URBAN REDEVELOPMENT AUTHORITY

Sustainability Report FY2023

Contents

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IMAGE CREDITS: STB

IMAGE CREDIT: STB

Chairman's Statement

The Urban Redevelopment Authority (URA), as the national land use planning and building conservation authority, recognises the leading role we play in shaping sustainable urban development in Singapore.

Given Singapore's unique circumstances as an island city-state, ensuring sustainability in land development always entails balancing economic, social, and environmental considerations, to meet the needs of today while preserving land, space, and a good quality living environment for future generations. Our plans and policies also support and align with Singapore's net-zero climate ambition by 2050.

In the coming years, we anticipate continued geopolitical instability, an uncertain economic outlook, and a deepening climate crisis where sea level rise, increases in urban heat, and extreme weather events will become more frequent. At home, Singapore's small size and rapidly ageing population also pose evergreen and new challenges.

These factors heighten the need to drive sustainable development within the constraints of our finite land and resources. We aim to achieve this through continued long-term planning, good urban design, close coordination with agencies across the Whole-of-Government, and collaboration with industry partners, key stakeholders, as well as the citizenry. In line with the United Nations Sustainable Development Goals, we strive to shape a vibrant and distinctive Singapore that thrives with economic and employment opportunities, while making sure that our homes and neighbourhoods continue to remain accessible, liveable, and inclusive. To safeguard our rich natural and heritage capital for future generations, we will continue to develop sensitively with greenery, biodiversity, heritage, and cultural identity in mind.

Achieving these outcomes for sustainable development requires collective effort from our stakeholders and Singaporeans from all walks of life. We involve Singaporeans in planning for Singapore's future by engaging and communicating our vision and plans with them. This includes discussing the difficult trade-offs that may be needed when making certain decisions, so that stakeholders can better understand the issues and alternative viewpoints. We also actively partner the building and real estate development industry in creating a highly liveable environment and driving sustainable outcomes.

URA's commitment and approach to sustainable development are exemplified in the Long-Term Plan, previously known as the Concept Plan. The latest Long-Term Plan Review (LTPR), which concluded in 2022, aims to shape a sustainable and thriving Singapore for many generations to come. It was drawn up through extensive engagements with Singaporeans and thus reflects our collective aspirations, while enhancing flexibility and optionality of our land use for future generations. We are building upon the conversations from the LTPR and translating the long-term strategies into detailed plans in the ongoing review of the Master Plan, which will culminate in the Draft Master Plan 2025 (DMP2025). The DMP2025, which will guide Singapore's physical development over the next 10 to 15 years, is centred on the themes of health and well-being, urban resilience, sustainable growth, and stewardship of our nature and heritage.

In driving URA's efforts to plan for an even more sustainable and people-centric urban environment, we will also review our organisation's Environmental, Social, and Governance (ESG) impact and respond to evolving needs. We are dedicated to enhancing our organisation's environmental sustainability, focusing on areas such as electricity, water, and waste management, all the while aiming to reduce our carbon footprint in line with national objectives. We also prioritise the well-being and development of our employees, equipping them with the knowledge and awareness needed to support a sustainable future. Additionally, URA aims to create a pro-business regulatory environment that allows our industry stakeholders to flourish. As a public agency, we remain committed to upholding ethics and integrity, while ensuring strong corporate governance.

We would like to express our gratitude to URA's partners, stakeholders, and Singaporeans for your continued trust and partnership in making Singapore a great city to live, work, and play. We look forward to your strong partnership, participation, and support in building a more sustainable, resilient, and inclusive future for all.

Yours faithfully,

Mr Peter Ho
Chairman
Urban Redevelopment Authority

URA's Mission and Shaping Sustainable Physical Development in Singapore

Marina Bay
IMAGE CREDIT: URA

SUSTAINABLE PLANNING FOR AN UNCERTAIN FUTURE

Along with the rest of the world, Singapore faces external challenges of climate change, economic cycles, rapidly changing technology, geopolitical tensions, and unexpected shocks such as those arising from pandemics. Among these, climate change presents the complex twin challenges of having to transition to a low-carbon world, while also responding to the impacts and risks associated with an already changing climate.

