

4. Financial instruments, financial risks and capital risks management (cont'd)

(a) Categories of financial instruments (cont'd)

Fair value measurements are categorised into Level 1, 2 or 3 based on the degree to which the inputs to the fair value measurements are observable and the significance of the inputs to the fair value measurement in its entirety, which are described as follows:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at the measurement date;
- Level 2 inputs are inputs, other than quoted prices included within Level 1, that are observable for the asset or liability, either directly or indirectly; and
- Level 3 inputs are unobservable inputs for the asset or liability.

There is no transfers between level 1, 2 and 3 of the fair value hierarchy during the financial year.

Fair value of financial assets and financial liabilities that are not carried at fair value and whose carrying amounts are reasonable approximation of fair value

The carrying amounts of cash and cash equivalents, receivables, payables, approximate their respective fair values due to the relatively short-term maturity of these financial instruments.

The carrying amount of long-term trade receivable approximate fair value as the interest rates is at the current market level.

(b) Financial risk management policies and objectives

The Group is exposed to financial risk arising from its operations which include interest rate risk, credit risk and liquidity risk. The Group has written policies and guidelines, which set out its general risk management framework as discussed below.

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

(i) Interest rate risk management

The Group's exposure to changes in interest rates relates primarily to fixed deposits and non-current trade receivables. Surplus funds in NParks are placed with Accountant-General's Department ("AGD") as disclosed in Note 6. Other than funds placed with AGD and non-current trade receivable with fixed interest rate as disclosed in Note 7, there are no other significant interest-bearing assets or interest-bearing liabilities as at the end of the reporting period.

Interest rate sensitivity analysis has not been presented as management does not expect any reasonable possible changes in interest rates to have a significant impact on the Group's operations and cash flows.

(ii) Credit risk management

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in financial loss to the Group.

Credit risks, or the risk of counterparties defaulting, are controlled by the application of regular monitoring procedures. Except for receivables due from MND and other government agencies, there is no significant concentration of credit risk. The extent of the Group's credit exposure is represented by the aggregate balance of financial assets at the end of each reporting period.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

4. Financial instruments, financial risks and capital risks management (cont'd)

(b) Financial risk management policies and objectives (cont'd)

(iii) Liquidity risk management

Liquidity risk arises in the general funding of the Group's operating activities. It includes the risks of not being able to fund operating activities in a timely manner. To manage liquidity risk, the Group places majority of its surplus funds with the Accountant-General's Department which are readily available where required.

Analysis of financial instruments by remaining contractual maturities

The table below summarises the maturity profile of the Group's and NParks's financial assets and liabilities at the end of the reporting period based on contractual undiscounted repayment obligations.

	2017/2018 \$			
Group	Less than one year	One to five years	Over five years	Total
Financial assets:				
Cash and cash equivalents	259,682,009	-	-	259,682,009
Trade receivables	1,977,871	999,200	175,960	3,153,031
Other receivables	4,167,660	-	-	4,167,660
Total undiscounted financial assets	265,827,540	999,200	175,960	267,002,700
Financial liabilities:				
Trade and other payables	60,418,819	-	-	60,418,819
Total undiscounted financial liabilities	60,418,819	-	-	60,418,819
Total net undiscounted financial assets/(liabilities)	205,408,721	999,200	175,960	206,583,881

	2016/2017 \$			
Group	Less than one year	One to five years	Over five years	Total
Financial assets:				
Cash and cash equivalents	243,191,909	-	-	243,191,909
Trade receivables	2,778,841	1,039,000	359,880	4,177,721
Other receivables	8,779,793	-	-	8,779,793
Total undiscounted financial assets	254,750,543	1,039,000	359,880	256,149,423
Financial liabilities:				
Trade and other payables	52,231,898	-	-	52,231,898
Total undiscounted financial liabilities	52,231,898	-	-	52,231,898
Total net undiscounted financial assets/(liabilities)	202,518,645	1,039,000	359,880	203,917,525

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

4. Financial instruments, financial risks and capital risks management (cont'd)

(b) Financial risk management policies and objectives (cont'd)

(iii) Liquidity risk management (cont'd)

Analysis of financial instruments by remaining contractual maturities (cont'd)

