

SHAPING A GREENER FUTURE

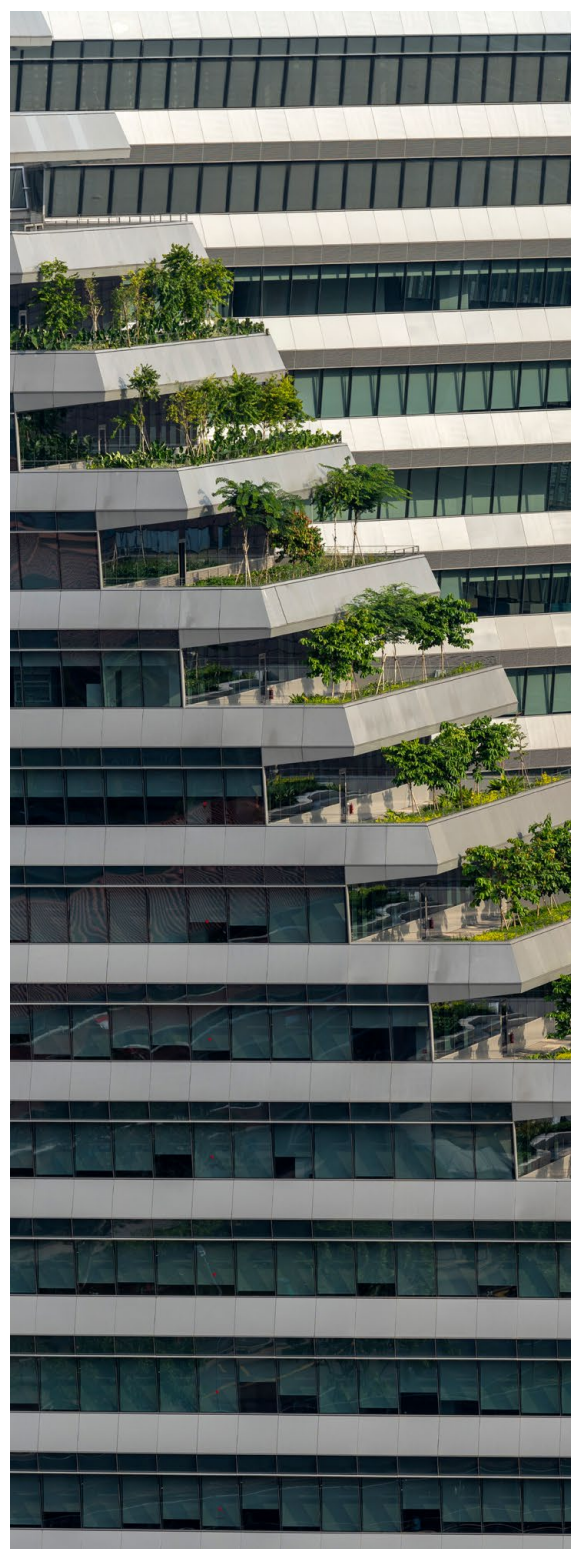
JTC SUSTAINABILITY REPORT FY2023



BUILDING INDUSTRIES

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Message From Our Chief Executive Officer

GRI 2-22

JTC is proud to present our third sustainability report, affirming our unwavering commitment to sustainability, and embedding sustainability at the core of our functions. In this report, we highlight our continued efforts in shaping a greener future for industries. Our journey also supports the Singapore Government's sustainability ambitions, including the Whole-of-Government (WOG) net zero targets and the GreenGov.SG initiative.

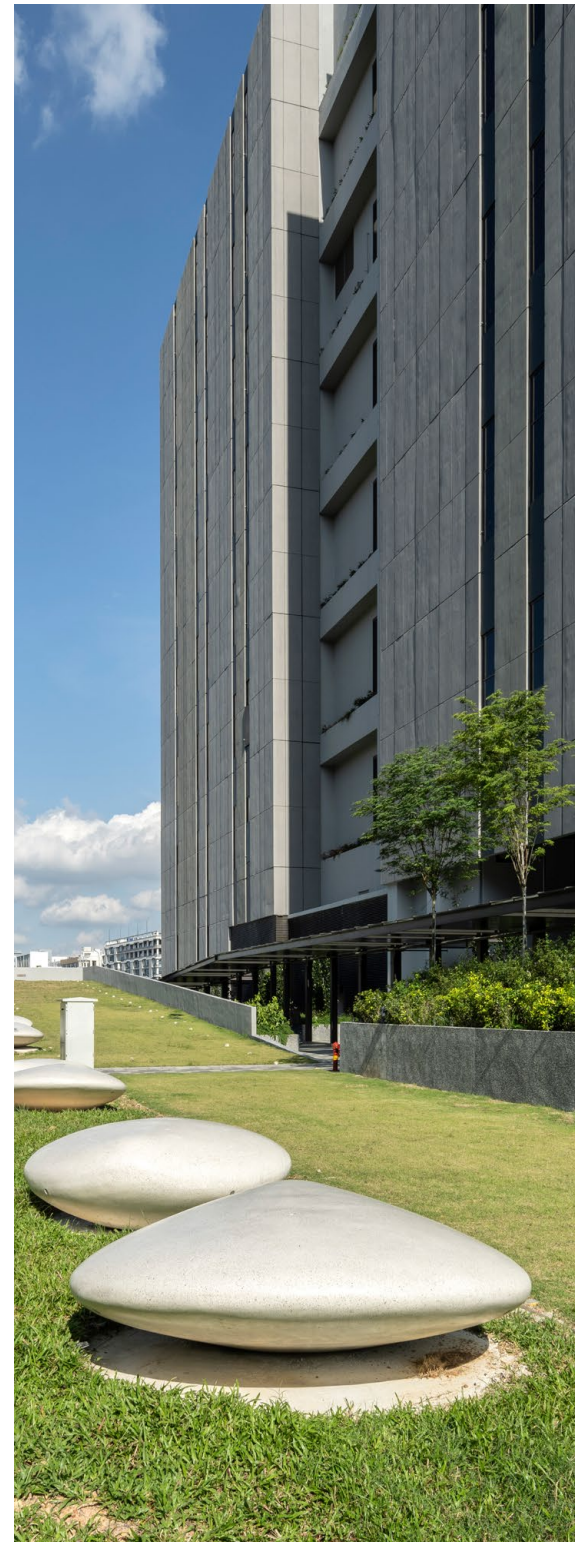
At JTC, our vision is clear: to create sustainable, resilient, and low-carbon industrial estates that support the future of Singapore's industries while fostering environmental stewardship.

Over the years, we have refined our sustainability strategy to address the evolving challenges and opportunities presented by the built environment. Our sustainability framework, initially structured around four key focus areas – planning and design, construction, operation and maintenance, and rejuvenation – has since evolved. In FY2023, we introduced initiatives and placed greater emphasis on lessee and tenant management, recognising that enabling and facilitating our customers' pursuit of their own sustainability goals will henceforth be a key part of our mission towards achieving greater sustainability for Singapore. We believe that such an effort will help to drive the collective and holistic effort to decarbonise our industrial estates, and support Singapore's broader environmental targets.

GreenGov.SG initiatives play a critical part in our sustainability mission, and we are committed to contributing to the public sector's sustainability goals. Through our actions, we continue to integrate sustainability across our business value chain. A few highlights of our initiatives and achievements in this space include:

Mass Engineered Timber (MET) Building at PDD

This year, JTC completed Singapore's tallest timber industrial building, which sets a new standard for low-carbon construction. With an embodied carbon footprint 98% lower than the BCA Green Mark 2021 reference value, this building is a pioneering example of sustainable design and construction.



Singapore Building Carbon Calculator (SBCC)

We also launched the SBCC, Singapore's first localised web-based embodied carbon calculator. This tool has become the industry standard for embodied carbon calculations, supporting the BCA Green Mark 2021 Whole Life Carbon assessment.

Adaptive Reuse at Kolam Ayer Industrial Estate

We introduced the first Industrial Government Land Sales (IGLS) site with adaptive reuse requirements, demonstrating our commitment to reducing waste and maximising the lifespan of existing infrastructure.

These achievements are just a few examples of how JTC is driving innovation and decarbonisation in the built environment. As we look to the future, we remain steadfast in our commitment to continuous improvement in sustainability, and will continue to explore and implement new solutions that contribute to a more sustainable, low-carbon future.

Our Journey Ahead

While we have made significant strides, there are both challenges and opportunities that lie ahead. Nevertheless, we see exciting possibilities to accelerate decarbonisation and further integrate sustainable practices across our business. Some key focus areas for JTC in the years to come include:

Enhancing Industry Decarbonisation

We will continue to forge partnerships with our customers, industry stakeholders, and solution providers to drive decarbonisation across our estates and help industries transition to low-carbon operations.

Reducing Operational and Embodied Carbon

We remain committed to reducing not only our operational carbon footprint but also the embodied carbon in our buildings. Our approach will include a mix of new construction methods and adaptive reuse strategies, ensuring we meet our sustainability goals without compromising quality.

Expanding Solar Deployments

We will continue to increase solar installations across JTC's estates, including on the rooftops of

our customers' buildings, contributing further to Singapore's Green Plan and our own decarbonisation efforts.

As we embark on this next phase of our sustainability journey, we would like to express our heartfelt appreciation to our stakeholders for their ongoing support and collaboration. Your feedback and engagement are invaluable in helping us continuously improve and stay aligned with the needs of our communities, industries, and the environment.

We look forward to working together in the years ahead to create a more sustainable and prosperous future.



A stylized handwritten signature in black ink, reading 'Tan Boon Khai'.

Tan Boon Khai
Chief Executive Officer
JTC Corporation

About This Report

GRI 2-2, 2-3, 2-4, 2-5

This annual Sustainability Report for Financial Year (FY) 2023 covers our sustainability commitments, material topics, management approaches, and performance summary for the period of 1 April 2023 to 31 March 2024. Through this report, JTC Corporation (JTC) aims to communicate our sustainability practices in a transparent and accountable manner while seeking feedback from our partners, stakeholders, and the community at large.

Standard Implemented

The report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards 2021, which is one of the most widely used sustainability reporting frameworks both globally and locally.

Reporting Scope

This report covers the performance of all JTC's operations in Singapore excluding our subsidiaries.

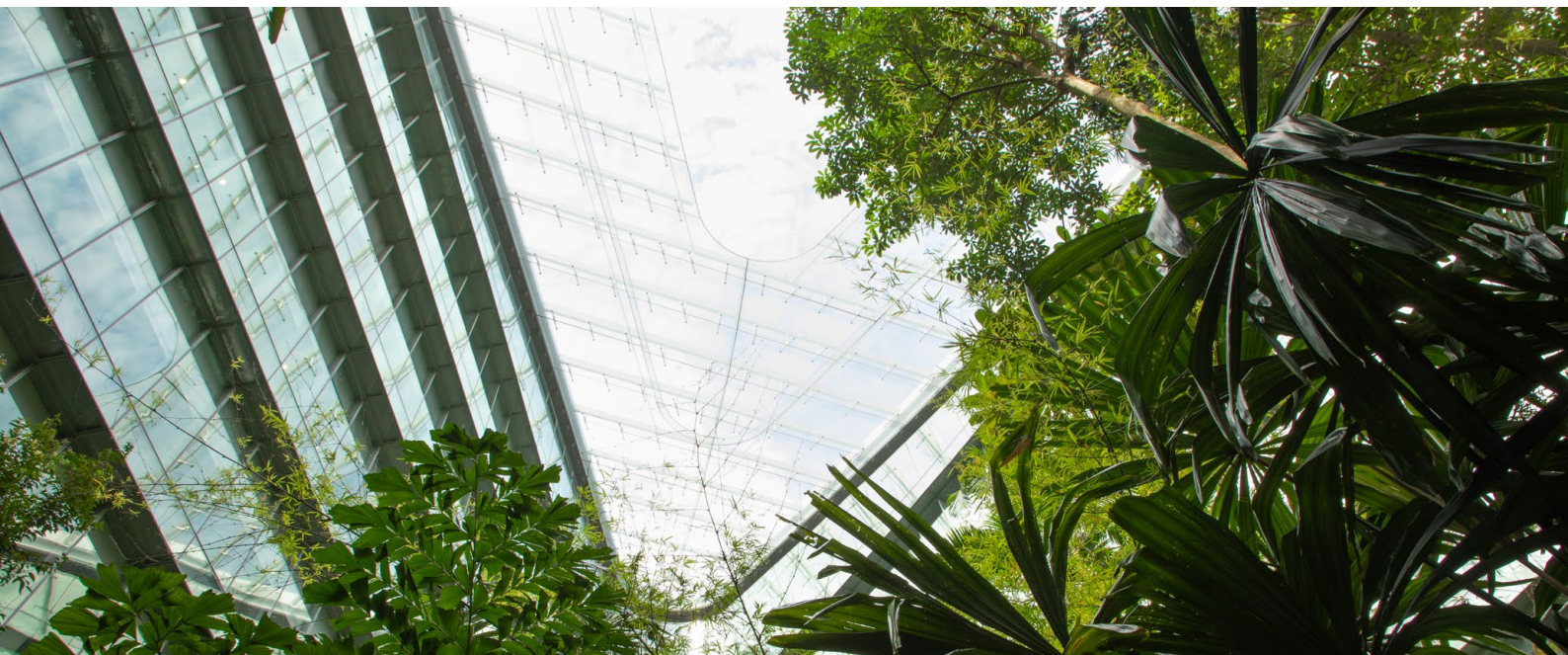
Feedback Mechanism

We welcome enquiries and feedback for improvement. For queries about the contents of this report, please contact us via this [link](#).

Assurance

This report has undergone rigorous internal review by JTC management. While the information was reviewed by an external sustainability consultant to ensure compliance with the GRI Standards, we have not sought external assurance for the reporting period.

One can expect to find buildings that meld concrete with greenery across JTC estates, such as Eclipse in one-north.



Our Sustainability Highlights for FY2023

JTC aims to create sustainable industrial spaces by fostering green innovation and enhancing greenery provisions across our developments. Here are some of our targets and goals:

Key Environmental Sustainability Targets



NET ZERO

EMISSIONS¹ AROUND 2045



↓ 10% REDUCTION²

IN ENERGY UTILISATION INDEX³
BY 2030



↓ 10% REDUCTION²

IN WATER EFFICIENCY INDEX⁴
BY 2030



↓ 30% REDUCTION⁵

IN WASTE DISPOSAL INDEX⁶
BY 2030



1250MWp

SOLAR DEPLOYMENT⁷ BY 2030,
WHICH CONTRIBUTES TO ~60%
OF WHOLE-OF-GOVERNMENT
SOLAR DEPLOYMENT TARGET



MINIMUM 30% GREEN COVER

IN NEW AND REDEVELOPED JTC
INDUSTRIAL ESTATES AND BUILDINGS

¹ This includes Scope 1 and Scope 2 emissions.

² Compared against the average of FY2018-FY2020 levels.

³ Energy use is in terms of electricity used per unit area.

⁴ Water used per person per day.

⁵ Compared against FY2022 level.

⁶ Waste disposed per person per day.

⁷ This includes 350MWp on JTC building rooftops, vacant industrial land, and sea spaces, and 900MWp on JTC lessees' building rooftops.

Our Key Achievements for FY2023



Completed the tallest timber industrial building in Singapore with **98% embodied carbon reductions**⁸



255.8MWp on JTC building rooftops, vacant industrial land, and sea spaces, and **453.2MWp** on JTC lessees' building rooftops as of the end of FY2023



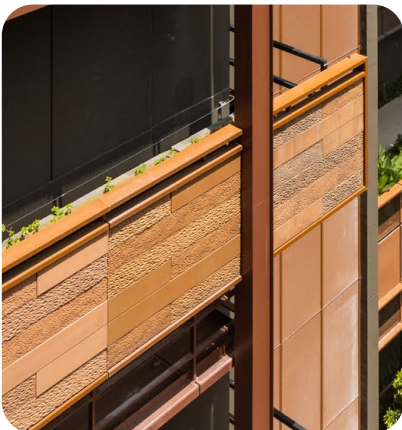
Achieved **Green Mark District Platinum** for Punggol Digital District



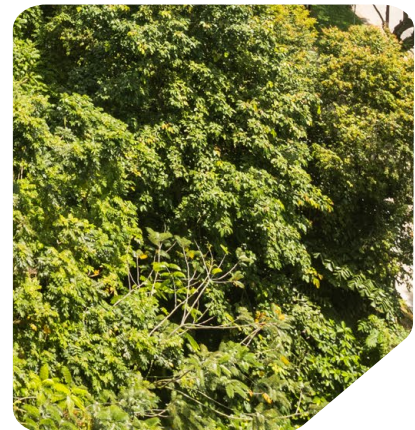
Launched **Singapore's first** localised web-based embodied carbon calculator



Launched the **first Industrial Government Land Sales (IGLS) site** where an existing terrace factory is retained and adapted for continued industrial use



Piloted effort of including **5% sustainability criteria** in selected JTC's construction and facilities management tenders



⁸ Compared against the reference value in BCA's Green Mark 2021 standards.