Accompanying these external challenges is a set of internal challenges unique to Singapore's context. As our nation's demographic profile shifts and aspirations evolve, we need to plan for the changing needs of a diverse population, while also considering the fast-changing needs of businesses amidst structural changes in the global economy and creating good jobs for our people. In addressing these external and internal challenges, we must also keep in mind Singapore's unique circumstances. As a small, low-lying island with no hinterland, our city-state is alternative energy-disadvantaged and has limited land resources.

As the national land use planning and building conservation authority, the URA plays a key role in shaping a resilient and sustainable urban future for Singapore. Our forward-planning work is a critical part of ensuring Singapore's success as a liveable and endearing home for current and future generations, while addressing oncoming challenges and making the best of opportunities arising from our national circumstances.

While this may be our first Sustainability Report, sustainability has been at the heart of planning and development since our inception in 1974. URA has a comprehensive planning and development framework, supported by institutional processes and platforms for collaboration and engagement. Regular reviews and adjustments to our plans also help to keep Singapore adaptable, ready to meet changing needs, and resilient against potential challenges in an unpredictable and complex future. An example of how URA's framework ensures that we remain flexible and responsive can be seen in the 'Long Island' initiative. Long Island was first mooted in 1991 as a potential reclamation project to provide land to meet future housing demand. Following regular review of past Concept Plans in tandem with evolving trends, it has since evolved into an integrated solution to protect the East Coast area against sea level rise, while meeting multiple national needs, including creating more land to meet future development needs, enhancing our flood and water resilience, and providing new waterfront recreational opportunities.

We also leverage technology and innovations as enablers and drive Research & Development (R&D) and test-bed solutions to help us overcome challenges and deliver sustainable outcomes. At the Whole-of-Government level, URA serves as the Urban Planning & Design Technology Centre of Excellence (URBEX), where we build up Science, Technology, and Engineering expertise, drive innovation, encourage experimentation and sharing of lessons learnt, and collaborate with partner agencies to advance Singapore's urban planning and design capabilities. For instance, URA has leveraged digital planning and urban design tools to plan Jurong Lake District (JLD) as a model sustainable district and solutions sandbox, with an ambitious net-zero target for new developments within the district by 2045.

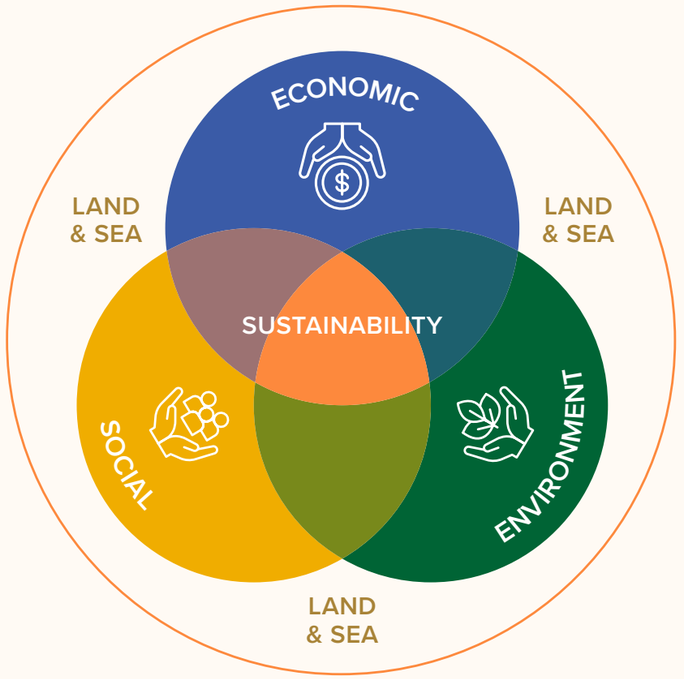
BALANCING OUR ECONOMIC, ENVIRONMENTAL, AND SOCIAL NEEDS

In planning and designing Singapore, we take a comprehensive and integrated view of environmental, societal, and economic needs and aspirations at different levels – national, community, and citizenry.