	2017/2018 \$			
NParks	Less than one year	One to five years	Over five years	Total
Financial assets:				
Cash and cash equivalents	259,444,803	-	-	259,444,803
Trade receivables	1,973,491	999,200	175,960	3,148,651
Other receivables	4,190,963	-	-	4,190,963
Total undiscounted financial assets	265,609,257	999,200	175,960	266,784,417
Financial liabilities:				
Trade and other payables	60,413,739	-	-	60,413,739
Total undiscounted financial liabilities	60,413,739	-	-	60,413,739
Total net undiscounted financial assets/(liabilities)	205,195,518	999,200	175,960	206,370,678

	2016/2017 \$			
NParks	Less than one year	One to five years	Over five years	Total
Financial assets:				
Cash and cash equivalents	242,959,956	-	-	242,959,956
Trade receivables	2,778,841	1,039,000	359,880	4,177,721
Other receivables	8,797,403	-	-	8,797,403
Total undiscounted financial assets	254,536,200	1,039,000	359,880	255,935,080
Financial liabilities:				
Trade and other payables	52,226,398	-	-	52,226,398
Total undiscounted financial liabilities	52,226,398	-	-	52,226,398
Total net undiscounted financial assets/(liabilities)	202,309,802	1,039,000	359,880	203,708,682

(c) Capital risk management policies and objectives

The Group manages its capital to ensure that it will be able to continue as a going concern while fulfilling its objective as a statutory board.

The capital structure of the Group consists of accumulated surplus, capital account, sinking fund and share capital. The overall strategy of the Group remains unchanged from the previous financial year.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

5. Related party transactions

Some of the Group's transactions and arrangements are with related parties and the effect of these on the basis determined between the parties is reflected in these financial statements. The balances are unsecured, interest-free and repayable on demand unless otherwise stated.

The Group and NParks entered into the following significant transactions with its parent Ministry, MND, and other related parties during the year:

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
MND		
Revenue collected on behalf	33,496,785	33,151,811
Development expenditure paid on behalf		
– Gardens by the Bay	1,766,154	13,325,925
– Other state projects	134,139,517	88,361,011
Other Ministries and Statutory Boards		
Expenses paid on behalf of other statutory boards	15,880,742	16,964,767
Garden City Fund		
Expenses paid on behalf	2,592,004	3,279,990
Gardens by the Bay		
Expenses paid on behalf	159,777	337,475

Compensation of key management personnel

The remuneration of key management personnel during the financial year were as follows:

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Salaries and other short-term employee benefits	1,936,956	1,805,151
Post-employment benefits	58,538	60,870

6. Cash and cash equivalents

	Group		NParks	
	2017/2018	2016/2017	2017/2018	2016/2017
	\$	\$	\$	\$
Cash at bank	237,206	231,953	–	–
Deposits with AGD ⁽ⁱ⁾	259,444,803	242,959,956	259,444,803	242,959,956
	259,682,009	243,191,909	259,444,803	242,959,956

⁽ⁱ⁾ With effect from financial year 2009/2010, Statutory Boards were to participate in the Centralised Liquidity Management by the Accountant General's Department ("AGD") under AGD Circular 4/2009. Deposits are centrally managed by AGD, available to the statutory board upon request and earns interest at the average rate of 1.23% (2016/2017: 1.37%) per annum.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

7. Trade receivables

	Group		NParks	
	2017/2018	2016/2017	2017/2018	2016/2017
	\$	\$	\$	\$
Not past due and not impaired	1,937,218	2,473,134	1,932,838	2,473,134
Past due but not impaired ⁽ⁱ⁾ :	1,048,653	1,481,707	1,048,653	1,481,707
< 1 months	21,006	290,779	21,006	290,779
1 months to 4 months	9,731	11,450	9,731	11,450
> 4 months	1,017,916	1,179,478	1,017,916	1,179,478
Impaired receivables	1,380,000	1,610,000	1,380,000	1,610,000
Less: Allowance for impairment	(1,380,000)	(1,610,000)	(1,380,000)	(1,610,000)
Total	2,985,871	3,954,841	2,981,491	3,954,841
Represented by:				
Current portion	1,977,871	2,778,841	1,973,491	2,778,841
Non-current portion	1,008,000	1,176,000	1,008,000	1,176,000
Total	2,985,871	3,954,841	2,981,491	3,954,841

The credit period on rendering of services is 30 days (2016/2017: 30 days). Other than non-current receivables which interest is charged at 2%, no interest is charged on the trade receivables and no collateral is held by the Group over the trade receivables.