Social and Governance Highlights for FY2023

	Aim	Highlights
Community Engagement and Promotion of Occupational Health, Safety and Well-being	<ul style="list-style-type: none"> › Shaping a zero-harm culture 	<ul style="list-style-type: none"> › Zero work-related fatality or permanent disability in FY2023 › Conducted 6 roadshows and engaged ~900 stakeholders to raise awareness on safety and health issues across JTC properties
Equal Opportunity, Fair Employment Practices, and Talent Retention	<ul style="list-style-type: none"> › Providing equal opportunities, adopting fair employment practices to retain our talents, and ensuring human rights are respected › Developing our staff's competency in sustainability by having over 90% of employees complete at least one sustainability training in FY2024 	<ul style="list-style-type: none"> › Balanced male to female employee ratio
Corporate Governance, and Cybersecurity & Information Infrastructure Resilience	<ul style="list-style-type: none"> › Enhancing robust cybersecurity measures to protect our operations and the sensitive information entrusted to us 	<ul style="list-style-type: none"> › Zero substantiated whistleblower reports relating to corruption › Zero substantiated complaints regarding breaches of customer privacy or loss of customer data
Sustainable and Resilient Procurement Practice	<ul style="list-style-type: none"> › Accelerating JTC's decarbonisation journey through procurement › Influencing stakeholders to adopt sustainable practices › Setting aside part of the evaluation points for environmental sustainability in large construction and Information and Communication Technology (ICT) tenders 	<ul style="list-style-type: none"> › Included sustainability criteria in selected JTC's construction and facilities management tenders as piloted efforts

A GREENER PLAN FOR ALL

At JTC, it is important to us that our strategies not only cater to but also anticipate the evolving needs of the industry. The framework of sustainability that JTC has established demonstrates our commitment to building long term value for our stakeholders — customers, partners, government agencies and employees — with best practices that promote sustainability across environmental, social and governance factors while steering us on a clear trajectory for growth.

Green accents are interspersed throughout 1 and 7 North Coast.

Organisation Overview

GRI 2-1, 2-6

JTC is a statutory board under the Ministry of Trade and Industry (MTI) that is responsible for the planning, development, and management of industrial infrastructure and facilities in Singapore.

Since its establishment in 1968, JTC has been a key player in Singapore's industrial development, adapting to changing needs and driving economic growth by creating modern, vibrant, and welcoming industrial estates and business parks.

Our network includes various stakeholders such as government agencies, non-governmental organisations (NGOs), developers, contractors, suppliers, tenants, lessees, and other service providers. Since our inception, it has been our practice to collaborate closely with these stakeholders to enhance our ability to support the planning, development, and management of Singapore's industrial landscape.

Innovation forms the cornerstone of our organisation's growth. We undertake strategic initiatives to boost the development of emerging industries, facilitate technology adoption, and nurture collaborative ecosystems. Supported by a diverse team with multifaceted expertise, JTC is well-positioned to lead and expand a wide range of sustainability initiatives. We actively seek out new opportunities with our business partners and stakeholders, working in tandem to co-create value for the industry, and continue to drive innovation, share expertise and collectively address sustainability challenges in a synergistic manner.

At the core of our business value chain is our commitment to sustainability. Guided by our sustainability vision and mission, and leveraging our role as a master planner and developer, we aim to promote a green culture within Singapore's industrial sector.

Vision

To adopt environmental sustainability as a core principle, value pillar and strategic differentiator in our industrial estate development and operation.

Mission

- › Mitigating carbon as a business constraint and promoting circular economy to address resource scarcity.
- › Catalysing transformation of the industry to be more eco-conscious and future-ready.
- › Tackling challenges and seizing opportunities to increase corporate credibility and acceptance by partners, businesses, and customers.

Sustainability Governance Structure and Framework

GRI 2-9, 2-10, 2-11, 2-12, 2-13, 2-15, 2-17, 3-2

An Effective Governance Structure for Sustainability Reporting

JTC's Sustainability Committee (SC) was established in 2019 to strengthen sustainability governance and impart sustainability to the entire spectrum of JTC's work.

Led by our Assistant Chief Executive Officers (ACEOs) and Chief Sustainability Officer (CSO), our SC is tasked with developing JTC's sustainability strategy and relevant frameworks for JTC's value chain activities, ensuring alignment with the Whole-of-Government (WOG) Green Plan. The SC also provides guidance on the capability building plans for JTC staff, to ensure that they are equipped with the relevant competencies to drive and implement sustainability initiatives. The SC is supported by a secretariat team to coordinate the development of initiatives under the different workstreams, monitor implementation, and collect performance data for progress updates to the SC.

JTC's Board plays a vital role in the sustainability governance structure. It guides the SC by identifying opportunities for improvement and monitoring the organisation's progress towards sustainability goals, emphasising environmental and societal sustainability while considering JTC's overarching business strategy, direction, and operations to minimise impact on the environment and relevant stakeholders.



one-north is designed as a car-lite district.

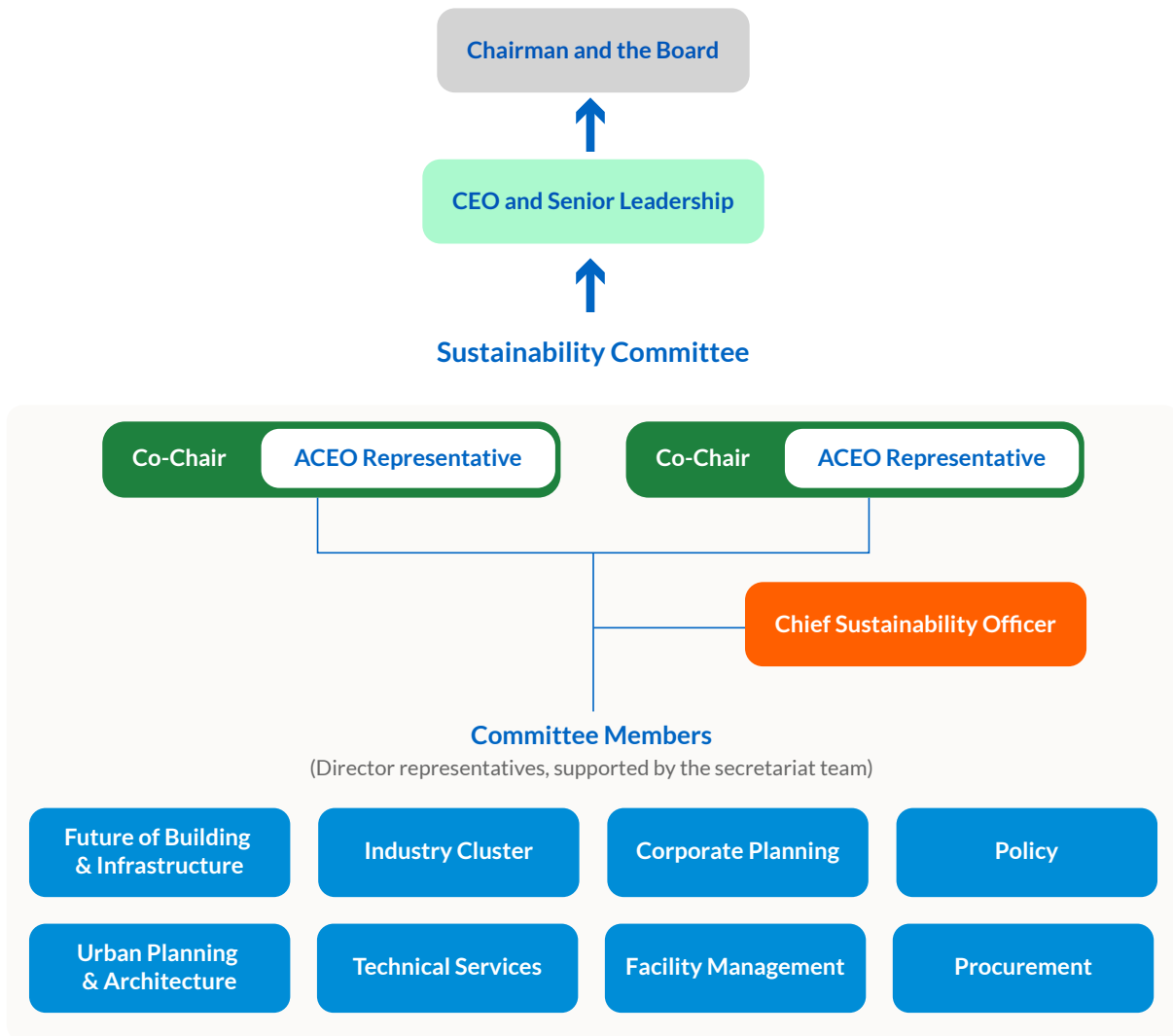


Figure 1: JTC's Sustainability Committee structure

Thus far, JTC has identified the carbon abatement from our sustainability initiatives as our corporate key performance indicator. The organisation's sustainability performance is reported to the Board at the quarterly Board meetings. Besides tapping the Board's collective expertise, JTC also enhances our knowledge through different means such as workshops and overseas trips involving other agencies and organisations.

These activities cover various topics, such as sustainability developments and associated risks. To ensure effective discharge of their duties, JTC selects and nominates Board members in accordance with the standards expected of a Fifth Schedule Statutory Board. Furthermore, Board members are required to declare any interests that may conflict with a subject and recuse themselves from discussions on the subject matter.

A Robust Sustainability Framework

JTC incorporates sustainability into our strategy and business plan by integrating environmental, social, and governance (ESG) factors into our decision-making processes through the Wheel of Sustainability framework (page 14).

While ensuring we meet our own sustainability targets, we are equally committed to supporting our lessees and tenants in achieving theirs. In FY2023, we made adjustments to our sustainability value chain to place emphasis on lessee/tenant management as an important part of the value chain.

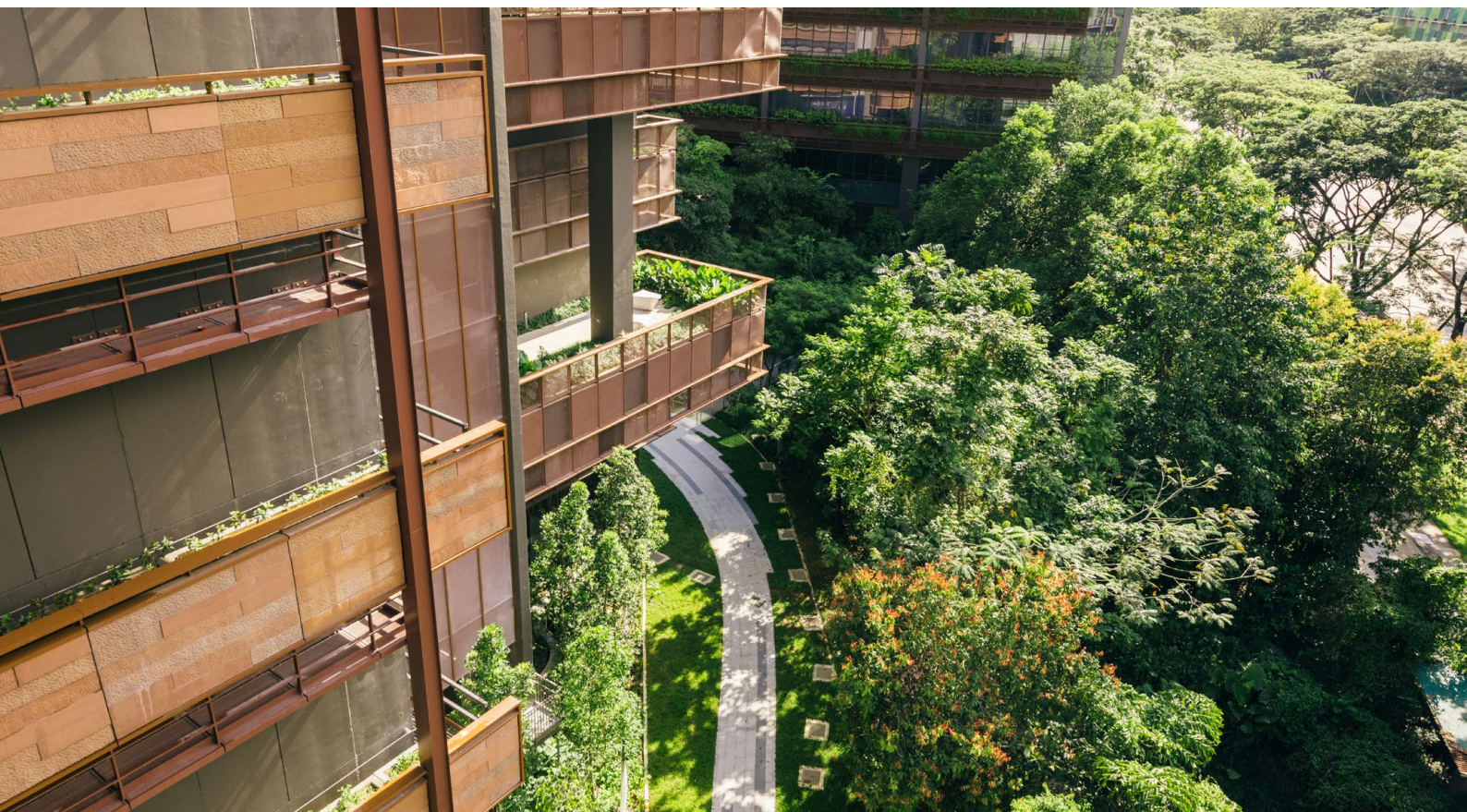
The wheel encompasses the full spectrum of JTC's work – spanning planning and design, construction, operation and maintenance, lessee/tenant management, and rejuvenation, which are supported by six horizontal enablers: procurement, education and learning, digitalisation, policy, community and outreach, and innovation. This comprehensive approach ensures that sustainability considerations are woven into every stage of JTC's projects and operations, in line with the organisation's long-term strategy and business plan.

Our focus on lessee/tenant management includes:

- a. Identifying and enabling innovative estate-level infrastructure solutions to help companies in key sectors (such as energy and chemicals, semiconductor and aerospace) to reduce their carbon emissions and/or support their energy transition.
- b. Supporting broad-based manufacturing companies in their decarbonisation journey, through collaborations and partnerships with industry stakeholders, intermediaries and government agencies, and connecting companies with relevant solution providers, resources (e.g. training and financing) and relevant grant programmes.

For more information on JTC's board members, governance structure, and financial performance in FY2023, please refer to our website [here](#) and Annual Report [here](#).

The design of JTC CleanTech Three in Jurong Innovation District is environmentally considerate.





ENABLING HORIZONTALS



-  Procurement
-  Policy
-  Education and Learning
-  Digitalisation
-  Communication and Outreach
-  Innovation





Figure 2: JTC's Wheel of Sustainability

Stakeholder Engagement and Materiality Assessment

GRI 2-14, 2-29, 3-1, 3-2

Effective stakeholder engagement is integral to organisational success, and encompasses the trifecta of establishing robust rapport with interested parties, understanding their needs and expectations, and working together to achieve shared objectives. In view of this, JTC has identified key stakeholders based on their interactions with and impact on our business and operations, and compiled a list of their ESG topics as well as concerns, so that we can address them effectively and in a timely manner.