We aim to make optimal use of our limited land and sea resources to maintain a strong economy that will sustain Singapore's prosperity and enhance the well-being and quality of life for our residents, all while developing in an environmentally responsible manner. To do so, we have taken a disciplined and balanced approach to planning, where we consider these requirements in a systematic way and weigh the necessary trade-offs to preserve options for our future generations.

GENERATING ECONOMIC OPPORTUNITIES AND JOBS WHILE OPTIMISING LAND AND PROTECTING THE ENVIRONMENT

In earlier generations, Singapore drove economic growth and job creation by promoting industrialisation efforts which were strategically clustered away from residential areas, while also setting high environmental standards for industries. To sustain economic growth today, we must continue to provide sufficient land and quality infrastructure that enables a vibrant, forward-looking, and low-carbon economy, while also working within our resource constraints. One way we achieve this is by growing economic hubs centred around specific industries to foster resource sharing, collaboration, and innovation.



FLEXIBILITY
RESILIENCE
INCLUSIVENESS

BALANCING THE SAFEGUARDING OF GREENERY AND BIODIVERSITY WITH DEVELOPMENT TO MEET HOUSING AND OTHER NEEDS

While we aim to develop in a responsible and sustainable way by prioritising development in brownfield sites where possible, given our limited land, we will also need to develop on greenfield sites for important needs such as housing. URA works with partner agencies to employ a science-based approach to identify core biodiversity areas, buffers, and connectivity corridors, and conduct environmental studies to identify and mitigate the impacts of development on nature. We have also promoted the greening of our urban landscape by setting guidelines for developers to integrate greenery into new developments, and allocating land for parks and green spaces within easy reach of residents.

CREATING AN ENDEARING HOME WHICH IS LIVEABLE AND INCLUSIVE

We will continue to make Singapore a great place to live, where residents have a good quality of life. To do so, we plan for self-sufficient towns which meet the needs of our changing demographics, including young families and an ageing population. Housing towns are planned with essential healthcare, recreation, and community facilities in convenient and accessible locations to promote community bonding and social inclusion. URA also protects and promotes our local cultural heritage and identity to foster a sense of rootedness, belonging, and identity in Singapore. We study buildings and areas of heritage significance and develop policies, incentives, and guidelines to facilitate building conservation and other ways to enhance and celebrate our culture. By transforming urban spaces into vibrant environments, we also create an inviting and dynamic environment for exploration and leisure, enhancing Singapore's attractiveness to residents and visitors.

ENHANCING THE CONNECTEDNESS AND ACCESSIBILITY OF SINGAPORE FOR ALL

Singapore will continue to embrace car-lite developments, supported by an efficient multi-modal public transport system to link key areas across the country. These will be further complemented by a network of pedestrian and cycling paths to promote active mobility. At an international scale, we also look to maintain Singapore's status as a globally connected economic and tourism hub by planning for a world-class port and airport, and land links, to support an open economy, and provide our citizens with opportunities to thrive.

REALISING OUR SHARED VISION FOR SINGAPORE

Singapore's integrated planning framework is a testament to our commitment to systematic and coordinated urban development. This framework is anchored by two key instruments: the Long-Term Plan and the Master Plan. Together, they drive our coordinated efforts across the Whole-of-Government to shape Singapore's physical landscape.

The Long-Term Plan lays the groundwork for managing major land uses and infrastructure. It is a visionary document that looks 40 to 50 years ahead, anticipating possible futures and identifying strategies to accommodate competing needs and diverse aspirations. Cascading from this strategic blueprint, the Master Plan is a detailed guide for Singapore's development over a shorter horizon of 10 to 15 years, which translates the long-term vision into actionable plans and provides a clear and transparent guide for development. URA also helps fulfil the objectives set out in the Master Plan through our administration of the Government Land Sales (GLS) programme, with land release and development parameters guided by overall planning strategies.

In addition to our dedicated planning and conservation role, URA coordinates the allocation of land and infrastructure resources for a wide range of uses across the Whole-of-Government. We also actively engage the public and land developers, such as during the Long-Term Plan and Master Plan reviews, to foster a collaborative environment where citizens and the private sector can contribute their views on the shaping of Singapore.