⁽ⁱ⁾ No allowance has been made on these receivables as management believes that there has not been significant change in credit quality and the amounts are still considered recoverable.

Majority of the Group's receivables that are neither past due nor impaired are creditworthy counterparties with good track record of credit history. Except for the non-current trade receivables, there are no customers who represent more than 5% of the total balance of trade receivables.

In determining the recoverability of a receivable, the Group considers any change in the credit quality of the receivable from the date credit was initially granted up to the reporting date. Credit risk is limited due to management's on-going evaluation of the creditworthiness of the Group's customers and that majority of the Group's trade receivables are within their expected cash collection cycle.

Movement in the allowance for doubtful debts

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Balance at beginning of the year	1,610,000	1,840,000
Decrease in allowance recognised in income or expense	(230,000)	(230,000)
Balance at end of the year	1,380,000	1,610,000

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

8. Other receivables

	Group		NParks	
	2017/2018	2016/2017	2017/2018	2016/2017
	\$	\$	\$	\$
Other receivables				
– MND ⁽ⁱ⁾	1,467,445	4,113,996	1,467,445	4,113,996
– Garden City Fund ⁽ⁱⁱ⁾	360,755	1,752,811	360,755	1,752,811
– Gardens by the Bay ⁽ⁱⁱ⁾	12,295	92,457	12,295	92,457
– Other receivables	603,934	527,170	627,487	545,030
Interest receivable	1,476,261	2,009,189	1,476,261	2,009,189
Prepayments	3,454,601	3,092,835	3,451,910	3,092,835
Deposits	246,970	284,170	246,720	283,920
	<u>7,622,261</u>	<u>11,872,628</u>	<u>7,642,873</u>	<u>11,890,238</u>

Notes

- (i) Receivables from Ministry of National Development comprise mainly direct development and operating grants receivable by NParks. These amounts are unsecured and interest-free, and are repayable on demand.
- (ii) Non-trade amounts due from Garden City Fund and Gardens by the Bay are unsecured and interest-free, and are repayable on demand.

9. Investment in subsidiary

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Unquoted equity investment, at cost	<u>2</u>	<u>2</u>

Details of the subsidiary at the end of the reporting period are as follows:

Name of subsidiary	Principal activities	Place of Incorporation and business	Proportion of ownership interest and voting power held	
			2017/2018 %	2016/2017 %
Singapore Garden City Pte. Ltd. ^(a)	Landscape planning, advisory services and business consulting services	Singapore	100	100

^(a) Audited by Kong, Lim & Partners LLP.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