Key Stakeholder Group	ESG Topics and Concerns Raised by Stakeholder Group	Forms of Engagement	Frequency
 <p>Employees</p>	<ul style="list-style-type: none"> › Corporate direction › Upskilling and training › Working environment › Remuneration and employee benefits 	<ul style="list-style-type: none"> › Regular employee dialogue sessions with reporting officers › Regular appraisals for staff to identify training opportunities for career development › Regular reviews of remuneration, benefits and staff welfare policies › Environmental, health, and workplace safety awareness activities › Trainings and leadership development programmes catered to the specific needs of different employee groups › Team building and recreational activities 	Bi-annual or as required
 <p>Customers (Lessees and tenants)</p>	<ul style="list-style-type: none"> › Green building and resource efficiency › Quality and cost of facility/space and overall business cost in Singapore › Customer satisfaction › Health and safety concerns 	<ul style="list-style-type: none"> › Regular discussions and feedback channels 	As required

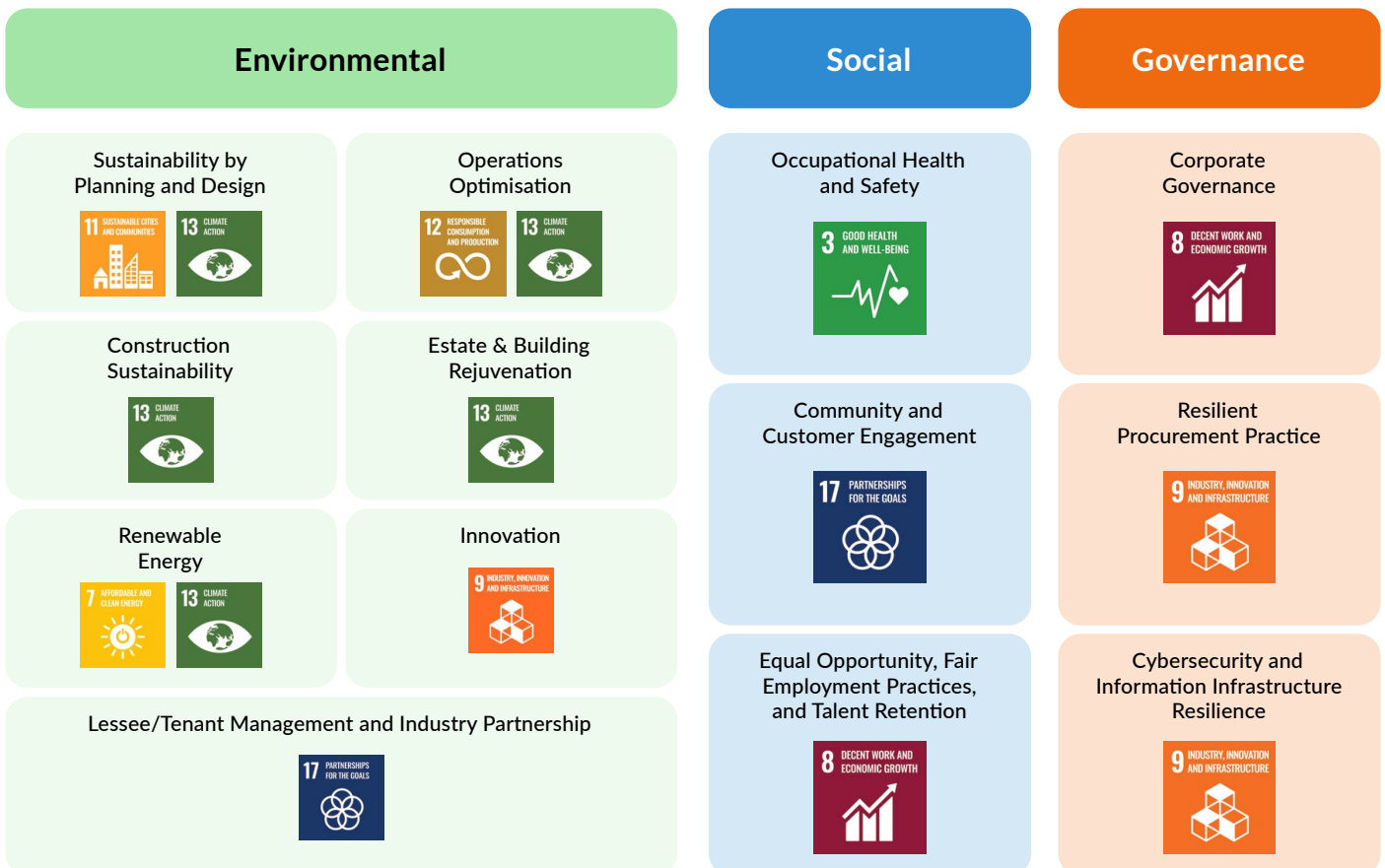
Key Stakeholder Group	ESG Topics and Concerns Raised by Stakeholder Group	Forms of Engagement	Frequency
 <p>Service Providers (e.g. contractors, consultants, and suppliers)</p>	<ul style="list-style-type: none"> › Legal compliance › Responsible sourcing › Green procurement practices › Health and safety concerns 	<ul style="list-style-type: none"> › Regular procurement guideline reviews › Regular discussions and feedback channels 	<p>Monthly/quarterly meetings, or as required</p>
 <p>Government</p>	<ul style="list-style-type: none"> › Climate change and greenhouse gas emissions › Resource management › Corporate governance › Cybersecurity 	<ul style="list-style-type: none"> › Senior management representation within industrial associations and national programmes › Active participation in external conferences, dialogues, and events across different industries 	<p>Regular meetings, discussion forums, and periodic reviews of collaboration frameworks, as necessary</p>
 <p>Industry Partners (e.g. academic and research institutes, and NGOs)</p>	<ul style="list-style-type: none"> › Sustainability innovations and collaborations › Sharing of industry best practices › Climate change and sustainability strategies 	<ul style="list-style-type: none"> › Active participation in external conferences, dialogues, and events across different industries › JTC Innovation Challenge › Collaboration in projects › Participation in conferences, meetings, events, interviews 	<p>Regular meetings, discussion forums, and periodic reviews of collaboration frameworks, as necessary</p>
 <p>General Public and Community</p>	<ul style="list-style-type: none"> › Community engagement › Efficient use of public funds › Corporate directions 	<ul style="list-style-type: none"> › Staff involvement in community volunteering events › Community development initiatives 	<p>Public engagement sessions as required</p>

Identifying Priorities to Meet Sustainable Development Goals

Since 2022, in collaboration with sustainability reporting consultants and experts, we have been conducting yearly materiality reviews to identify the most significant topics for JTC and align them with the United Nations' Sustainable Development Goals.

Based on the key topics and concerns identified, and in adherence to the Global Reporting Initiative's (GRI) reporting principles of stakeholder inclusiveness, materiality, and completeness, we have identified a set of material topics that demands our attention.

These material topics have undergone review and validation by our senior management and underpin our sustainability strategies and initiatives. We are prioritising these topics across ESG parameters, engaging our stakeholders, progressively setting targets, and tracking our performance and progress towards these goals to ensure that our sustainability efforts are on the right track.



A photograph of a modern building with a green facade. The building features large glass windows and balconies with lush green plants. The image is framed with rounded corners and a dark background on the left side.

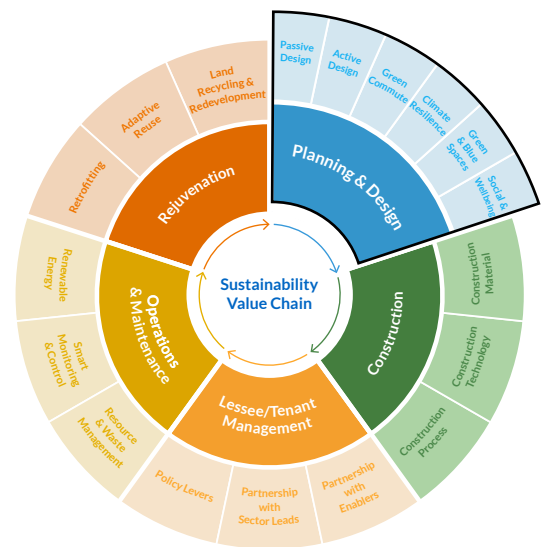
A GREENER ECOSYSTEM

We recognise the impact our operations and activities may have on the larger environment. Together with internal and external stakeholders, we have implemented initiatives aimed at mitigating environmental impact, targeting the various areas of carbon emission reductions, alternative energy sources, energy utilisation, sustainable planning and design, and building and construction practices with clear agendas and envisioned outcomes.

JTC CleanTech Three @ Jurong Innovation District has received several accolades for its design.

Sustainability in Planning and Design of the Built Environment

GRI 3-3



All new and existing JTC buildings (upon major retrofit) to achieve **Green Mark Platinum Super Low Energy standards** or equivalent, where feasible.



Target to achieve minimum **30% green cover** in new and redeveloped JTC industrial estates and buildings

Integrating Sustainability Initiatives in Estate Planning and Design

The Singapore Green Plan 2030 serves as the primary foundation grounding the sustainable planning and design of JTC industrial estates and buildings, inspiring us to create environmentally responsible estates, with a focus on enhancing the well-being of individuals and the environment. Our sustainable planning and design efforts encompass a diverse range of initiatives spanning six key focus areas:



Master Planning with Local Context

Planning of massing, building scales and activities in response to a site's natural and social contexts. Consideration to protect and enhance existing biodiversity sites.



Planning for Circular Economy and Estates

Identifying resource ecosystem and creating closed-loop systems within industries in estates (for example, Jurong Island and Sungei Kadut Eco-District) to reduce resource wastage.



Connectivity

Planning for optimised transportation patterns towards car-lite Singapore. Create comprehensive connectivity network within the estate and to surrounding communities, and to promote active mobility (cycling and walking).



Sustainable Infrastructure and Buildings

Improving building performance through adoption of passive and active design strategies, and maximising renewable energy resources.



Greening Spaces

Planning of greenery provision in estates and buildings and adoption of nature-based solutions in the estates to reduce Urban Heat Island effect.



Providing Infrastructure/Spaces to Support Smart Technology

Use of smart building systems and sensors to gain behavioural insights on spatial usage intensities, and to optimise building operational usages.



Punggol Digital District (PDD): Exemplifying Sustainable Estate Through Planning and Design

Spanning 50 hectares, PDD is Singapore's first smart and sustainable business district and the largest Green Mark Platinum mixed-use district, integrating at-scale sustainable practices in energy efficiency, water efficiency, material and waste management, environmental planning, green buildings, transport, and smart solutions. This comprehensive approach underscores JTC's commitment to smart and sustainable industrial development.

Moving forward, we aim to continue intensifying the smart and sustainable initiatives at PDD, which paves the way towards net zero emissions. We are also actively exploring more opportunities to adopt innovative solutions, such as district-level smart grids.

"PDD epitomises urban sustainability as the largest mixed-use Green Mark Platinum district, and exemplifies JTC's commitment to smart and sustainable industrial development. Seamlessly integrating built structures, energy efficiency, water conservation, waste management, mobility solutions, and green spaces, these sustainable features are intertwined on a district-wide scale through meticulous upfront planning, cultivating an estate that is not only highly liveable and environmentally sustainable, but also catering to the needs of those who work, live, play, and learn within and around the district. This integrated approach will set the stage for a truly vibrant and interconnected community, where innovation and sustainability thrive hand in hand, helping Singapore reach its net zero goals and progress towards being a Smart Nation."

Mr Nelson Liew

Group Director

New Estates, JTC

PDD'S DISTRICT-WIDE SUSTAINABILITY



17 GREEN MARK PLATINUM AND 3 SLE BUILDINGS



CLIMATE RESPONSIVE DESIGN WITH ENERGY EFFICIENT EQUIPMENT



INTEGRATION WITH OPEN DIGITAL PLATFORM



CYCLING ROUTE, END-OF-TRIP FACILITIES & EV CHARGING LOTS

MAP LEGEND

Mitigation of Urban Heat Island Effect

- 1 Retention of existing greenery with 100% landscape replacement
- 2 North-south orientation with natural ventilation
- 3 High performance facades

Mass-Engineered Timber Buildings

- 4 JTC MET Building @ 86 Punggol Way
- 5 SIT Food Court

Green Commute

- 6 Seamless connectivity for pedestrian movement
- 7 Integrated public transport options

Greener Operations

- 8 District cooling system
- 9 Water-sensitive urban design and rainwater harvesting
- 10 Natural daylighting with smart-lighting controls

Solar

- 11 Smart grid with solar panels

Circular Economy

- 12 Pneumatic waste conveyance system

--- Cycling route



ENERGY EFFICIENCY

- › Estimated solar energy generation of 3,000MWh annually
- › Integrating solar energy with the smart grid for peak savings and reliable energy supply
- › District cooling system reducing 3,700 tonnes of CO₂ emissions annually at full development
- › 35% reduction in operational carbon emissions yearly, equivalent to taking 4,000 cars off the road

ENVIRONMENTAL PLANNING

- › Preservation of natural assets and 100% landscape replacement
- › Rooftop urban farms and PV canopies for energy and food resilience
- › Car-lite design with pedestrianised streets and underground vehicular access
- › 1.3km Heritage Trail with conserved trees, integrated rooftop urban farms

WATER EFFICIENCY

- › Rainwater detention and harvesting, saving 208,000m³ of water annually, enough to fill 83 Olympic-sized swimming pools

MATERIAL AND WASTE MANAGEMENT

- › Underground waste conveyance system minimising traffic and odours
- › Recycling chutes and biodigesters for waste recycling, closing the loop in the circular economy

SMART SOLUTIONS

- › Plug-and-play digital infrastructure through the Open Digital Platform
- › Real-time systems diagnostics and monitoring through sensors and systems

COMMUNITY-CENTRIC SPACES

- › 4.0ha community park
- › Community facilities comprising 3 childcare centres, 700-seater hawker centre and a community club
- › 290,600sqft retail podium and waterfront Market Village

Figure 4: Sustainable PDD at a glance

Biophilic Planning of JTC CleanTech Three (CT3) @ Jurong Innovation District

CT3, nestled within a lush landscape, offers customisable spaces for clean technologies, urban solutions, and advanced manufacturing industries, consolidating office and Research & Development (R&D) operations in one location. The development blurs the boundaries between human and nature, featuring a fenceless design and landscaping crafted with the site context in mind.

Influenced by its surroundings, CT3 boasts 40% green cover and more than 75% landscape replacement area. The design incorporates a conserved wildlife corridor and a raised lookout deck, enabling people to observe wildlife from a distance, and fostering a respectful connection with nature. The selection of plant species is compatible with the surrounding wildlife, creating a symbiotic relationship where the development attracts wildlife, providing a habitat refuge and food source, while offering people the opportunity to enjoy wildlife and nature respectfully.

Additionally, strategically located sky terraces provide leisure niche spaces conducive for organic collaboration. CT3's biophilic design is deeply rooted in its site context, aiming to conserve the wildlife corridor and maintain the site's topography, creating an environment that feels like an extension of Jurong Eco-Garden. Despite challenges in landscaping, CT3 has been designed with natural materials that complement the landscape, ensuring graceful ageing and weathering.

CT3 SUSTAINABILITY HIGHLIGHTS:

40%
green cover

>75%
landscape replacement area

>4.7KM
of façade planters

>1,600M²
of sky terrace greenery

OTHER SUSTAINABLE FEATURES:









 <p>High energy efficiency chiller plant and air side equipment</p>	 <p>Automatic water efficient irrigation system with rain water sensors</p>	 <p>Adoption of precast elements. Use of Green Cement, RCA* and WCS**. Carbon Calculation.</p>	 <p>Minimum Efficiency Reporting Value (MERV) 14 filters for all outdoor air systems</p>
 <p>Solar-ready roof</p>	 <p>Effective monitoring of energy and water consumption</p>	 <p>Usage of sustainable materials</p>	 <p>Green Lease for tenants</p>

Figure 5: CT3 sustainability highlights

* Recycled Concrete Aggregate (RCA) ** Washed Copper Slag (WCS)

Coastal Adaptation Study at Jurong Island

Together with the Public Utilities Board (PUB), JTC is conducting site-specific studies at Jurong Island as part of a nationwide effort to protect Singapore’s coastlines. The studies aim to craft a climate resilience master plan and design to safeguard the energy and chemicals park against potential flooding from future rising sea levels, extreme storm surges, and intensified rainfall due to climate change.

The comprehensive studies, expected to conclude before 2030, involve engaging with Jurong Island stakeholders to understand their operational needs and plans. This collaborative process will inform the co-creation and formulation of suitable climate adaptation solutions, as well as the eventual implementation strategy.

Additionally, JTC will develop a flood model as a simulation tool to project flood levels in Jurong Island under future climate scenarios, supplementing the studies and adaptation solution development. This coastal adaptation study is critical in fortifying Singapore’s vital industrial infrastructure against the escalating risks posed by climate change. By proactively developing and implementing climate adaptation solutions, JTC is ensuring the resilience and sustainability of Jurong Island, a pivotal hub for Singapore’s energy and chemicals industry.