URA's unique, multi-faceted role, with functions spanning development control, urban design, building conservation, land sales, and infrastructure planning, allows us to turn our plans and visions for Singapore into reality. We ensure careful coordination to meet Singapore's anticipated needs. A prime example is the development of Marina Bay, an extension of Singapore's Central Business District (CBD). URA's long-term plans and vision for the Bay originated in the 1970s, and over the past 50 years, we have successfully coordinated with various agencies and private developers to anchor Marina Bay as one of the world's major financial and business services centres, which continuously evolves to ensure global relevance.

BUILDING A HOME FOR CURRENT AND FUTURE GENERATIONS

Over the last half a century, URA has developed a unique approach towards sustainable development, which has shaped Singapore into the modern metropolis that we know today. While the next 50 years will continue to present challenges, we will build upon this strong foundation as we continue to make Singapore an even better home for all, today and into the future.

Sustainability Framework

URA's mission and sustainability vision lay the groundwork for our endeavours to address Singapore's unique challenges and to persist in our transformation of Singapore into a city that is sustainable, liveable, and will flourish in the years ahead.

Following this introduction, the report delves into four chapters outlining the sustainability outcomes that define URA's work. These outcomes span the breadth of our mandate, encompassing aspects such as land use planning, the regulation of developers, land sales, heritage and conservation, advocacy of sustainable urban practices, and the cultivation of strategic partnerships. Additionally, they reflect our commitment to continuously improve our organisational operations, policies, and practices, to ensure that every facet of our work contributes to the sustainable future we envision for Singapore.

1 A Sustainable and Resilient City for the Future

IMAGE CREDIT: URA

1.0 WHY IS THIS IMPORTANT?

Singapore is a resource-constrained nation, and careful planning of our land is critical. As the national planning authority, URA ensures that our country's limited space is optimised to meet both the current and future needs of our city-state. Key amenities that promote healthier and stronger communities, such as green spaces, walkable neighbourhoods, and a robust public transport network, not only improve quality of life but also foster a resilient workforce and competitive economy that is adaptable to environmental challenges and global shifts. Singapore's efforts toward a net-zero emissions city will also attract investment and innovation in green technologies, creating new jobs in emerging industries.

As a low-lying island nation, we are particularly vulnerable to the impacts of climate change. Rising sea levels are a critical threat, and erratic weather patterns, such as extreme heat, affect our way of life. Proactive and forward-looking planning is essential to ensure that Singapore can adapt to these challenges, build resilience into its infrastructure, and protect its residents against the risks posed by a changing climate. As the economy and population grow and climate change intensifies, future-ready urban design will safeguard Singapore's future and maintain its liveability for generations to come.

We are committed to creating a sustainable Singapore that is adaptable to future challenges. By working with different agencies, we aim to prepare Singapore for the impacts of climate change and other future crises, while strengthening our self-sufficiency in vital resources.

1.1 TOWARDS A NET-ZERO CITY

URA plays a crucial role in shaping Singapore's built environment. We work alongside key agencies and stakeholders to envision and plan a Singapore that has sustainability and quality of life principles in mind. These efforts contribute towards the national target of net-zero emissions by 2050.

NATION-WIDE PLANNING OF DISTRICTS AND PROMOTING MORE SUSTAINABLE, CAR-LITE FORMS OF TRANSPORT

One of our key planning goals is to have self-sufficient districts across all of Singapore, where jobs, facilities, amenities, and services are easily accessible, fostering vibrant communities that support Live, Work, and Play. Planning and distributing business nodes across the island bring jobs closer to homes and reduce peak-hour congestion, making public transport a more attractive and efficient mobility option overall.

We facilitate the implementation of public transport, and sustainable and active mobility options, to connect our towns and districts across Singapore. We work closely with other agencies such as the Land Transport Authority (LTA) to ensure the close integration of land use and transport planning so that our transport infrastructure supports our national objectives.

We will continue to focus on car-lite efforts as we expand our mass transit network across the island. Our Mass Rapid Transit (MRT) and bus networks will remain the backbone of our public transport system.

> “As the national planning authority, URA ensures that our country's limited space is optimised to meet both the current and future needs of our city-state.”