10. Property, plant and equipment

Group and NParks	Leasehold land \$	Building, structures, capital and other improvements \$	Office equipment, furniture and fittings \$	Motor vehicles \$	Laboratory and gardening equipment \$	Construction- in-progress \$	Total \$
Cost							
At 1 April 2016	61,501,429	152,284,917	43,645,351	1,505,066	1,281,453	2,535,418	262,753,634
Additions	3,957,325	–	2,380,273	36,600	106,778	6,010,246	12,491,222
Transfer	–	2,206,993	4,086,506	–	58,711	(6,352,210)	–
Disposals	–	(1,087,500)	(333,654)	(137,441)	(6,500)	–	(1,565,095)
At 31 March 2017 and 1 April 2017	65,458,754	153,404,410	49,778,476	1,404,225	1,440,442	2,193,454	273,679,761
Additions	–	–	1,924,220	65,594	100,053	14,691,419	16,781,286
Transfer	–	2,516,065	3,798,999	–	–	(6,315,064)	–
Disposals	–	(4,134,689)	(8,707,267)	(24,130)	(58,814)	–	(12,924,900)
At 31 March 2018	65,458,754	151,785,786	46,794,428	1,445,689	1,481,681	10,569,809	277,536,147
Accumulated depreciation							
At 1 April 2016	13,512,588	101,932,337	29,870,168	772,690	864,777	–	146,952,560
Depreciation	751,506	6,408,434	4,723,007	135,304	113,787	–	12,132,038
Disposals	–	(926,810)	(299,822)	(132,934)	(6,500)	–	(1,366,066)
At 31 March 2017 and 1 April 2017	14,264,094	107,413,961	34,293,353	775,060	972,064	–	157,718,532
Depreciation	791,129	6,153,180	4,110,276	128,783	129,631	–	11,312,999
Disposals	–	(3,598,037)	(8,688,468)	(21,693)	(58,814)	–	(12,367,012)
At 31 March 2018	15,055,223	109,969,104	29,715,161	882,150	1,042,881	–	156,664,519
Carrying amount							
At 31 March 2017	<u>51,194,660</u>	<u>45,990,449</u>	<u>15,485,123</u>	<u>629,165</u>	<u>468,378</u>	<u>2,193,454</u>	<u>115,961,229</u>
At 31 March 2018	<u>50,403,531</u>	<u>41,816,682</u>	<u>17,079,267</u>	<u>563,539</u>	<u>438,800</u>	<u>10,569,809</u>	<u>120,871,628</u>

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

11. Government grants received in advance (receivable)

Group and NParks	Operating grants ⁽ⁱ⁾ \$	Capital grants \$	Development grants ⁽ⁱⁱ⁾ \$	Other grants ⁽ⁱⁱⁱ⁾ \$	Total \$
At 1 April 2016	8,820,999	26,848	1,748,562	(2,071,032)	8,525,377
Grants received during the financial year	253,794,411	1,100,000	101,710,340	4,157,130	360,761,881
Interest income earned	–	4,753	21,706	–	26,459
Transfer to deferred capital grants (Note 16)	(5,972,939)	(612,045)	(262,865)	(392,000)	(7,239,849)
Unutilised grants returned	–	–	–	(10,910)	(10,910)
Payment on behalf	–	–	(101,686,936)	–	(101,686,936)
Transfer to statement of comprehensive income	(248,495,313)	–	–	(3,855,111)	(252,350,424)
At 31 March 2017 and 1 April 2017	8,147,158	519,556	1,530,807	(2,171,923)	8,025,598
Grants received during the financial year	271,741,546	1,645,044	135,568,636	5,807,261	414,762,487
Grants receivable	–	–	–	(176,155)	(176,155)
Interest income (adjusted) earned	–	(7,973)	18,229	–	10,256
Transfer to deferred capital grants (Note 16)	(11,006,349)	(1,945,510)	(75,274)	(21,851)	(13,048,984)
Unutilised grants returned	(104,156)	–	–	(85,571)	(189,727)
Payment on behalf	–	–	(135,905,671)	–	(135,905,671)
Transfer to statement of comprehensive income	(256,546,780)	–	–	(2,868,693)	(259,415,473)
At 31 March 2018	12,231,419	211,117	1,136,727	483,068	14,062,331

Notes

- ⁽ⁱ⁾ Total operating grants received/receivable less transferred to deferred capital grants since establishment are \$2,971,456,516 (2016/2017: \$2,710,721,319).
- ⁽ⁱⁱ⁾ Development grants received from MND for State projects running by NParks on behalf of MND.
- ⁽ⁱⁱⁱ⁾ Other grants comprise grants received from other government agencies.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

12. Trade and other payables

	Group		NParks	
	2017/2018 \$	2016/2017 \$	2017/2018 \$	2016/2017 \$
Trade payables	12,283,292	12,601,264	12,283,292	12,601,264
Other payables				
– MND ⁽ⁱ⁾	3,431,099	3,557,746	3,431,099	3,557,746
– Garden City Fund ⁽ⁱⁱ⁾	53,577	17,442	53,577	17,442
– Others	16,586,721	10,115,172	16,586,721	10,115,172
GST payable	3,181,236	2,690,481	3,181,236	2,688,373
Rental and other deposits	12,958,497	10,759,370	12,958,497	10,759,370
Accrual expenses	15,105,633	15,180,904	15,100,553	15,175,404
	63,600,055	54,922,379	63,594,975	54,914,771

⁽ⁱ⁾ Payables to Ministry of National Development comprise primarily state revenue collections received on behalf of the Ministry. The amounts are unsecured and interest-free, and are repayable in cash on demand.