OBJECTIVE

Safeguarding Jurong Island against potential flooding from future rising sea levels, extreme storm surges, and intensified rainfall

APPROACH



EXAMPLES OF POSSIBLE ADAPTATION SOLUTIONS

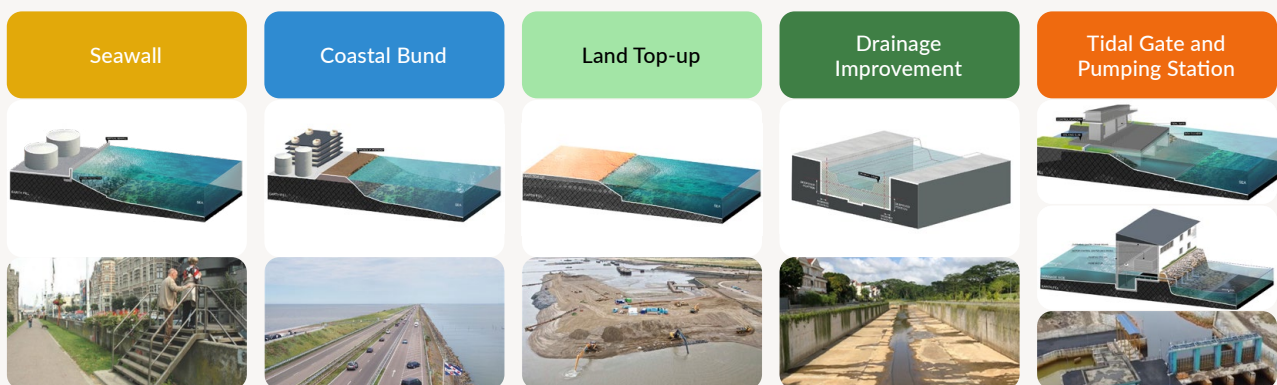


Figure 6: Summary of coastal adaptation study at Jurong Island

Sustainability in Construction Materials and Technologies

GRI 3-3, 301-1, 301-2

Implementing Green Solutions in Construction Projects

At JTC, our commitment to sustainable construction practices encompasses mitigating the embodied carbon of construction materials and prioritising resource-efficient construction processes and technologies. Embracing eco-friendly options such as low carbon concrete and sustainable timber minimises resource extraction, while advocating methods like prefabrication and modular construction enhances efficiency, reduces material wastage and minimises on-site disruption.



Leveraging tools like Building Information Modeling (BIM) and digital construction technologies optimises project planning, design, and execution, promoting resource management and collaboration among stakeholders. Through these initiatives, we lead by example and drive positive change within the industry, contributing to a more sustainable and environmentally responsible built environment.

JTC Sustainable Construction Material Usage Guidelines

Minimum Singapore Green Building Council-(SGBC) certified **4 Ticks** (for cast-in-situ) and **2 Ticks** (precast) for non-structural element

Minimum **20%** (by mass) Recycled Concrete Aggregates (RCA) up to C40/50 replacement for superstructure element

Minimum **10%** (by mass) Washed Copper Slag (WCS) replacement for superstructure element

Minimum **30%** RCA used in sub-base and base course for internal non-suspended road (building) and road in infrastructure projects

Figure 7: JTC sustainable construction material usage guidelines

Mass Engineered Timber (MET) Building: A Sustainable Alternative to Conventional Concrete and Steel Construction

The production of conventional concrete and steel significantly contributes to carbon emissions and climate change. Therefore, the exploration of alternative, greener building materials is crucial for sustainable construction practices.

As the tallest timber industrial building in Singapore, the [eight-storey MET building](#) located at PDD achieves an exceptional embodied carbon performance of 15kg CO₂e/m², which is 98% lower than the reference value in the Building and Construction Authority's (BCA) Green Mark 2021 standards. The timber used for construction was responsibly sourced from sustainably managed forests, with a commitment to continuous replanting to replace harvested trees. In addition to its environmental sustainability, the MET was fabricated off-site, ensuring superior construction quality control and higher productivity, with a remarkable 60% reduction in on-site manpower compared to traditional construction methods.

JTC's MET building exemplifies best-in-class energy efficiency, designed to achieve at least **40% energy savings**. Here are other key highlights:



Tallest timber industrial building in Singapore



98% embodied carbon savings

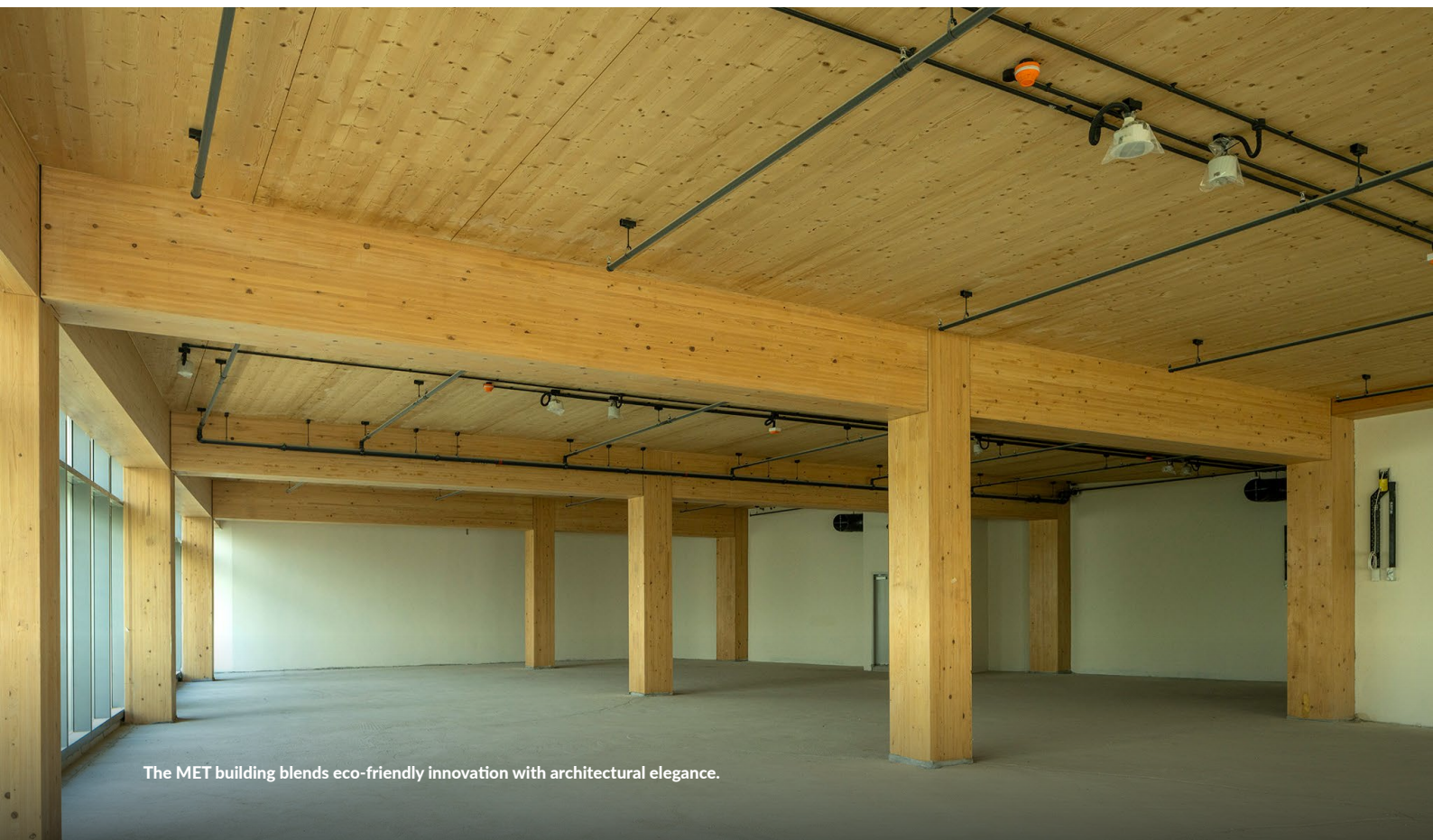


Off-site fabricated MET, resulting in 60% reduction in on-site construction manpower



Achieved Green Mark Platinum Super Low Energy Building certification

Figure 8: Highlights of the PDD MET building



The MET building blends eco-friendly innovation with architectural elegance.

Developing the Singapore Building Carbon Calculator (SBCC) and Mechanical and Electrical Carbon Calculator (MECC)

To improve the ease of accounting and tabulating upfront carbon, JTC, as the public sector’s Centre of Excellence in R&D for the built environment, has developed the SBCC, Singapore’s first ever localised web-based embodied carbon calculator, in collaboration with BCA and SGBC. It is the de facto embodied carbon calculator to be used in the Green Mark 2021 Whole Life Carbon assessment. The SBCC has been successfully implemented for JTC’s projects and widely used in the industry; it has played an important role in the developmental cycle of JTC’s projects, including the PDD, the Jurong Innovation District (JID), and public sector projects.

In addition to accounting the embodied carbon for building materials, JTC is also developing the MECC to address the challenge of accounting for the embodied carbon associated with M&E equipment for local construction projects. By providing a comprehensive solution for calculating embodied carbon across a development’s design, construction,

and life-cycle, the MECC will empower engineers to make informed decisions regarding equipment choices based on their environmental impact, thereby advancing the industry’s sustainability goals.

JTC also plans to explore carbon calculators for infrastructure and reclamation projects, recognising the environmental impact these large-scale developments may have. This initiative stems from an increasing awareness of the need to quantify and manage carbon emissions in major construction endeavours. By developing these specialised calculators, JTC aims to address the crucial aspect of sustainable development that is often overlooked in existing assessment tools.

➔ [Click the link for more information about the SBCC and MECC.](#)

THE SBCC: HERE’S WHAT TO KNOW

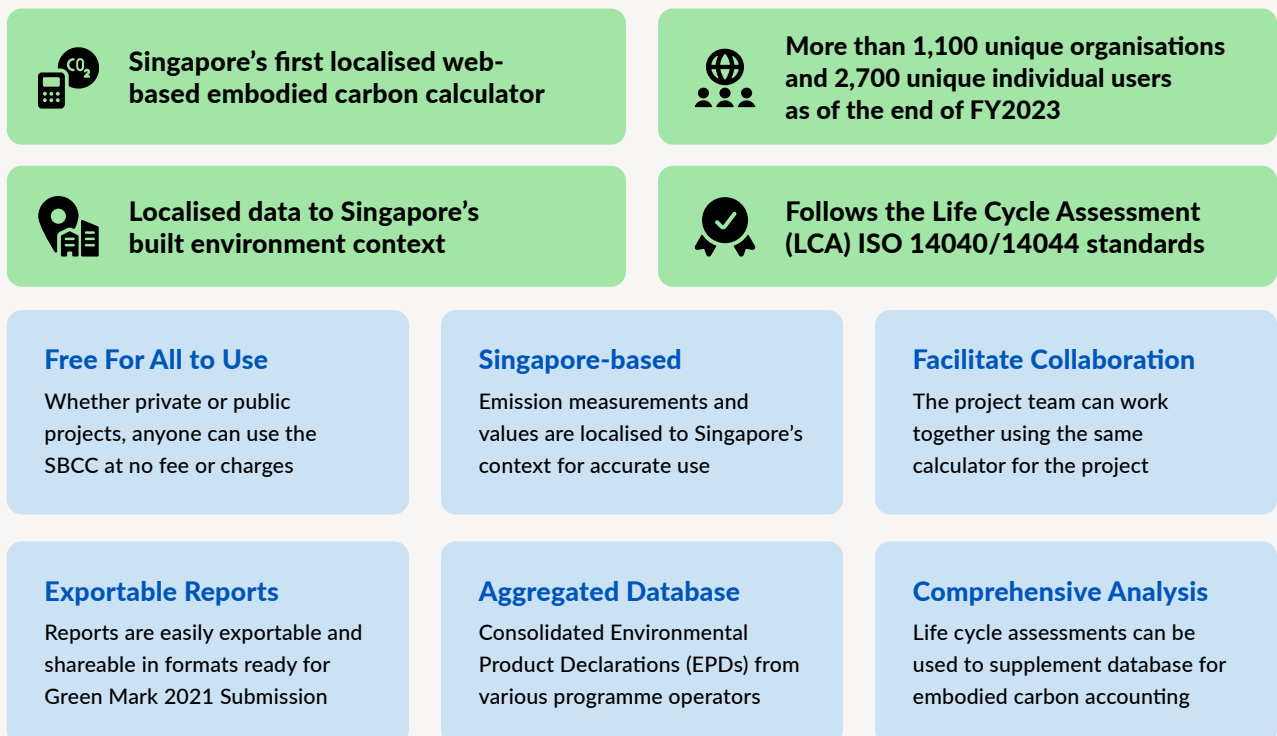


Figure 9: Highlights and benefits of the SBCC

Reusing Glass Waste with Glass Waste Concrete

About 70,000 tonnes of glass waste are created in Singapore every year. What if this waste could be upcycled? Collaborating with the National University of Singapore, JTC utilised locally generated glass waste to partially replace cement in the production of low carbon concrete. The new material has shown the potential to achieve comparable strength to regular concrete, while offering improved durability, greater carbon savings, and reduced costs. The team is now exploring potential onsite structural and non-structural applications to bring this material one step closer to industrial adoption.

MATERIAL PERFORMANCE OF THE LOW-CARBON GLASS WASTE CONCRETE (20% REPLACEMENT)

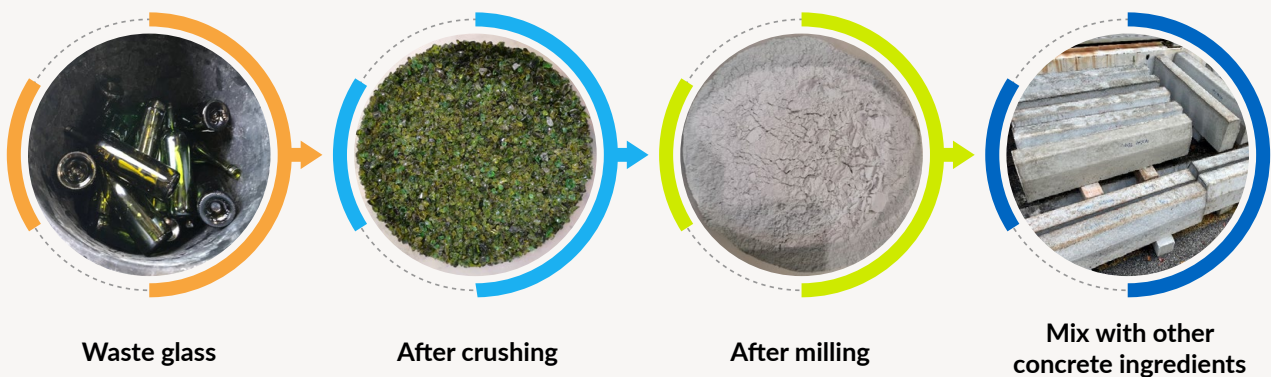
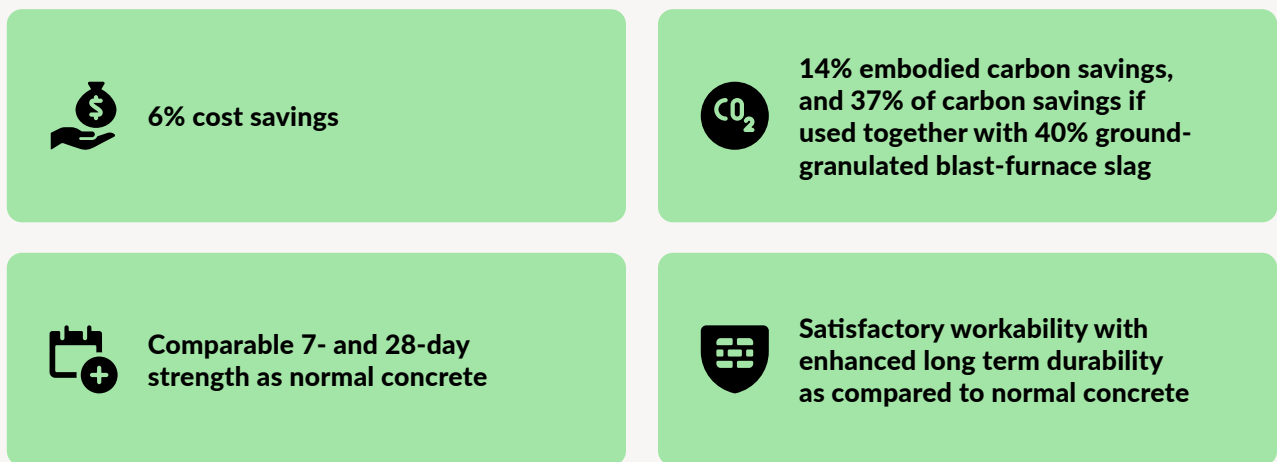


Figure 10: Process of making glass waste concrete

Sustainability in Customer Engagement and Industry Partnership

GRI 3-3



Supporting Our Customers in Their Sustainability Journey

At JTC, we believe it is critical to help our customers achieve their sustainability goals. As such, we are committed to supporting lessees’ and tenants’ sustainability efforts in addition to our own. As the key industrial estate planner, developer as well as building owner, JTC will also support the decarbonisation of our lessees’ and tenants’ Scope 1 and Scope 2 emissions through the following approaches:



Collaborating with sector leads, industry stakeholders and research academia to identify potential estate-level infrastructure opportunities and innovative solutions in targeted estates, focusing on enabling prioritised sectors to effectively reduce carbon emission



Collaborating with relevant agencies, associations, and leveraging enablers to build up lessees’ and tenants’ awareness and capabilities on sustainability



Leveraging sustainability policies as the key lever



Defu Industrial City

Introducing Green Policies to Lessees and Tenants

Our green policies, such as green estate conditions and green building obligations, serve to advance JTC’s sustainability objectives. These policies leverage our lease and tenancy contracts to set out building sustainability requirements, particularly in energy and water efficiency, for our lessees and tenants to adhere to. The key policy outcomes include enabling our lessees and tenants to adopt sustainable practices that can benefit them by improving the energy efficiency of their operations, ensuring compliance with evolving regulatory requirements and remaining competitive in the green economy.