> **To improve energy efficiency of developments, URA promotes the use of creative forms of architecture to cool our buildings and integrate greenery into our urban landscape."**

We are on track to achieve our target of 8 in 10 households being within a 10-minute walk of an MRT station. We will continue to review our long-term transport demand and the infrastructure needed to support it, taking into consideration changes in travel patterns, such as more flexible working arrangements.

We will create an inclusive transport system that enables everyone to travel conveniently and efficiently. As part of the long-term car-lite direction to move towards a more liveable and sustainable environment, we will plan for around 60km of Transit Priority Corridors by 2030. These corridors will reallocate road spaces to bus priority lanes and create more conducive pedestrian and cycling paths. To support the Government in reaching its target of having 1,300km of cycling path networks by 2030, we actively work with developers to grow pedestrian and cycling-friendly infrastructure. For pedestrians, one lever is to provide covered walkways, pedestrian linkways, and underground connections that seamlessly integrate with public transport hubs like MRT stations. For cyclists, we provide bicycle parking spaces, and end-of-trip facilities such as showers and lockers.

These measures to promote sustainable, active mobility across Singapore's urban landscape will improve accessibility and air quality, and lower carbon emissions and noise pollution, in turn contributing to a cleaner, more sustainable urban environment.

RAISING SUSTAINABILITY STANDARDS IN THE BUILT ENVIRONMENT SECTOR

URA forges partnerships with private sector developers to reduce emissions from building development and operations. We work to raise the bar in sustainability by leveraging our key roles as the land sales agent for private housing, commercial, and retail developments, and as the regulatory land use planning agency to set sustainable policies, guidelines, and incentives for land development. This ensures that buildings and infrastructure contribute to Singapore's net-zero vision while enhancing urban liveability.

In the construction phase of infrastructure including for Government Land Sale (GLS) sites, we require developers to minimise and reuse construction waste. We also require developers to adopt more sustainable and productive construction materials such as green concrete, and techniques such as prefabrication technologies[1] to improve both environmental and construction productivity, minimise waste, and accelerate the building process. We also require all new buildings on land sold under the GLS programme (on or after 30 June 2022) to achieve BCA Green Mark Platinum Super Low Energy Rating with Maintainability Badge. These best-in-class building requirements drive the adoption of green technologies that significantly reduce energy consumption and emissions.

To improve energy efficiency of developments, URA promotes the use of creative forms of architecture to cool our buildings and integrate greenery into our urban landscape. One such avenue is through providing incentives for tropical architecture such as balconies and sunshading devices, to achieve better protection from the weather and promote natural ventilation. URA has implemented the Landscaping for Urban Spaces and High-Rises (LUSH) scheme to provide both regulations and incentives to support the provision of more greenery at selected new developments. Whether through sky terraces, communal planter boxes, or covered gardens, these features enhance the visual appeal of our urban spaces while simultaneously bringing nature closer to residents. These also bring about additional benefits such as reducing urban heat and enhancing environmental quality, making our city both sustainable and attractive.

[1] Prefabrication technology refers to the pre-construction of building segments, such as walls and staircases, at a separate location before transporting them to the development site for assembly.

To further lower building sector carbon emissions, we actively encourage the adoption of solar energy at the building-level, by streamlining the installation process to remove the need for planning permission in most areas. We also encourage developers to incorporate plans to connect to District Cooling Systems (DCS), which offer centralised, energy-efficient cooling of buildings within a network. Apart from reducing greenhouse gas emissions while lowering urban heat, DCS also saves space within buildings for other uses.

CASE STUDY

District Cooling Systems

DCS centralise the cooling process by supplying chilled water from a central plant to several buildings through underground pipes housed in a Common Services Tunnel (CST). The adoption of DCS brings greater benefits compared to individual developments providing their own in-building chiller plants; for instance, the DCS can capitalise on varying cooling demands from different uses in the district to lower the aggregate peak cooling demand. Beyond improving energy efficiency, there are additional benefits to the DCS, such as freeing up roof space or at-grade spaces for other uses. DCS also helps to mitigate the urban heat island (UHI) effect by reducing waste heat emitted into the atmosphere.

An example of a successful DCS is at Marina Bay, home to the world's largest underground DCS system. The adoption of DCS at Marina Bay not only reduces carbon emissions from cooling across multiple buildings, but it also preserves Marina Bay's iconic views by situating the cooling infrastructure out of sight.