⁽ⁱⁱ⁾ Non-trade amounts due to Garden City Fund are unsecured and interest-free.

13. Provision for pension costs

	Group and NParks	
	2017/2018 \$	2016/2017 \$
At beginning of the year	3,439,672	5,294,372
Provision for the year	126,216	156,350
Payments during the year	(120,000)	(2,011,050)
At end of the year	3,445,888	3,439,672
Represented by:		
Current portion	1,871,099	120,000
Non-current portion	1,574,789	3,319,672
	3,445,888	3,439,672

Amounts recognised in income or expenditure in respect of the defined benefit plan are as follows:

	Group and NParks	
	2017/2018 \$	2016/2017 \$
Interest cost	75,451	95,532
Service cost	50,765	60,818
Total	126,216	156,350

The provision has been estimated by management based on the most recent valuation of the pension scheme performed by an independent firm of professional actuaries.

The principal assumptions used by the professional actuaries in determining the pension costs were as follows:

	2017/2018 %	2016/2017 %
Discount rate	2.2	2.2
Salary increase rate	3.0	3.0

Assumptions regarding future mortality are based on published statistics and mortality tables.

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

13. Provision for pension costs (*cont'd*)

The sensitivity analysis below has been determined based on reasonably possible changes of each significant assumption on the defined benefit obligation as of the end of the reporting period, assuming if all other assumptions were held constant:

		Impact on provision for pension costs	
	Change in assumption	Increase in assumption \$	Decrease in assumption \$
Discount rate	0.25%	(20,106)	52,111
Salary increase rate	0.25%	29,112	1,832

14. Deferred revenue

	Group		NParks	
	2017/2018 \$	2016/2017 \$	2017/2018 \$	2016/2017 \$
Lease premium received in advance	1,215,278	1,298,611	1,215,278	1,298,611
Deferred rental income	2,688,000	2,856,000	2,688,000	2,856,000
Plan fees received in advance	960,400	832,700	960,400	832,700
Other income received in advance	336,429	137,249	336,429	128,557
	5,200,107	5,124,560	5,200,107	5,115,868
Represented by:				
Current portion	2,746,762	2,460,082	2,746,762	2,451,390
Non-current portion	2,453,345	2,664,478	2,453,345	2,664,478
	5,200,107	5,124,560	5,200,107	5,115,868

The lease premium received in advance represents the unamortised balances of lease premium received in advance from a tenant.

15. Contribution to consolidated fund

With effect from 1 April 2003, NParks is required to make contribution to the Government Consolidated Fund in accordance with the Statutory Corporations (Contributions to Consolidated Fund) Act, Chapter 319A. The provision is based on the guidelines specified by the Ministry of Finance. It is computed based on the net surplus of NParks for each of the financial year at the prevailing corporate tax rate for the Year of Assessment. Contribution to consolidated fund is provided for on an accrual basis.

16. Deferred capital grants

	Group and NParks	
	2017/2018 \$	2016/2017 \$
Balance at the beginning of the financial year	109,408,827	114,035,038
Amounts transferred from Government grants (Note 11)	13,048,984	7,239,849
Amounts transferred from Garden City Fund	168,733	–
	122,626,544	121,274,887
Less: Amortisation of deferred capital grants	(11,158,802)	(11,866,060)
Balance at the end of the financial year	111,467,742	109,408,827
Total capital grants received (excluding grants-in-kind transferred from Garden City Fund) and utilised since establishment	260,363,216	247,314,232

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

17. Capital account

Capital account represents the value of assets net of liabilities (excluding the leasehold land acquired via Government capital grants) transferred from the former Parks and Recreation Department ("PRD") of MND when NParks was established in June 1990 and when PRD merged with NParks in July 1996.