	Green Estate Conditions	Green Building Obligations
 <p>Customer group</p>	<ul style="list-style-type: none"> › Lessees on JTC’s industrial land 	<ul style="list-style-type: none"> › Lessees and tenants in JTC’s Green Mark (GM)-rated industrial developments
 <p>Customers (Lessees and tenants)</p>	<ul style="list-style-type: none"> › Meet the estate’s GM rating that is set out by JTC 	<ul style="list-style-type: none"> › Comply with sustainability requirements set out by JTC which are specific to the respective JTC developments
 <p>Intent</p>	<ul style="list-style-type: none"> › Encourage land lessees to adopt sustainable building designs › Ensure land lessees play their part in supporting WOG’s and JTC’s sustainability initiatives 	<ul style="list-style-type: none"> › Ensure JTC’s developments are aligned with GreenGov.SG’s requirements for public sector buildings › Ensure lessees and tenants play their part in ensuring that JTC’s developments achieve and retain their GM ratings
 <p>Updates and Compliance</p>	<ul style="list-style-type: none"> › These policy requirements are regularly updated in line with GreenGov.SG and JTC’s sustainability objectives and are applicable to industrialists at appropriate junctures such as new allocation and renewal of leases/tenancies. 	

Enhancing Sustainability at Seletar Aerospace Park (SAP): Aerospace Innovation Challenge

Creating a sustainable industry requires collaborative efforts. In addition to implementing green policies, we also support our companies in their sustainability journey by launching innovation challenges to address the operational challenges faced by the aerospace industry.

Jointly organised by Enterprise Singapore and JTC, the Aerospace Open Innovation Challenge (AOIC) 2024 aims to foster collaboration in innovation in areas of sustainability, productivity, and digitalisation between industry players, promising startups, and Small and Medium-sized Enterprises (SMEs). A total of seven global corporates – Airbus, Bell Textron, Collins Aerospace, GE Aerospace, Jet Aviation, Singapore Component Solutions, and ST Engineering – launched 12 challenge statements which include various sustainability-related objectives, such as enhancing energy efficiency, recycling jet fuel to produce affordable blended sustainable aviation fuel, improving waste management, and optimising renewable energy generation through mobile solar PV platforms.

These statements seek to crowdsource ideas to address global aerospace challenges and have garnered a commitment of over S\$700,000 to support the co-development and piloting of solutions, providing the expertise and resources to nurture promising SMEs and startups in the aerospace field. The AOIC is expected to drive industry transformation and position SAP as an enabling ecosystem to catalyse and support sustainability goals across the industry.

JTC has also announced plans for JTC aeroSpace Four (AS4), the first standard factory at SAP which will incorporate green infrastructure solutions to support sustainability goals, including EV charging infrastructure and green spaces within the development.

An aerial view of SAP.



“We are taking the first step to facilitate collaboration, bringing together industry players and technology solution providers for a collective push towards a greener aerospace industry. If proven viable, the solutions emerging from AOIC will not only benefit the participating corporations but also empower other companies facing similar sustainability challenges. With industry giants leading by example, this concerted effort has the potential to propel Seletar Aerospace Park beyond its status as a regional hub for aviation and aerospace and position it as an enabling ecosystem to catalyse and sustain sustainability efforts across the industry.”

Ms Lim Ai Ting

Director for Aerospace & Marine Cluster

JTC

Besides the launch of the AOIC, JTC's booth at Airshow 2024 also welcomed industry partners and visitors to learn more about SAP.



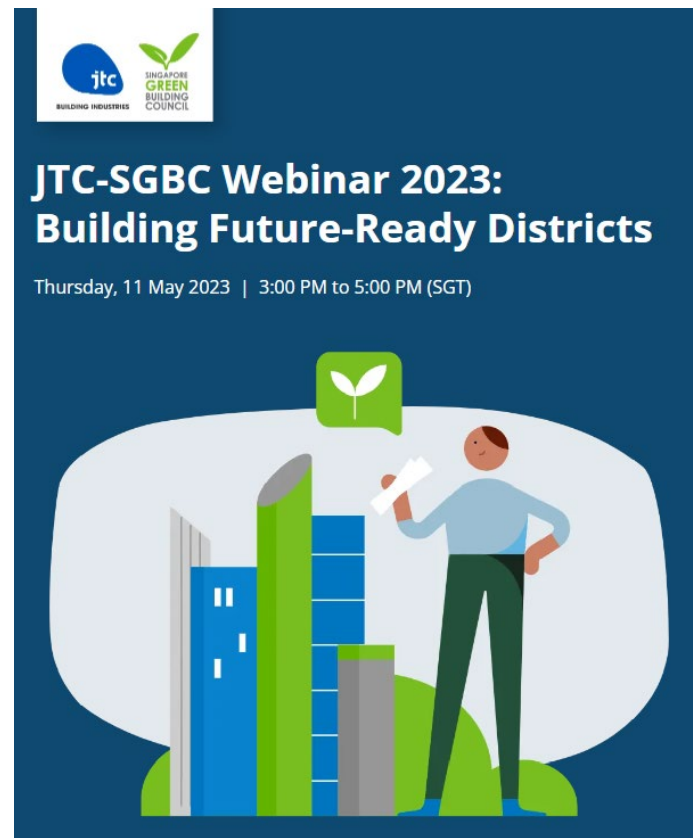
Sharing Sustainability Knowledge and Experience

As part of our commitment to sharing knowledge and experience with the industry, JTC actively participates in forums and hosts webinars. A joint effort between JTC and the Singapore Green Building Council (SGBC), the JTC-SGBC Webinar 2023 discussed the increasing need for sustainable and energy-efficient solutions in the built environment. The webinar delved into the integration of smart technology and green building solutions to create sustainable and smart digital districts. Industry experts in sustainability, energy efficiency, and smart technology provided valuable insights and experiences in designing and implementing solutions for greener, smarter, and future-ready districts.

A Memorandum of Understanding (MOU) was signed between JTC and United Overseas Bank (UOB) to jointly promote the adoption of greener business practices by local industrialists within PDD and beyond. This collaboration seeks to support companies in scaling the adoption of sustainable business practices by leveraging the existing JTC sustainability programme and UOB's sustainability assessment tools and financing solutions. Through this partnership, companies are able to determine their readiness and prioritise action plans to kickstart their sustainability journeys.

PDD, with its sustainable design features, exemplifies JTC's approach to planning and building a smart and sustainable district. In FY2023, JTC and the Singapore Institute of Technology (SIT) established the PDD Living Lab Programme to provide a framework for like-minded partners to connect and tap into SIT's research and talent pool. This facilitates collaboration between industry and academia, develop a pipeline of talents and solutions to meet business needs, in various areas such as digitalisation and sustainability.

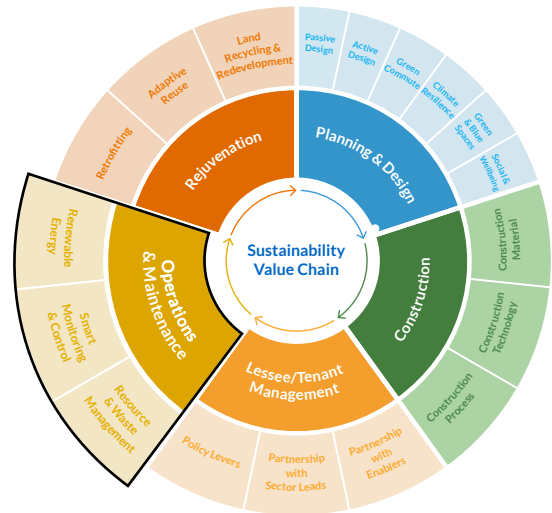
Collectively, these initiatives help to further our efforts in sustainability and innovation, create a collaborative ecosystem, and provide test-bedding opportunities for industry, researchers and government agencies.



JTC-SGBC Webinar 2023

Sustainability in Operations Optimisation

GRI 3-3, 302-1, 303-1, 303-2, 303-3, 305-1, 305-2, 306-1, 306-2, 306-3, 306-4, 306-5



Singapore aims to achieve net zero emissions by 2050 and peak emissions before 2030, with the public sector leading the pursuit of sustainable development through the GreenGov.SG initiative.

Under GreenGov.SG, the public sector is committed to ambitious sustainability targets. At JTC, we fully support the achievement of GreenGov.SG targets and are committed to contributing to the public sector’s sustainability goals. In alignment with GreenGov.SG, we are dedicated to optimising our operations to enhance energy and water efficiency whilst significantly reducing waste disposal. We recognise the importance of these targets in fostering a more sustainable public sector and are actively working towards their realisation through innovative strategies and conscientious resource management.

TimMac @ Kranji BE Hub



JTC Sustainable Operation Targets

(in alignment with GreenGov.SG initiative)



NET ZERO

EMISSIONS⁹ AROUND 2045



↓ 10% REDUCTION

IN ENERGY UTILISATION INDEX¹⁰
BY 2030



↓ 10% REDUCTION

IN WATER EFFICIENCY INDEX¹¹
BY 2030



↓ 30% REDUCTION

IN WASTE DISPOSAL INDEX¹²
BY 2030

⁹ This includes Scope 1 and Scope 2 emissions. JTC is conducting internal analysis on our Scope 3 emission profile, and the data is not available at the moment. JTC is also planning to study the feasibility of peaking our carbon emissions around 2025.

¹⁰ The formula used to calculate the Energy Utilisation Index (EUI) is as follows: = (Total amount of electricity consumed for all Agency premises in EUI in Year N) / (Total GFA for all Agency premises in EUI in Year N)

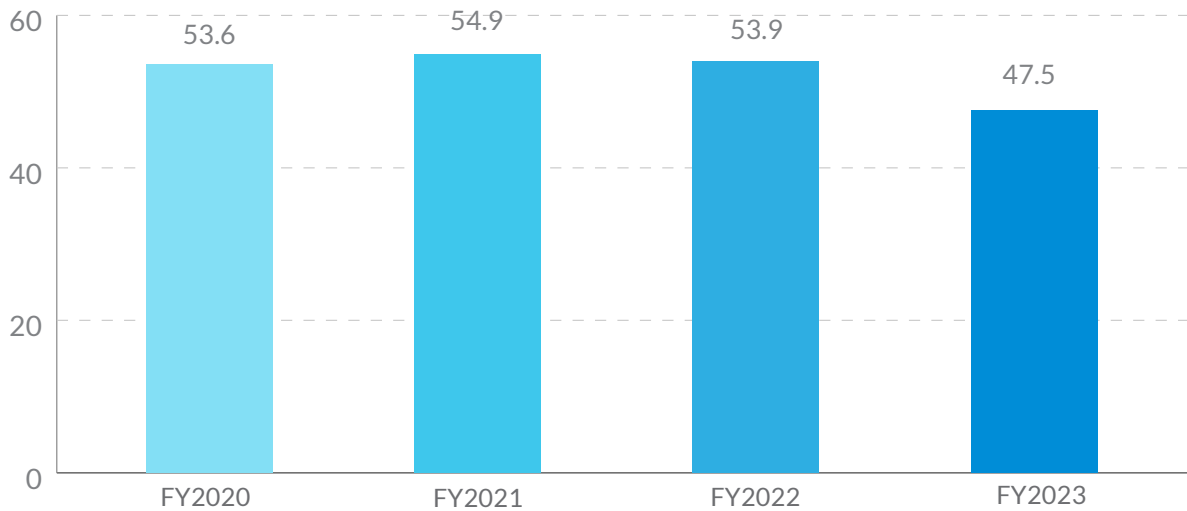
¹¹ The formula used to calculate Water Efficiency Index (WEI) is as follows: = [Total amount of water consumed for all Agency premises in Year N × 1000] / [Average number of operational days in Year N for all Agency premises × (Average number of staff per day for all Agency premises + (0.25 × Average number of visitors per day for all Agency premises))]

¹² The formula used to calculate Waste Disposal Index (WDI) is as follows: = [Total amount of waste disposed of for all Agency premises in Year N × 1000] / [Average number of operational days in Year N for all Agency premises × (Average number of staff per day for all Agency premises + (0.25 × Average number of visitors per day for all Agency premises))]

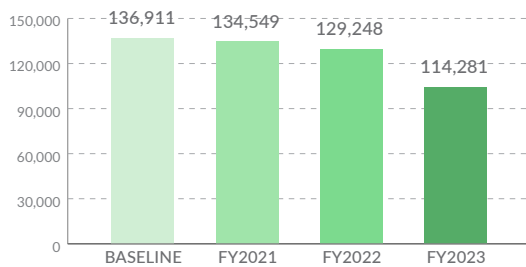
JTC's Operation Sustainability Performance¹³



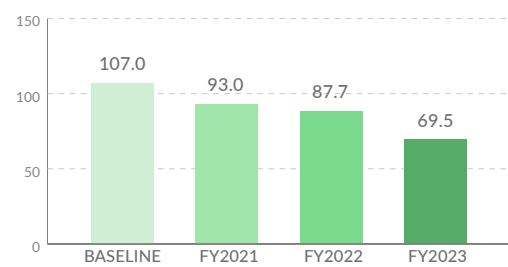
TOTAL EMISSIONS¹⁴ (ktCO₂e)



TOTAL ENERGY CONSUMPTION (MWh)



ENERGY UTILISATION INDEX (kWh/m²)



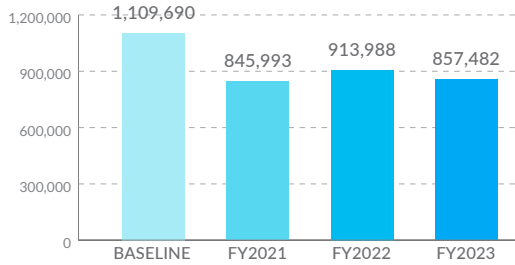
¹³ Based on available GreenGov.SG data as of December 2024.

¹⁴ This includes Scope 1 and Scope 2 emissions. For FY2023, the Scope 1 emissions (approximately 0.4 ktCO₂e) include diesel consumption (approximately 5,500 litres / 0.21 TJ) from back-up generator sets and petrol consumption (approximately 1,000 litres / 0.03 TJ) from JTC vehicles on leasing mode, and other fuel consumption from JTC's operations. The Scope 2 emissions (approximately 47.1 ktCO₂e) were

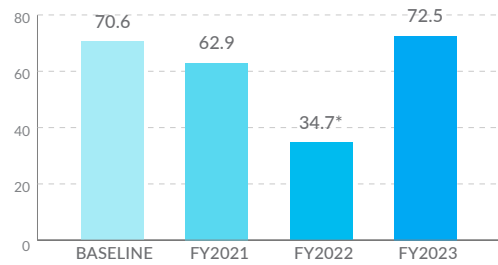
mainly from electricity consumption. Conversion factor used to convert fuel consumption into standardised unit of TJ: GHG Protocol Cross Sector Stationary Combustion Emission Factors (https://ghgprotocol.org/sites/default/files/2024-05/Emission_Factors_for_Cross_Sector_Tools_V2.0_0.xlsx). Conversion factor to convert electricity to carbon emissions: <https://www.ema.gov.sg/resources/singapore-energy-statistics/chapter2>



TOTAL WATER CONSUMPTION (m³)



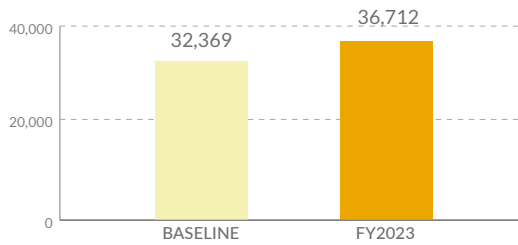
WATER EFFICIENCY INDEX (litres/person/day)



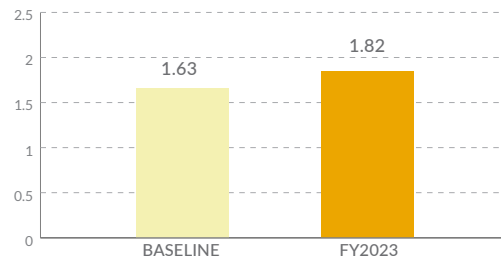
*The number of visitors and occupants in FY22 was affected due to pandemic safety measures.