To support sustainable development, URA introduced Gross Floor Area (GFA) incentives in September 2024 to encourage building owners to adopt DCS or Centralised Cooling Systems by either collaborating to establish new networks or by tapping into an existing network in their area.

PROMOTING CLEANER ENERGY USE

URA plays a role in supporting the uptake and development of cleaner forms of energy. Solar power stands at the forefront of this clean energy transition for Singapore, given that it is our most viable renewable energy source. Despite our land constraints, Singapore is maximising solar energy potential by deploying solar panels across rooftops, building facades, reservoirs, offshore waters, and interim vacant land.

Beyond solar, we are also actively exploring other alternative energy sources. For instance, low-carbon hydrogen and geothermal energy are being evaluated for their suitability in Singapore's energy mix. URA is working with the Energy Market Authority (EMA) to evaluate the land and infrastructure needs to support these alternative energy sources.

Through these efforts, Singapore is not only pushing the boundaries of renewable energy generation, but also reshaping its infrastructure to ensure resilience, adaptability, and sustainability for future generations.

PLANNING FOR AND FACILITATING ELECTRIC VEHICLE INFRASTRUCTURE

URA facilitates the installation of new infrastructure to support the adoption of electric vehicles (EVs) across the island.

For existing buildings, we have streamlined the submission process for developers to install EV chargers. Successful tenderers for GLS sites are required to comply with the prevailing LTA requirements on EV charging provision, under the Electric Vehicles Charging Act. In addition, URA supported LTA in launching the pilot tender in 2021 for the installation of EV charging points in public car parks managed by the Housing Development Board (HDB), JTC Corporation (JTC), and URA across the island. We will continue to collaborate with the LTA National Electric Vehicle Centre to deploy more EV charging points within URA-managed car parks where feasible. These initiatives will build towards the national target of having 60,000 EV charging points by 2040.

1.2

Jurong Lake District

JLD is an upcoming business district, which is planned to be the largest outside of the Central Area. It has been planned to be a model sustainable district with the ambition for all new developments to achieve net-zero emissions by around 2045. A wide range of sustainability-focused measures will be put in place to reduce its environmental impact while allowing for a seamless integration of Live, Work, and Play.

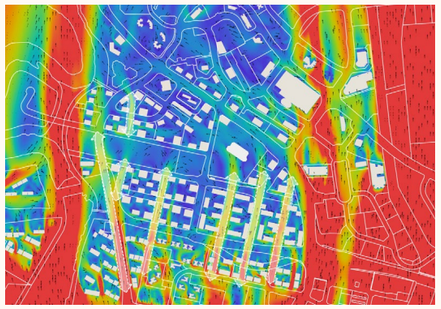
Sustainable Forms of Travel:
By 2032, JLD will be one of Singapore's best-connected districts, served by four MRT lines, significantly enhancing accessibility and reducing reliance on private vehicles. By 2035, we aim to achieve 85% of all trips made via Walk-Cycle-Ride modes of transport. To support this goal, specific roads within JLD will be designated exclusively for buses, including fully electric buses that will be in operation by 2030. Additionally, the district will see the progressive deployment of EV charging points in all new developments, ensuring that greener forms of travel are both convenient and readily accessible.

Mitigating Urban Heat:
The streets of JLD are specifically designed to enhance thermal comfort. An extensive network of sheltered at-grade, elevated, and underground pedestrian paths has been designed to facilitate walking within the district. Canopy trees line roads with dedicated cycling paths, providing essential shade, while multi-tiered planting helps mitigate heat absorption along larger roadways. Narrower roads further reduce heat, creating a more pleasant experience for pedestrians and cyclists. To complement these efforts, wind corridors have been preserved across the district, ensuring that natural airflow from the north-east and south is not blocked by buildings. These corridors cool the environment by allowing air to flow freely, making public spaces and outdoor areas much more comfortable.