18. Share capital

	2017/2018 Number of Shares	2016/2017 \$	2017/2018 \$	2016/2017 \$
Issued and fully paid up:				
At the beginning of the year	1,032,800	191,000	1,032,800	191,000
Equity injection ⁽ⁱ⁾	1,925,295	841,800	1,925,295	841,800
At the end of the year	2,958,095	1,032,800	2,958,095	1,032,800

⁽ⁱ⁾ Injection of capital is part of the Capital Management Framework for Statutory Boards under Finance Circular Minute M26/2008. The shares have been fully paid and are held by the Minister for Finance, a body corporate incorporated by the Minister for Finance (Incorporation) Act (Chapter 183). The holder of these shares, which has no par value, is entitled to receive dividends.

19. Sinking fund

Operating grant not utilised for capital assets is recognised in the income and expenditure when the funds are received from MND. Upon designation of the operating grant as sinking fund to fund future replacement and capital improvement of property, plant and equipment, the amount is transferred from accumulated surplus to sinking fund. Upon utilisation for projects approved by the Board, the sinking fund is reduced.

20. Net assets of Garden City Fund

National Parks Board ("NParks") is the trustee of Garden City Fund ("GCF"). GCF is managed and administered by the Garden City Fund Management Committee, comprising staff from NParks and members of the public appointed by NParks, in accordance with the provisions of the Garden City Fund Trust Deed dated 10 March 2016 (the "Deed").

The GCF comprises the Garden City Endowment Fund ("GCEF") and the Garden City Non-Endowment Fund ("GCNEF"). The GCNEF comprises all moneys transferred from the specific funds of NParks upon the formation of the Garden City Fund on 1 July 2002 and all other contributions to the GCNEF. There has been no contribution to the GCEF since establishment.

The GCNEF and the income from the GCEF will be used to further the objectives of the Garden City Fund.

The objectives of GCF are exclusively to enhance the enjoyment of the Garden City, for amenities and special features at the national parks, nature reserves and green areas in Singapore and also for community activities and programmes that promote awareness of nature, art and culture, conservation, research and education and, through involving the citizens to enhance ownership of the Garden City, facilitating a sense of rootedness to the nation.

Upon dissolution of the Garden City Fund, the remaining moneys in the fund shall be donated to charitable organisations which have been designated as Institutions of a Public Character under the Income Tax Act (Chapter 134) and registered under the Charities Act (Chapter 37).

GCF' accounts are prepared in accordance with Financial Reporting Standards in Singapore ("FRS").

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

20. Net assets of Garden City Fund (cont'd)

The following financial information represents GCNEF. There has been no contribution to the GCEF since establishment.

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Income:		
Donations	2,933,224	4,199,701
Sales of publications/souvenirs/merchandise	67,158	79,998
Course/tour fees	95,306	127,986
Interest income	90,303	119,699
Exchange gain	-	2,126
Other income	4,566	17,667
	<u>3,190,557</u>	<u>4,547,177</u>
Amounts disbursed for:		
Costs of charitable activities:		
Conservation projects	80,841	97,285
Enhancements of parks, gardens and facilities	3,168,016	2,695,540
Outreach, education and research programmes	2,177,160	4,041,768
Publication	8,708	106,202
Depreciation of property, plant and equipment	51,431	53,879
Loss on disposal of plant and equipment	11,712	-
Administrative costs	-	8,301
	<u>5,497,868</u>	<u>7,002,975</u>
Deficit for the year	<u>(2,307,311)</u>	<u>(2,455,798)</u>
Deficit for the year	(2,307,311)	(2,455,798)
Accumulated fund at beginning of the year	11,982,668	14,438,466
Accumulated fund at end of the year	<u>9,675,357</u>	<u>11,982,668</u>
Represented by:		
Current assets		
Cash and cash equivalents	23,236,516	25,956,998
Other receivables	80,270	47,556
	<u>23,316,786</u>	<u>26,004,554</u>
Non-current assets		
Plant and equipment	<u>320,653</u>	<u>242,647</u>
Current liabilities		
Trade payables	106,123	109,808
Other payables	883,495	1,827,189
Deferred donations	12,972,464	12,327,536
	<u>13,962,082</u>	<u>14,264,533</u>
Net assets	<u>9,675,357</u>	<u>11,982,668</u>

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

21. Net assets of National Productivity Fund

NParks also administers the following fund on behalf of the Productivity Fund Administration Board.