TOTAL WASTE DISPOSAL (tonnes)



WASTE DISPOSAL INDEX (kg/person/day)

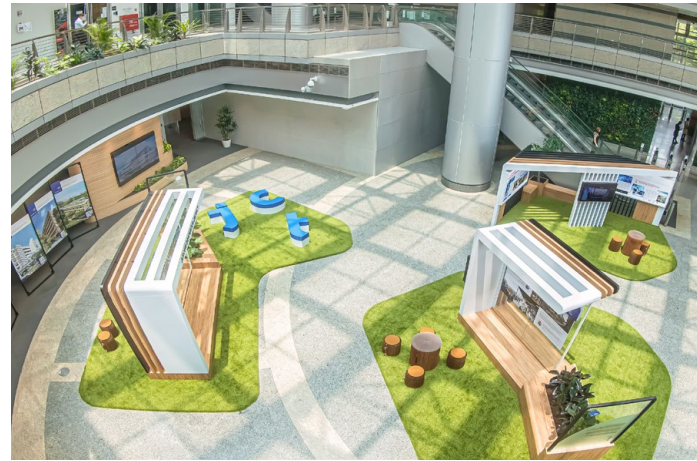


Solar deployment is one of the ways in which we are helping our industrialists achieve their sustainability goals.



A Centralised System to Track and Manage Carbon Emissions

To improve JTC’s sustainability performance and achieve our sustainability targets, we aim to establish a centralised system to track and manage our operational carbon emissions. This initiative also includes the development of a building performance scorecard to standardise resource management and monitoring processes. Additionally, we will implement more building efficiency improvement works, increase active community engagement, and provide staff training on sustainability practices. These measures will enhance our building and estate sustainability performance, raise awareness, and build capabilities.



The JTC Summit is a testbed for green innovations.

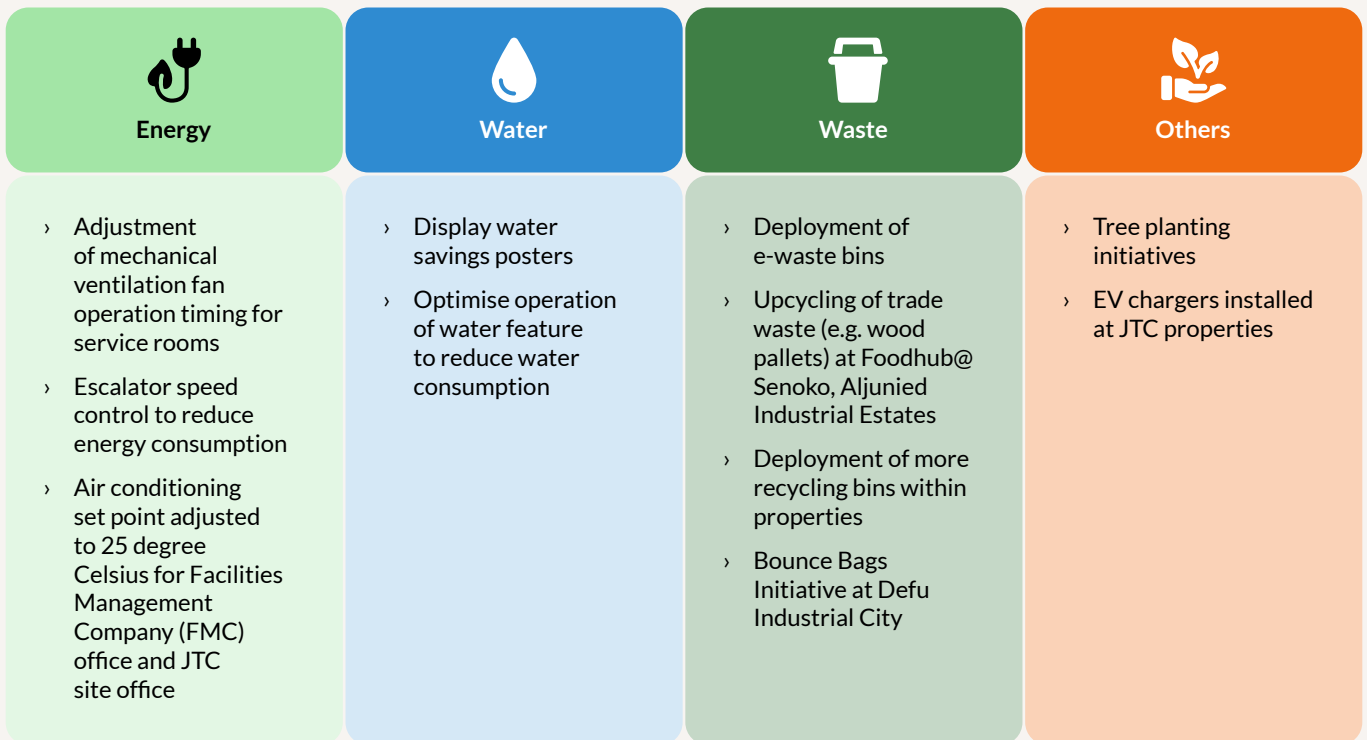


Figure 11: Measures to enhance our sustainability performance in our developments

Green Solutions for Energy Efficiency: SLEB Trial at The JTC Summit and Smart Chiller Selection Tool

With technology, old buildings have the potential to use as little energy as new, greener buildings. Showcasing leadership in decarbonising the built environment, JTC is conducting a pilot trial at selected demonstration spaces in The JTC Summit to achieve Green Mark Super Low Energy Building (SLEB) status.

Emphasising energy-efficient solutions such as smart lighting and hybrid cooling, the pilot seeks cost-effective, integrated systems that balance low energy usage with user comfort. These green solutions not only save money for running the 20-year-old building but also improve comfort for users – no more empty rooms that are too cold, or crowded spaces that are too stuffy!



The SLEB trial at The JTC Summit

The SLEB trial at The JTC Summit aims to achieve both visual and thermal comfort

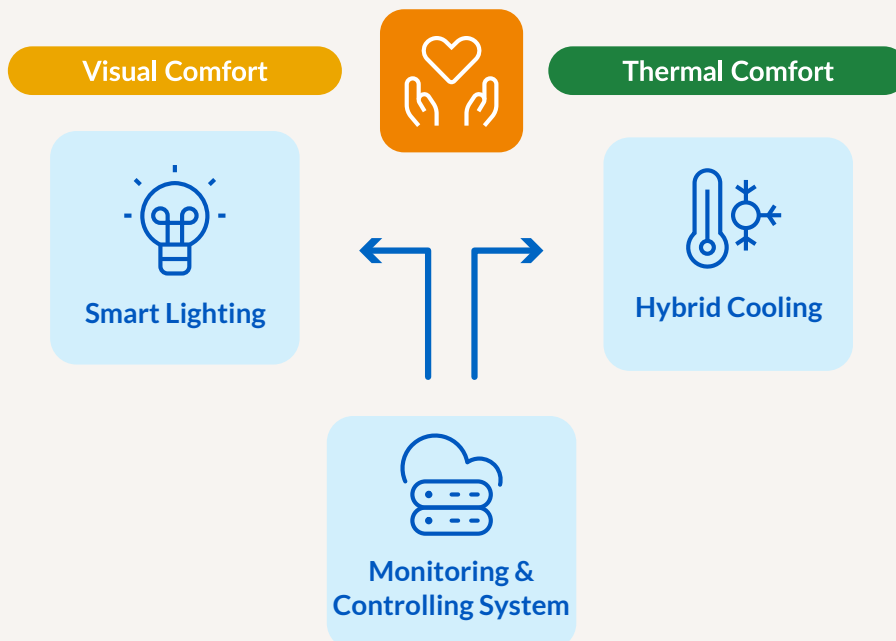


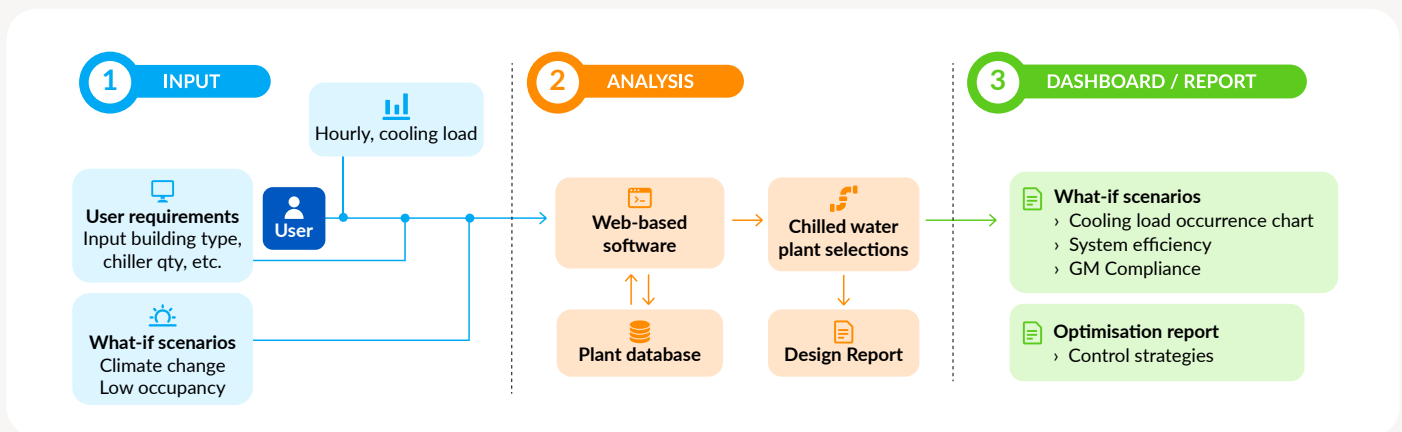
Figure 12: Aims of the SLEB trial at The JTC Summit

Smart Chiller Selection Tool

JTC understands the importance of designing energy-efficient chilled water plant systems, as they typically contribute significantly to a building’s total energy consumption. Through the JTC Innovation Challenge, the team aims to develop a web-based design tool for chilled water plant selection, ensuring precise matching of chiller, pump, and cooling tower specifications to the buildings’ cooling profile. The emphasis on selecting the right components during the design phase is crucial for ensuring operational efficiency in the long term. An optimised design not only maximises energy efficiency but also reduces the likelihood of operational issues and costly adjustments later in the lifecycle of the system. By incorporating advanced

data-driven methodologies, the tool will facilitate informed decisions that align with both performance requirements and sustainability goals.

This optimisation of energy efficiency leads to significant reduction in operating costs and long-term financial benefits, while also minimising the organisation’s carbon footprint through the selection of eco-friendly equipment configurations. This innovative solution showcases the potential of technology and data-driven approaches to contribute to a more sustainable future, demonstrating how thoughtful design and component selection can yield lasting benefits for both the environment and operational performance.



ENVISIONED OUTCOMES

Precise Selection

The tool facilitates the matching of the chiller, pump and cooling tower specifications based on the desired cooling profile.

Cost Reduction

By optimising energy efficiency, operating costs can be reduced, resulting in long-term financial benefits.

Sustainability

By choosing the most eco-friendly equipment configurations, it will help to minimise the organisation’s carbon footprint.

Simplified Decision Making

Streamlined reports and recommendations make it easy to understand and act on the findings, even for non-technical personnel.

Competitive Edge

The tool enhances operational performance and efficiency, enabling companies to gain a competitive edge.

Figure 13: Web-based design tool for chilled water plant selection

Food Waste Valorisation Initiative at Selected JTC Facilities

JTC deployed food waste treatment equipment at three food factories – Gourmet East Kitchen, Bedok Food City, and Shimei East Kitchen – where biodigesters convert food waste into compost or animal feed.

To raise awareness of Singapore's Resource Sustainability Act (RSA), the team facilitated engagements between tenants and National Environment Agency (NEA) through focus group discussions to inform tenants on their RSA obligations and spur tenants to participate in the existing food waste digester programme.

In addition, JTC also organised a food waste awareness roadshow to introduce food waste valorisation vendors, increase awareness of NEA's RSA and support tenants in their food waste reduction journey.

The team collaborated with NEA and Enterprise Singapore to invite a diverse range of vendors to showcase various food waste valorisation methods. Furthermore, the roadshow included the participation of a food waste digester vendor who educated tenants on the types of food waste suitable for the existing digesters at our food factories.

Since the roadshow, tenants have contributed 50 to 60 tonnes of food waste to a black soldier fly facility, where insect larvae decompose the food into frass, which is used as fertiliser at a vegetable farm.

Food digesters are located at developments such as Gourmet East Kitchen.



Powering a Green Future by Embracing Renewable Energy

GRI 3-3

Accelerating Energy Transition to Solar Power

With our equatorial siting affording us abundant direct sunlight, solar energy is undoubtedly one of Singapore’s most reliable sources of renewable energy. Leveraging this, JTC has been driving sustainability through its SolarRoof and SolarLand programmes since 2017, enabling the business community to generate renewable energy and bolster Singapore’s solar capacity.

By opening up rooftops and temporary vacant industrial land for solar panel installation, JTC aims to make all feasible buildings and industrial properties available for solar panel installation, potentially contributing 1.25GWp of solar energy by 2030. This ambitious goal represents about 60% of Singapore’s 2030 target for total solar deployment.

JTC’s Solar Targets

- › To achieve **350MWp** solar deployment on JTC’s building rooftops, vacant industrial land, and sea spaces by 2030
- › To achieve **900MWp** solar deployment on privately leased industrial properties rooftops by 2030
- › Potential **60%** contribution from JTC to the WOG 2GWp solar deployment target

JTC’S SOLAR PERFORMANCE

FY	On JTC building rooftops, vacant industrial land, and sea spaces	On JTC lessees’ building rooftops
FY2022	135.6MWp*	225.4MWp
FY2023	255.8MWp*	453.2MWp

* Estimated based on the solar deployment area awarded to the solar vendors

In December 2023, JTC awarded a tender for its largest solar deployment on Jurong Island, covering 60 hectares of interim vacant land and the rooftops of five JTC buildings. The project, awarded to Sembcorp Solar Singapore, will have an estimated solar generation capacity of 117MWp, increasing Jurong Island's solar capacity nearly sixfold by 2025.

Furthermore, in January 2024, JTC awarded the tender for SolarRoof Phase 4, involving the installation of solar panels on the rooftops of over 100 blocks of terrace workshops. Upon completion this year, it is estimated to yield a solar generation capacity of about 21.8MWp.

To date, JTC has awarded eight solar deployment contracts with an estimated total capacity of over 250MWp and has also collaborated with industrialists to install approximately 450MWp on privately leased industrial rooftops. This is sufficient to power more than 168,000* units of 4-room HDB flats annually. JTC will continue to intensify our solarisation efforts on JTC's and our customers' roof spaces, and explore the possibility of utilising vacant land for solar deployment.

* Estimated based on Energy Market Authority's data of Average Household Electricity Consumption for year 2023



The SolarLand initiative can be found in various sites across Singapore, including Tuas and Changi Business Park.

The SolarRoof programme utilises rooftop space for solar PV deployment.



Sustainability in Estate and Building Rejuvenation

GRI 3-3



Implementing Adaptive Reuse in the Redevelopment of Mature Estates and Buildings

Globally, many adaptive reuse projects have transformed industrial spaces into commercial venues such as restaurants and office spaces, bringing vibrancy to the community. However, integrating former industrial buildings for continued industrial use is still relatively nascent. JTC has developed an adaptive reuse framework for industrial buildings, assessing the potential of previously used industrial buildings with future industrial needs and amenity uses, to achieve social, economic, and environmental objectives. This pilot is intended to encourage local industrialists to reuse more existing industrial buildings for future uses.

As a pilot case, JTC has launched an industrial tender site at Kolam Ayer Industrial Estate (KAIE) integrating adaptive reuse as part of the requirements. This marks the first Industrial Government Land Sales (IGLS) site where an existing terrace factory is retained and adapted for continued industrial use, promoting sustainable redevelopment whilst preserving Singapore’s industrial architectural legacy.