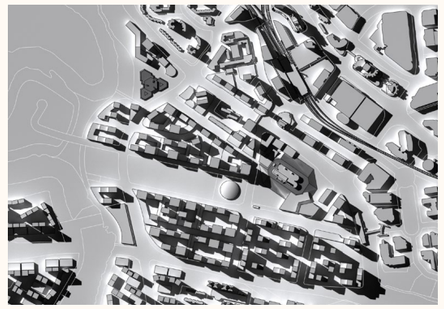
Sustainable Infrastructure and Integrating Greenery into JLD:
JLD is designed with sustainability at its core, with over 100 hectares of parks and green spaces integrated into the urban fabric, representing around 40% of total land area. Every new building will be required to achieve 100% landscape replacement, ensuring that any greenery lost during development is replaced in the form of vertical greenery, sky terraces, and extensive landscaping. Environmental simulations for outdoor thermal comfort and wind flow will also be required for developers. Thermal comfort, wind flow, and shade analyses will be conducted during the design phase, ensuring that buildings reduce energy consumption for cooling while combating the UHI effect.

New buildings in the district will also be required to minimally meet the Green Mark Platinum Super Low Energy certification, reducing energy consumption by at least 60%. Where possible, some developments will even target to be Zero Energy Buildings. Solar panels will be deployed on suitable surfaces, including rooftops and building facades, to help offset the district's emissions as Singapore's national grid is progressively being decarbonised.

JLD will also benefit from the use of District Cooling Systems, which reduce energy consumption and ensure cleaner and more efficient cooling, and District Pneumatic Waste Conveyance Systems, which reduce energy consumption and ensure cleaner and more efficient waste collection and management. Housing these systems inside CSTs also achieves a more efficient, environment-friendly, scalable, and robust utility laying concept as compared to conventional utilities laying. In conventional utilities laying, utilities are laid as and when required, often resulting in repetitive opening up of road spaces for laying and maintenance. The CST mitigates this by allowing utilities to be regularly maintained and laid as and when needed without opening up the road, thereby eliminating accidental damage, enhancing the reliability of infrastructure utilities services, and minimising traffic congestion.



Wind flow simulation for Jurong Lake District
IMAGE CREDIT: URA



Shadow simulation for Jurong Lake District
IMAGE CREDIT: URA

Artist's Impression of Lentor Hills
IMAGE CREDIT: URA

CASE STUDY

Lentor Hills

In developing the planning and urban design plans for Lentor Hills, URA considered the site context when determining how to optimise natural ventilation and reduce reliance on building-level mechanical cooling systems. Through detailed environmental modelling studies, URA analysed prevailing wind patterns to safeguard wind corridors and align buildings to maximise wind flow. This results in a cooler, more comfortable microclimate for residents in the estate around the park. These wind corridors, coupled with the ample park greenery, help to regulate temperatures in both indoor and outdoor areas, offering a more comfortable environment.

Lentor Hills also incorporates expansive green spaces and parks that are designed to serve multiple purposes: improving air quality, mitigating the UHI effect, and offering residents spaces for recreation and social interaction. Additionally, native tree species and other tropical plants have been strategically chosen for the landscaping works to promote biodiversity and attract local wildlife, creating an environment that is both pleasant and ecologically sustainable. For example, a noteworthy Alstonia Tree that hosted unique avian species was retained in one of the developments through urban design guidelines.

1.3 TOWARDS A CLIMATE-RESILIENT SINGAPORE

1.3.1 CLIMATE CHANGE ADAPTATION & MITIGATION

MANAGING URBAN HEAT AND BUILDING HEAT RESILIENCE

As an island-nation located in the tropics, heat is an inescapable reality we must face and address. The rising temperatures brought about by climate change are also compounded by the Urban Heat Island (UHI) effect, a phenomenon where urban areas, which are more built-up, are warmer than rural areas. To combat this, URA continues to integrate heat resilience strategies into our urban planning and design to enhance the liveability of our urban environment.