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Grants received	1,829,631	1,729,617
Interest income	35	-
Less: Expenditure	(1,966,356)	(1,204,217)
Staff related cost	(261,196)	(239,980)
General administration	(126,360)	(52,737)
Grant disbursement	(1,578,800)	(911,500)
Less: Return of funds	(166,591)	-
(Deficit)/surplus for the year	<u>(303,281)</u>	<u>525,400</u>
Accumulated fund/(deficit) at beginning of the year	382,766	(142,634)
Accumulated fund at end of the year	<u>79,485</u>	<u>382,766</u>
Represented by:		
Cash and bank balances	166,895	505,614
Accruals	(87,410)	(122,848)
Net assets	<u>79,485</u>	<u>382,766</u>

22. Miscellaneous income

	Group		NParks	
	2017/2018	2016/2017	2017/2018	2016/2017
	\$	\$	\$	\$
Liquidated damages	179,246	312,954	179,246	312,954
Composition amount	23,695	34,628	23,695	34,628
Barbeque permit fees	382,853	392,834	382,853	392,834
Park usage fees	191,976	576,557	191,976	576,557
Consultancy fees	60,052	94,898	12,500	12,500
Tour fees	58,122	59,813	58,122	59,813
Events Income	6,326	287,742	6,326	287,742
Merchandise	75,166	65,034	75,166	65,034
Publication and plant sales	133,904	146,265	133,904	146,265
Others	1,289,112	693,676	1,288,304	710,369
	<u>2,400,452</u>	<u>2,664,401</u>	<u>2,352,092</u>	<u>2,598,696</u>

23. Staff costs

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Wages and salaries	87,561,390	81,278,684
Contributions to defined contribution plans	13,191,036	12,409,082
Pension costs (Note 13)	126,216	156,350
Other staff benefits	1,649,603	1,355,485
	<u>102,528,245</u>	<u>95,199,601</u>

There are currently 3 (2016/2017: 3) employees of NParks who are eligible under this pension schemes other than the Central Provident Fund (Note 13).

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

24. Deficit from operations

The following item has been included in arriving at deficit from operations:

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Loss on disposal of property, plant and equipment	556,602	154,746

25. Funding for government projects

During the financial year ended 31 March 2018, \$7,900,017 (2016/2017: \$2,998,605) was incurred to fund the capital expenditure for government projects, namely, the Kranji Marshes, Jacob Ballas Children Gardens Extension and Gallop House projects (2016/2017: Kranji Marshes, Jacob Ballas Children Gardens Extension and Gallop House projects).

As these projects were funded using NParks's accumulated surplus, they are considered distribution to owners. Accordingly, the amounts are recognised directly in the statement of changes in equity.

26. Operating leases arrangements

As lessee

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Minimum lease payments under operating lease included as an expense	1,787,058	1,853,208

The future aggregate minimum lease payments under non-cancellable operating leases contracted for at the reporting date but not recognised as liabilities as at 31 March 2018 with related parties are as follows:

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Within one year	1,659,168	1,853,208
In the second to fifth year inclusive	3,318,336	-
	4,977,504	1,853,208

As lessor

The Group rented out its properties under operating leases. Rental income earned during the year was \$9,732,140 (2016/2017: \$9,863,972).

The future aggregate minimum lease receivables under non-cancellable operating leases contracted for at the reporting date but not recognised as at 31 March 2018 are as follows:

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Within one year	6,599,487	6,452,966
In the second to fifth year inclusive	13,480,442	15,826,203
After five years	27,600,000	30,480,000
	47,679,929	52,759,169

The above amounts exclude operating lease premium received in advance of \$1,215,278 (2016/2017: \$1,298,611) (Note 14).

NOTES TO THE FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR ENDED 31 MARCH 2018

26. Operating leases arrangements (cont'd)

At the end of the reporting period, NParks has outstanding commitments under non-cancellable operating leases with a related party, which fall due as follows:

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Within one year	-	1,048,000
In the second to fifth year inclusive	-	4,192,000
After five years	-	917,000
	-	6,157,000

The operating lease with a related party was mutually agreed for termination on 14 February 2018.