The retention and adaptive reuse of the first floor of the terrace factory block alone can potentially abate approximately 5,000 metric tonnes of carbon emissions, equivalent to removing around 1,000 cars from the road for a year. Additionally, the integration of adaptive reuse is strategically planned for the development of a food manufacturing hub, injecting vibrancy into industrial spaces and benefiting the wider community.

JTC’s adaptive reuse framework aims to comprehensively rejuvenate mature industrial lands and estates over time in a sustainable manner, with the Kolam Ayer industrial area serving as the starting point for broader implementation of adaptive reuse across our industrial estates.



First IGLS site where an existing terrace factory is retained and adapted for continued industrial use.

“With Singapore’s limited land, JTC is continuously seeking innovative and creative ways to redevelop ageing industrial estates. Through the deliberate adaptive reuse framework which JTC has developed, it is hoped that more mature industrial lands and estates can be comprehensively rejuvenated over time, and in a sustainable manner. Over time, we aim to strategically leverage existing infrastructure to reduce embodied carbon, preserve the industrial architectural legacy of Singapore, and continue breathing new life into Singapore. And we are doing this beginning with the Kolam Ayer industrial area. Successful outcomes arising from this IGLS site will allow us to pave the way for broader implementation of adaptive reuse across our industrial estates.”

Ms Tang Hsiao Ling

Director for Urban Planning & Architecture Division

JTC

An artist's impression of the possibilities in store at the developed Kallang Way IGLS site with the adaptive reuse block.



SUSTAINABLE CONSIDERATIONS FOR APPLYING ADAPTIVE REUSE AT KAIE



Figure 14: Sustainable considerations for applying adaptive reuse at KAIE

An aerial photograph of a lush green campus. In the upper right, a modern building with a glass facade is visible. To its right, a swimming pool with a red slide and people is partially seen. The majority of the image is filled with dense green trees and well-maintained lawns. A paved path winds through the greenery. In the lower left, a large sculpture made of greenery is shaped like a hand. The overall scene is vibrant and green.

A GREENER AND THRIVING COMMUNITY

No organisation can thrive or even survive without people. At JTC, internal and external stakeholders make up a complex network that enables our operations and gives us purpose. As such, social sustainability — prioritising employee and stakeholder relations — is one of our key objectives, encompassing issues such as community engagement, fair employment, inclusivity, and workforce welfare, retention and development. It also includes safeguarding the health, safety and well-being of our workforce with policies and practices that identify and mitigate hazards, as well as bolster a sense of security for better outcomes.

one-north boasts plenty
of green pockets.

Occupational Health, Safety (OHS), and Well-being

GRI 3-3, GRI 403-1, 403-2, 403-3, 403-4, 403-5, 403-6, 403-7, 403-8, 403-9

Promoting Workplace Safety

To foster a zero-harm culture at JTC, we have implemented a range of initiatives, including the adoption of Design for Safety and Design for Manufacturing and Assembly technologies to identify and reduce safety risks, as well as the establishment of incident reporting processes and safety training programmes. These initiatives are pivotal in shaping a zero-harm culture within our operations and value chain. Regular inspections, monthly assurance programmes, safety time-out sessions, and worker engagement activities further reinforce safety awareness and compliance. Our collaboration with NGOs to build a sustainable zero-harm culture underscores our commitment to an open and communicative workplace culture, where workers are encouraged to report hazards without fear.

Additionally, our Workplace Safety and Health (WSH) Committee plays a crucial role in overseeing our Occupational Health and Safety (OHS) management system and policies, ensuring a holistic approach to occupational health and safety. We actively engage our project partners on health and safety matters through safety reviews and Monthly Safety Agenda committees, which are represented by members from the main contractor's management, construction workers and sub-contractors. These meetings serve as a platform to discuss safety-related matters, allowing close oversight of on-site issues ranging from safety challenges to workers' welfare.

In 2023, our proactive measures resulted in no fatalities or dangerous occurrences, with 32 non-fatal injuries. Root causes of these injuries were promptly addressed to prevent recurrence, and lessons from all incidents were actively shared with project teams and contractors to strengthen safety control measures.

Work-related injuries (on construction projects) reported by contractors in FY2023*

Number of non-fatal work-related injuries	32
Number of fatal incidents	0

* This information was obtained from our contractors and is dependent on the contractors' reporting accuracy

JTC OHS PERFORMANCE



Zero work-related fatality or permanent disability in FY2023



Conducted more than nine roadshows and programmes, engaging approximately 900 participants to raise awareness of safety and health issues across JTC properties

KEY OHS EVENTS



JTC Safety Seminar



JTC Construction Safety Awards



Migrant Workers Appreciation Day



JTC Health and Safety Roadshow

JTC OHS APPROACH



Safety planning and capacity monitoring through a comprehensive project safety management plan



Implementation of robust safety controls including physical and supervisory controls



Foster a learning environment through the analysis and understanding of incidents

Figure 15: JTC's OHS performance, events, and approach

Promoting Zero Harm Workplace

The JTC Safety Seminar and JTC Safety & Quality Day are pivotal events that underscore JTC’s commitment to fostering a workplace culture with zero harm. The JTC Safety Seminar 2023 brought together 291 participants, including JTC staff, consultants, and contractors’ management and representatives, to share safety performance insights and best practices under the theme “Safety Leadership and Culture Building @ the Project Level”.

In addition, JTC also organised the JTC-Singapore Civil Defence Force (SCDF) Fire Safety Seminar on 12 October 2023, which attracted over 300 participants from various industry sectors. The event featured keynote addresses from JTC and SCDF leadership, highlighting the significance of fire safety awareness and the necessity of evolving safety requirements. Attendees also had the opportunity to engage directly with SCDF experts on topics covering Fire Safety Act amendments, common non-compliance issues, and updates to submission processes.

JTC also launched the Construction Safety Awards to recognise exemplary contractors and consultants for their outstanding WSH performance. This year, two new award categories were introduced to advocate safety leadership at all levels: the JTC Project Consultant and Site Supervision Team award, acknowledging individuals contributing to project WSH performance, and the JTC Zero Harm Ambassador award, recognising proactive advocacy of Zero Harm by JTC Project Managers.



Contractors and key partners in attendance at the JTC Safety Seminar 2023.

JTC aims to engage key stakeholders and conduct annual fire and workplace safety dialogues to foster a culture of shared responsibility for fire safety. JTC has introduced Blaze, our fire safety mascot, to improve outreach to our tenants and lessees. Our slogan, “Loss is avoidable. Practice F.I.R.E prevention,” underscores the responsibilities of employee and employer in preventing fire at their workspace. We believe that losses (in any form including property damage and injury) are avoidable when F.I.R.E. prevention steps are taken:

- › **F** for Find Potential Hazardous Areas
- › **I** for Inspect Areas for Safety Issues and Fix Them
- › **R** for Remove Hazardous Items Properly
- › **E** for Ensure Workplace is Safe Before Leaving



Migrant Workers Appreciation Day

For the past two years, we have collaborated with Institutes of Higher Learning and their students to organise the annual Migrant Worker Appreciation Day. This initiative aims to foster a sense of community among our stakeholders and serves as a platform for us to express our gratitude to the migrant worker community, who is integral to our developments.

In continuation of this effort, the Migrant Worker Appreciation Day 2023 was organised following the success of the 2022 event. We partnered with final-year students from Singapore Polytechnic and the China Construction team to design a sports-themed carnival-style programme, providing an afternoon of games and entertainment for the workers. The three-hour fun-filled event took place on 22 October 2023 at Bulim Dormitory in JID, which included friendly matches, sports-themed game booths, a sharing session by the Migrant Workers Centre, as well as a lucky draw and prizes.

Raising Awareness: Health and Safety Roadshows

In FY2023, a total of six roadshows and events were held to engage approximately 900 participants to raise awareness of health and safety issues across several JTC properties. Participating agencies include the Health Promotion Board (HPB), SCDF, NEA, and the Singapore Police Force (SPF). HPB conducted the “Beyond the Scales” Campaign, offering free health check stations for tenants.

SCDF shared the basics of Cardiopulmonary Resuscitation (CPR) practice and Automated External Defibrillator (AED) usage, and tenants also learnt the proper handling of a fire extinguisher through a hands-on demonstration. Additionally, SPF and NEA also spread awareness of scams and vector-borne diseases respectively. Many tenants expressed appreciation for JTC’s efforts in organising the roadshows, particularly in bringing together various agencies and providing them the opportunity for free health checks. For some of the properties, HPB even highlighted that the health check responses had surpassed their participation goals.

Participants at the Migrant Workers Appreciation Day.



Practising Social Responsibility and Contributing to Our Community

GRI 3-3

Partnering with Charities and Community Groups

At JTC, we are committed to making a positive impact on the community and environment through our Corporate Social Responsibility (CSR) initiatives. Guided by four core principles in our CSR framework, we continue to contribute meaningfully to local communities by partnering organisations such as South West Community Development Council, Asian Women’s Welfare Association (AWWA) Senior Community Home, and Waterways Watch Society.

FOUR CORE PRINCIPLES ANCHORING JTC’S CSR FRAMEWORK

-  Promotion of volunteerism
-  Helping the vulnerable young and elderly
-  Partnerships with community-based organisations
-  Active involvement with communities in Singapore’s western region

Figure 16: JTC’s CSR framework

The master plans of our new estates increasingly integrate the needs of the community, such as green spaces.



Engaging Staff in Practising CSR

In conjunction with Earth Day 2023, nearly 40 JTC staff members ventured on foot and into the water to collect discarded refuse from the Kallang Basin, maintaining the cleanliness and environmental integrity of our local waterway. The participants collected almost 90kg of rubbish in less than three hours.

Additionally, JTC, together with our CSR partners, organised the Grant-a-Wish Christmas event for underprivileged children. More than 100 JTC volunteers signed up to adopt wishes from 70 children. The event featured fun games and activities, as well as popcorn and candyfloss stations, ensuring that the children and their parents enjoyed a memorable time.



JTC staff participated in refuse collection at Kallang Basin.

JTC's volunteers at the Grant-a-Wish Christmas event, which brought festive cheer to 70 children.



Equal Opportunity, Fair Employment Practices, and Talent Retention

GRI 2-7, 2-8, 2-25, 2-30, 3-3, 401-1, 401-2, 401-3, 404-1, 404-2, 404-3, 405-1

Looking After Our People

JTC places a strong emphasis on our employees as valuable assets and is committed to fair employment practices and equal opportunities as a signatory of the Employers' Pledge of Fair Employment Practices established by the Tripartite Alliance for Fair & Progressive Employment Practices (TAFEP). The organisation recognises the benefits of a diverse and inclusive workforce, leading to increased productivity, better employee morale, and enhanced innovation and creativity.

JTC's employment practices align with government regulations, and the organisation maintains a collaborative relationship with the Amalgamated Union of Public Employees (AUPE) to address employee concerns and ensure that their rights are respected.

Developing Our Staff

In nurturing the talent and capabilities of our staff, JTC provides multiple professional development opportunities, fostering a culture of continuous learning and ongoing improvement. This approach encompasses a competency-based framework to identify staff learning needs and a semi-structured approach to cultivate core and critical skills relevant to JTC. By providing targeted and comprehensive training, JTC ensures that our staff's capabilities are enhanced, aligning with the organisation's strategic goals and values.

Additionally, the organisation has adapted to remote work arrangements by introducing digital content and enhanced blended learning experiences, enabling employees to access training conveniently and continue their professional development.

Moving forward, JTC aims to develop our staff's competency in sustainability by having over 90% of employees complete at least one sustainability training in FY2024, empowering employees to thrive and contribute to the success of JTC's and the nation's sustainability journey.

JTC organises a variety of activities to foster strong bonds among staff members.



JTC's Human Resources and Training Data

Total no. of employees by employment contract, by gender	Male	Female
Permanent employees	469	497
Fixed term/temporary employees	114	82

Total no. of employees by employment type, by gender	Male	Female
Full-time employees	582	575
Part-time employees	1	4
Non-guaranteed hours employees	-	-

Total no. of employees by employment contract, by region	Permanent	Temporary
Singapore	1162	-
Others	-	-

Total no. of employees by employment type, by region	Full-time employees	Part-time employees
Singapore	1157	5
Others	-	-

Total no. of employees by employee category and gender	Male	Female
Professional staff and above	511	446
Executive staff	72	133

Total no. of employees**by employee category and age group**

	< 30 years	30 - 50 years	> 50 years
Professional staff and above	150	651	156
Executive staff	3	80	122

Male**Female****Total no. of workers who are not employees
(working in organisation's controlled environment)**

9620

662

Total new hires

Total new hires	169
Overall new hire rate	15%

**New hires, by age group,
during the reporting period**

	< 30 years	30 - 50 years	> 50 years
No. of new hires	64	101	4
Rate of new hires (Denominator: total no. of employees)	6%	9%	0%
Rate of new hires (Denominator: no. of employees in age group)	42%	14%	1%

New hires, by gender, during the reporting period**Male****Female**

No. of new hires	81	88
Rate of new hires (Denominator: total no. of employees)	7%	8%
Rate of new hires (Denominator: no. of employees in gender category)	14%	15%

Total no. of employees who	Male	Female
Were entitled to paternity/maternity leave during reporting period (Married status only)	429	386
Took paternity/maternity leave	21	25
Returned to work (during reporting period) and returned to work rate after parental leave ended	20 (95.2%)	25 (100%)
Were employed for 12 months after their return to work and retention rate, after parental leave	18 (69.2%)	22 (84.6%)

Total turnover	135
Overall turnover rate (Denominator: no. of employees by region)	12%

Total turnover, by age group, during the reporting period	< 30 years	30 - 50 years	> 50 years
No. of voluntary turnover	16	70	14
No. of non-voluntary turnover	4	16	15
No. of voluntary and non-voluntary turnover	20	86	29
Rate of voluntary and non-voluntary turnover (Denominator: total no. of employees)	2%	7%	2%
Rate of voluntary and non-voluntary turnover (Denominator: no. of employees in age group)	13%	12%	10%

Turnover, by gender

	Male	Female
No. of voluntary turnover	50	50
No. of non-voluntary turnover	18	17
No. of voluntary and non-voluntary turnover	68	67
Rate of voluntary and non-voluntary turnover (Denominator: total no. of employees)	6%	6%
Rate of voluntary and non-voluntary turnover (Denominator: no. of employees in gender category)	12%	12%

**Average hours of training
per year per employee, by gender**

	Male	Female	Total
No. of training hours	26,171	23,454	49,625
Average no. of training hours	44.8	40.5	42.7
No. of training hours for managers and above	24,948	22,502	47,450
Average no. of training hours for managers and above	48.8	50.4	49.5
No. of training hours for executives	1,223	952	2,175
Average no. of training hours for executives	16.9	7.1	10.6



UPHOLDING OUR SUSTAINABILITY GOVERNANCE

Transparency and accountability are crucial to an organisation's integrity. For this reason, we are committed to upholding the highest standards of professional conduct and data security through rigorous internal control and compliance policies relating to our business practices and cyber systems. By doing so, we aim to bolster our resilience and maintain our stakeholders' trust and confidence in us.

Fluid lines add a natural aesthetic to the architectural features of Punggol Digital District.

Corporate Governance

GRI 2-16, 2-26, 2-27, 205-1, 205-2, 205-3, 418-1

Upholding Ethical Standards with Corporate Policies

As JTC recognises the importance of stakeholder trust, we have implemented robust procedures to effectively monitor and mitigate the risks associated with non-compliance to applicable laws and regulations.

Our commitment to upholding ethical standards is clearly articulated to all employees through our comprehensive Code of Conduct and Ethics. To ensure compliance, all staff are required to adhere to JTC's Financial Manual for procurement matters, undergo fraud-risk training, and provide an annual declaration regarding core values and conflicts of interest. In FY2023, JTC had:

- › Zero substantiated whistleblower reports relating to corruption
- › Zero substantiated complaints regarding breaches of customer privacy or loss of customer data

Practising Zero Tolerance for Workplace Harassment through Grievance Handling

JTC has zero tolerance for workplace harassment and other inappropriate behaviour and is committed to providing a safe and conducive workplace for all staff. To facilitate this, JTC has policies in place to address grievances relating to HR matters and workplace harassment. To provide a safe environment for staff to report incidents relating to harassment, every effort will be made to protect the identity of the staff who make reports or give evidence, to the extent feasible and permissible under the law.

Spurring Proactive Involvement with Whistleblowing Policy

JTC has a whistleblowing policy in place which is communicated to all employees upon their employment. JTC takes every report seriously and will review all cases received through the whistleblowing channels. Thorough investigations are conducted for cases involving wrongdoings such as fraud, corruption, and collusion, and where necessary, the cases are reported to local law enforcement agencies.

The whistleblowing policy is published on JTC's intranet. JTC staff can raise their concerns to the Director of Audit and Advisory Division (AAD), CEO or Chairman of Audit and Risk Committee. For external parties, the whistleblowing policy is published on JTC's corporate website and the whistleblowing channels are independently managed by the AAD.

The policy is intended to respect the confidentiality of information and identities of whistleblowers, and JTC assures all whistleblowers that necessary measures will be taken to protect them from reprisal or negative personal consequences after their disclosures, if made in good faith.

JTC has a zero-tolerance policy against fraud and corruption, and all substantiated whistleblowing reports will be circulated to Board Chairman, Audit and Risk Committee, and members from senior level management affected by the reports. We are pleased to report that JTC did not receive any whistleblower reports in FY2023 relating to corruption that were substantiated.

Oversight by the Board – Audit & Risk Committee

FY2023 JTC Assurance on State of Internal Controls

To uphold good corporate governance, the Enterprise Risk Management Unit (ERMU) coordinates the annual assurance statement by JTC management via the JTC Controls Assurance Framework, which is effected through a suite of risk management programmes and internal controls built up over the years. The results are reported to JTC's Audit and Risk Committee and for FY23, JTC management assessed the state of the internal controls to be adequate and effective to achieve the following objectives:

- a. Effectiveness of operations
- b. Reliability of financial reporting
- c. Compliance with applicable laws and regulations

FY2023 JTC Audit and Advisory Division's Annual Report

JTC AAD's annual report to the Audit and Risk Committee on the state of internal controls for FY23 noted that the JTC Group's system of governance, risk management and internal controls was generally adequate and operating effectively in areas audited by JTC AAD.

Construction Regulatory Compliance Unit (CRCU)

The CRCU was formed on 1 July 2021 with the key objective of strengthening regulatory compliance approvals of all JTC projects under construction. Effective from 1 April 2022, the compliance function of the CRCU was re-organised to report to the JTC Audit and Risk Committee through AAD. CRCU checks all projects under construction stage for regulatory approvals before commencement of the relevant work. CRCU also adopts a proactive approach by providing front line advisory to JTC Project Managers to enhance their awareness of areas requiring authority approvals and reduce non-compliance.

At LaunchPad @ one-north, small green spaces aim to promote well-being.



Enhancing Our Cybersecurity and Information Infrastructure Resilience

GRI 3-3

Information and Communication Technology (ICT) systems are integral to supporting JTC's daily operations. The availability, confidentiality, and data integrity of these systems are crucial for operational continuity and the success of both business and administrative activities.

To ensure the highest level of data security, we have made significant investments in advanced cybersecurity technologies. Moreover, we maintain our data security by adhering to established policies, including robust ICT policies and procedures such as the End User ICT Security Policy which governs the proper use of ICT systems within JTC.

Equally important is the role of our staff who undergo regular cybersecurity awareness training to ensure strict adherence to protocols when handling sensitive data and reporting potential cybersecurity incidents. In the event of a cybersecurity intrusion or potential data breach, we have well-defined response procedures in place to swiftly contain and minimise any potential impact.

Additionally, we conduct annual workshops for cybersecurity incident management and regularly distribute awareness emails. To reduce third-party supplier risks, we have also developed a JTC Security Awareness Kit for our contractors, providing guidance on good cybersecurity practices and how to report any suspicious incidents.



Sustainable and Resilient Procurement Practice

GRI 3-3, 205-2

JTC aims to achieve stable, cost efficient, and sustainable supply chains through our procurement practices and the following approaches:



Aligning with government procurement principles



Actively engaging vendors and suppliers

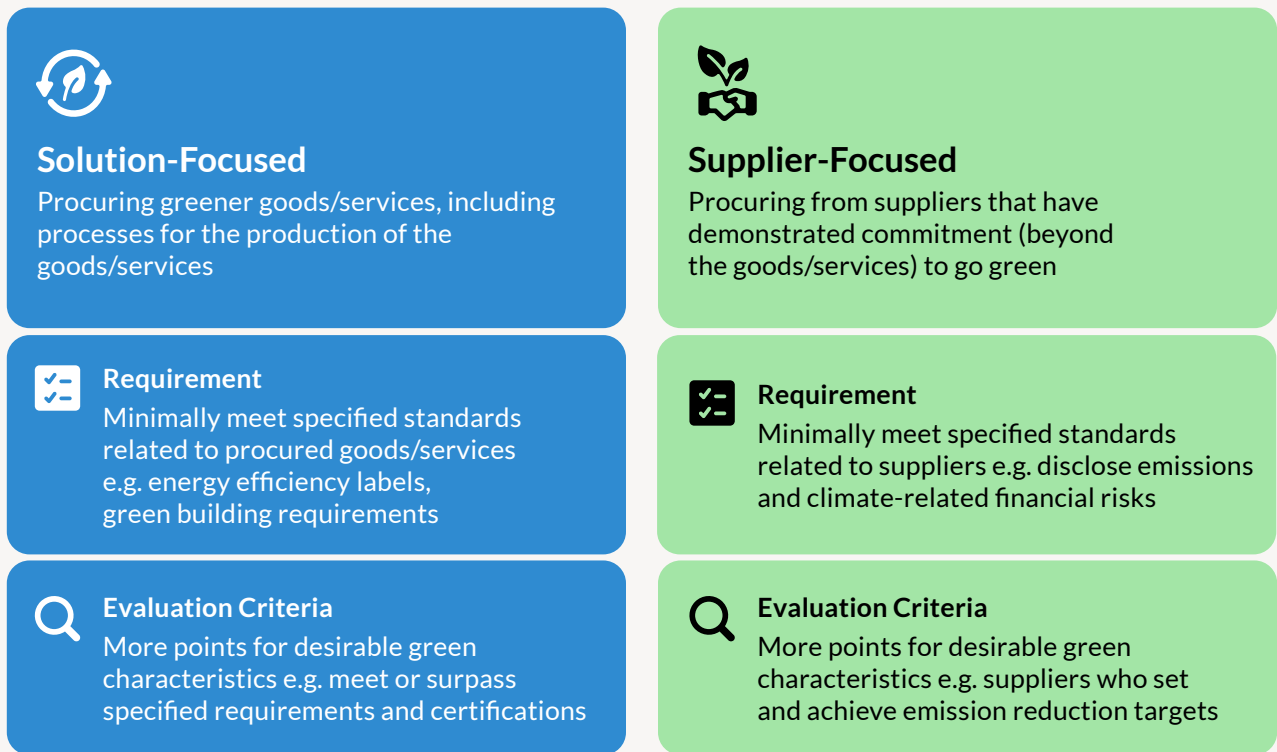


Incorporating sustainability requirements in tenders

JTC adheres to stringent procurement guidelines set by the Ministry of Finance (MOF) and undergoes regular audits by our internal team and the Auditor-General's Office (AGO). Our procurement practices align with the government's core principles of transparency, value for money, and fair competition, which we have integrated into frameworks, policies, and processes to guide our divisions in procurement and contract management. These processes undergo internal reviews and audits to ensure their ongoing effectiveness.

As a key master planner and developer of Singapore's industrial landscape, we are committed to supporting the national environmental sustainability agenda by spearheading the public sector's decarbonisation efforts and proactively adopting more environmentally sustainable practices through our procurement processes. This includes supporting the WOG's approach to green public procurement as part of the GreenGov.SG movement by incorporating environmental sustainability considerations into our tender specifications and evaluation criteria to achieve our sustainability goals.

Moving forward, we plan to implement a corporate-wide sustainable procurement framework with sustainability requirements and criteria for construction and corporate tenders. By incorporating sustainability considerations into our tender evaluation process, we aim to encourage our suppliers to grow their capabilities in sustainability as they bid for JTC tenders. As part of a pilot scheme, we have included 5% sustainability criteria in selected construction and facilities management tenders. Moving forward, we aim to incorporate sustainability considerations in our evaluation criteria and requirements for other procurement as well.



PLANS MOVING FORWARD



Figure 17: Aims of JTC's sustainable and resilient procurement practices.

GRI Content Index

Statement of use	JTC Corporation has reported in accordance with the GRI Standards for the period of 1 April 2023 to 31 March 2024
GRI 1 used	GRI 1: Foundation 2021
Applicable GRI Sector Standard(s)	N.A.

GRI Item Description	Location	Direct Answer / Reasons for Omission	
GENERAL DISCLOSURES			
GRI 2: General Disclosuers 2021	2-1 Organisational details	Page 10	
	2-2 Entities included in the organisation’s sustainability reporting	Page 5	
	2-3 Reporting period, frequency and contact point	Page 5	
	2-4 Restatements of information	-	There have been no restatements of information from the previous reporting period.
	2-5 External assurance	Page 5	
	2-6 Activities, value chain and other business relationships	Page 10	
	2-7 Employees	Page 54	
	2-8 Workers who are not employees	Page 55	
	2-9 Governance structure and composition	Page 11-12 JTC Annual Report Page 4-5	
	2-10 Nomination and selection of the highest governance body	Page 12	
	2-11 Chair of the highest governance body	JTC Annual Report Page 4	
	2-12 Role of the highest governance body in overseeing the management of impacts	Page 11-12	
	2-13 Delegation of responsibility for managing impacts	Page 11-12	

GRI Item Description	Location	Direct Answer / Reasons for Omission
2-14 Role of the highest governance body in sustainability reporting	Page 11-12	
2-15 Conflicts of interest	Page 12	
2-16 Communications of critical concerns	Page 59-60	
2-17 Collective knowledge of the highest governance body	Page 12	
2-18 Evaluation of the performance of the highest governance body	-	This includes sensitive information and will not be disclosed due to confidentiality constraints.
2-19 Remuneration policies	-	This includes sensitive information and will not be disclosed due to confidentiality constraints.
2-20 Process to determine remuneration	-	This includes sensitive information and will not be disclosed due to confidentiality constraints.
2-21 Annual total compensation ratio	-	This includes sensitive information and will not be disclosed due to confidentiality constraints.
2-22 Statement on sustainable development strategy	Page 3-4	
2-23 Policy commitments	-	Disclosed throughout the sustainability report.
2-24 Embedding policy commitments	-	Disclosed throughout the sustainability report.
2-25 Processes to remediate negative impacts	Page 59-60	
2-26 Mechanisms for seeking advice and raising concerns	Page 59	
2-27 Compliance with laws and regulations	Page 59	This includes sensitive information and will not be disclosed due to confidentiality constraints.
2-28 Membership associations	-	JTC is a member of Singapore Green Building Council, which is an NGO that forges public-private partnerships to create innovative industry solutions across the entire building and construction value chain.
2-29 Approach to stakeholder engagement	Page 15-16	
2-30 Collective bargaining agreements	Page 53	

GRI Item Description	Location	Direct Answer / Reasons for Omission
MATERIAL TOPICS		
GRI 2: General Disclosuers 2021	3-1 Process to determine material topics	Page 17
	3-2 List of material topics	Page 17
MATERIAL TOPIC-SPECIFIC DISCLOSURES		
Sustainability in the Planning and Design of the Built Environment		
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 19-23
Sustainability in Construction: Materials and Technologies		
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 24-27
GRI 301 Materials 2016	301-1 Materials used by weight or volume	- JTC is in the process of improving the data availability and accuracy of conventional and recycled construction material used. The data is not available for FY2023.
	301-2 Recycled input materials used	- JTC is in the process of improving the data availability and accuracy of conventional and recycled construction material used. The data is not available for FY2023.
Operations Optimisation		
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 33-30
GRI 302 Energy 2016	302-1 Energy consumption within the organisation	Page 35
GRI 303 Water and Effluents 2018	303-1 Interactions with water as a shared resource	- JTC draws water from PUB, a third party service provider.
	303-2 Management of water discharge-related impacts	- JTC is not directly involved in the industry processes requiring significant volumes of water, and all wastewater is discharged into the sewage systems as per local laws and statutory regulations.
	303-3 Water withdrawal	Page 36 JTC draws water from PUB, a third party service provider.

GRI Item Description		Location	Direct Answer / Reasons for Omission
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	Page 35	
	305-2 Energy indirect (Scope 2) GHG emissions	Page 35	
GRI 306 Waste 2020	306-1 Waste generation and significant waste-related impacts	Page 36	
	306-2 Management of significant waste-related impacts	-	JTC works with service providers to collect and recycle waste according to the local laws and regulations. We have also ramped up our efforts to minimise waste from our daily operations, and maximise circularity of resources across all JTC compounds.
	306-3 Waste generated	Page 36	GRI 306-3 (a): Information unavailable: the data that breaks down recyclable waste into waste type is not available.
	306-4 Waste diverted from disposal	-	GRI 306-4 (a), (b), (c), (d): Information unavailable: Data showing the manner in which hazardous and non-hazardous waste has been diverted from disposal is not available.
	306-5 Waste directed to disposal	Page 36	306-5 (b), (c): Information unavailable: Data showing the manner in which hazardous and non-hazardous waste has been directed to disposal is not available.
Powering a Green Future by Embracing Renewable Energy			
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 41-42	
JTC's Material Topic: Estate and Building Rejuvenation			
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 43-45	GRI 3-3(e): We are progressively setting targets and tracking performance for our material topics to ensure our sustainable development is on the right track.
JTC's Material Topic: Innovation			
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 10 Innovative projects and initiatives are disclosed throughout the sustainability report	

GRI Item Description	Location	Direct Answer / Reasons for Omission	
Customer Engagement and Industry Partnership			
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 28-32 GRI 3-3(e): We are progressively setting targets and tracking performance for our material topics to ensure our sustainable development is on the right track.	
Occupational Health, Safety, and Well-being			
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 47-50 GRI 3-3(e): We are progressively setting targets and tracking performance for our material topics to ensure our sustainable development is on the right track.	
GRI 403 Occupational Health and Safety 2018	403-1 Occupational health and safety management system	Page 48	
	403-2 Hazard identification, risk assessment, and incident investigation	Page 48	
	403-3 Occupational health services	Page 47-49	
	403-4 Worker participation, consultation, and communication on occupational health and safety	Page 47	
	403-5 Worker training on occupational health and safety	Page 47-50	
	403-6 Promotion of worker health	Page 47-50	The insurance and coverage benefits cover non-occupational medical and healthcare services.
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Page 47-50	
	403-8 Workers covered by an occupational health and safety management system	Page 47	
	403-9 Work-related injuries	Page 47	While we have disclosed the number of work-related injuries, the injury rate data is unavailable as the organisation uses average manpower instead of total number of hours worked for the computation of the work injury rate.

GRI Item Description	Location	Direct Answer / Reasons for Omission	
Equal Opportunity, Fair Employment Practices and Talent Retention			
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 53-57	
GRI 401 Employment 2016	401-1 New employee hires and employee turnover	Page 55-57	
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	Page 53	The organisation provides the same benefits to both full-time employees and part-time employees. However, the entitlement for part-time employees is pro-rated based on their work schedules. The benefits that are offered to both groups include life insurance, health care, disability and invalidity coverage, family care leave, and retirement provision.
	401-3 Parental leave	Page 56	
GRI 404 Training and Education 2016	404-1 Average hours of training per year per employee	Page 57	
	404-2 Programmes for upgrading employee skills and transition assistance programmes	Page 53	
	404-3 Percentage of employees receiving regular performance and career development reviews	-	JTC conducts regular performance reviews for all employees.
GRI 405 Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	Page 54-56	
GRI 406 Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	Page 53	There were no incidents of discrimination during the reporting period.
Corporate Governance			
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 59-61	
GRI 205 Anti-Corruption 2016	205-1 Operations assessed for risks related to corruption	Page 60	
	205-2 Communication and training about anti-corruption policies and procedures	Page 59	
	205-3 Confirmed incidents of corruption and actions taken	Page 59	

GRI Item Description	Location	Direct Answer / Reasons for Omission
Enhancing Our Cybersecurity and Information Infrastructure Resilience		
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 61 GRI 3-3(e): We are progressively setting targets and tracking performance for our material topics to ensure our sustainable development is on the right track.
GRI 418 Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	Page 59
Sustainable and Resilient Procurement Practices		
GRI 3: Material Topics 2021	3-3 Management of material topics	Page 62-63

The image shows a multi-story building with a prominent vertical garden. The facade is composed of various materials, including stone and brick. A large section of the wall is covered in lush green plants, with some vines cascading down. To the right, there is a vertical wall made of reddish-brown bricks with a textured, three-dimensional pattern. The building is surrounded by greenery, including tall grasses in the foreground and various plants on the balconies and terraces. The lighting is bright, suggesting a sunny day.

JTC SUSTAINABILITY REPORT FY2023

THE JTC SUMMIT
8 JURONG TOWN HALL ROAD
SINGAPORE 609434