27. Capital commitments

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Contracted but not provided for	217,722,500	163,768,807
Less: Development expenditure on behalf of government	(192,445,933)	(160,103,485)
	25,276,567	3,665,322
Authorised but not contracted for	411,574,116	508,064,955
Less: Development expenditure on behalf of government	(374,559,449)	(487,334,180)
	37,014,667	20,730,775
	62,291,234	24,396,097

NParks is the agent to develop, upgrade, manage and maintain the public parks on behalf of the government. Amount contracted but not provided for comprise mainly work relating to parks development, park connector network and round island route and amount authorised but not contracted for comprise mainly work relating to parks development, park connector network and round island route.

28. Contingent liabilities

At the reporting date, there were the following contingent liabilities relating to various claims that have been made against the Group and NParks in respect of third parties damages. These claims have been referred to the insurers for their assessments.

	Group and NParks	
	2017/2018	2016/2017
	\$	\$
Claims not provided for	5,737,936	3,607,001

29. Authorisation of financial statements for issue

The financial statements for the financial year ended 31 March 2018 were authorised for issue by the members of the Group on 16 July 2018.

FRONT COVER

Learning Forest at the Singapore Botanic Gardens

INTRODUCTION

Page 2

Bougainvillea Garden at East Coast Park

CHAPTER DIVIDERS

Page 12 – Extending Infrastructure

Visitors can learn about the rich historical and cultural significance of Fort Canning Park while soaking in the verdant greenery of this 18-ha green space in the city.

Page 20 – Enriching Biodiversity

In January 2018, a rescued Hawksbill Sea Turtle hatchling was rehabilitated and successfully released back into the wild.

Page 30 – Engaging Communities

NParks adopts a variety of tools, like interactive plays, activity books and on-site visits, to rouse the innate curiosity children have about the plants and animals around them.

Page 40 – Enhancing Competencies

The therapeutic garden at Bishan-Ang Mo Kio Park provides respite for visitors, with the objective of improving their mental well-being.

WE THANK STAFF AND PARTNERS OF NPARKS WHO KINDLY CONTRIBUTED PHOTOS TO THIS ANNUAL REPORT

Andrew Bi: Page 12

Urban Redevelopment Authority: Page 16, artist's impression of the Rail Corridor

Khafizah Mustafah: Page 18, photo of Trumpet Trees along Jalan Ahmad Ibrahim

Ong Kim Liap: Page 18, photo of roadside planting along expressway

Patrick Bingham-Hall: Page 19, photo of Kampung Admiralty

Jeanice Aw: Page 23, photo of children in the mangroves in Pasir Ris Park

Wong Yeang Cherng: Page 23, photo of nocturnal mammal survey on Pulau Ubin

Khew Sin Khoon: Page 27, photo of Common Grass Yellow (*Eurema hecabe contubernalis*)

Robin Ngiam: Page 27, photo of Sapphire Flutterer (*Rhyothemis triangularis*)

Dr Yam Tim Wing: Page 28, photo of *Acriopsis ridleyi*

Chui Shao Xiong: Page 28, photo of *Ceratina sayang*

Daniel Ng: Page 29, photo of Singapore Freshwater Crab (*Johora singaporensis*)

Alex Figueroa: Page 29, photo of Cinnamon Bush Frog (*Nyctixalus pictus*)

Collin Ng: Page 29, photo of Hawksbill Sea Turtle (*Eretmochylus imbricate*)

Ang Wee Foong: Page 29, photo of Climbing Pandan (*Frecinetia javanica*)

Ministry of Foreign Affairs, Singapore: Page 33, photo of Prime Minister Lee Hsien Loong and NParks CEO Kenneth Er

Koh Meng Hua Lester: Page 42, photo of rooftop greenery at Dawson

OCBC Bank: Page 48, photo of OCBC Bank volunteers at Coney Island Park

Tote Board: Page 49, photo of NParks staff with seniors in Therapeutic Garden at HortPark.

LJCP Photography: Page 50, photo of performer at the Concert Series in the Park: Rockestra®

Ernest Heng: Page 50, photo of HSBC staff propagating coral nubbins

Peh Siong San: Page 56

Visit

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to find out more about activities in the parks and gardens.



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