FLOOD MANAGEMENT AND COASTAL PROTECTION

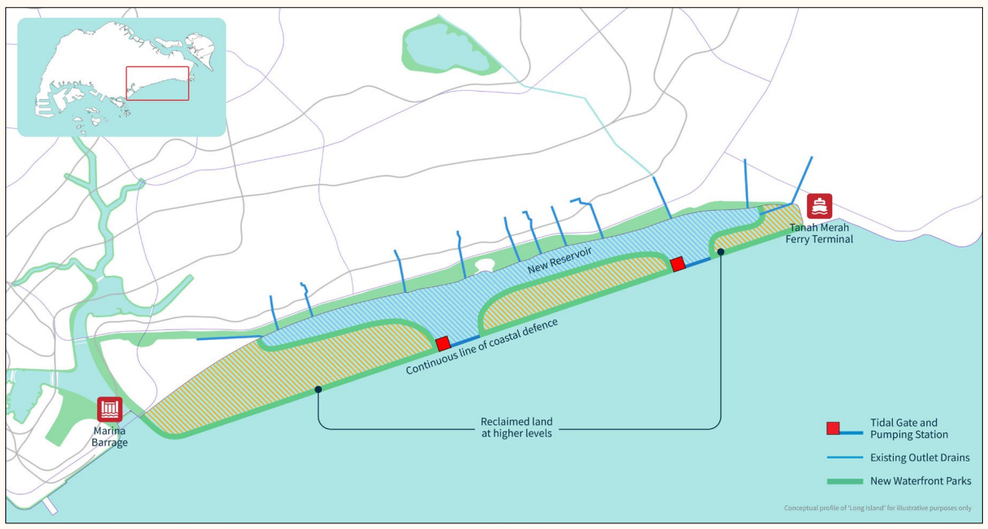
Another critical aspect of climate resilience involves safeguarding Singapore from rising sea levels and increased flood risks. URA's long-term land use planning incorporates PUB's flood management and coastal protection measures to address these threats.

CASE STUDY

Long Island

Off the East Coast of Singapore, Long Island offers an integrated solution that will meet multiple national needs, including coastal protection, and flood and water resilience. The reclaimed land will not only protect against sea level rise but also create additional land for future development and recreational opportunities. Technical studies are underway to ensure a balanced integration of nature-based solutions and engineering measures, while minimising environmental impact.

Artist's Impression of Long Island
IMAGE CREDIT: URA



Conceptual Profile of Long Island
IMAGE CREDIT: URA

To address our flood risks, we collaborated with PUB to introduce long-term flood mitigation measures, including the Stamford Diversion Canal (SDC) and Stamford Detention Tank (SDT). Completed in 2018, the SDC and SDT are complex drainage infrastructural projects in a densely built-up area. The SDT extends below the coach park of Botanic Gardens' Tyersall Learning Forest and National Orchid Nursery. When there is a heavy downpour, excess storm water from the drains along Holland Road will flow into the SDT. After the storm subsides, the stored water will then be pumped back into the drains that flow to SDC. The SDC complements the SDT by diverting part of the storm water from the Stamford Catchment. With this alternative pathway, the existing Stamford Canal can serve a smaller catchment, thus protecting the area against flooding during intense storms.

We also work with PUB on their land and design requirements as part of PUB's overall 'Source-Pathway-Receptor' approach. Through this holistic approach, measures are not only carried out along the 'Pathway' (e.g. through widening and deepening of drains and canals), but also implemented at the 'Source' where storm water runoff is generated (e.g. through on-site detention), and at the 'Receptor' where floods may occur (e.g. through raising platform levels and installing flood barriers).

1.3.2 ENHANCING RESILIENCE AND ADAPTABILITY FOR FUTURE CHALLENGES

To prepare for future growth is to be ready for unexpected crises and disruptions. As such, our urban planning approach builds flexibility and resilience into our land use and infrastructure plans, so we can readily adapt to anticipated challenges and be nimble enough to address unforeseen ones.

MAXIMISING SPACE EFFICIENCY

Efficient use of both land and sea space is crucial as Singapore continues to grow. To meet our evolving needs while conserving space, we optimise our existing areas through land intensification strategies such as building higher and developing underground.

Intensification of land also enables the clustering of transportation, commercial, recreation, and community and social facilities, like shops, parks, schools, childcare, and health and medical facilities, for easier accessibility to residents.

Maximising space efficiency through underground development helps Singapore make the most of its limited land resources. By placing essential infrastructure (such as rail lines, utilities, and storage facilities) underground, we free up land for people-centric uses, such as housing, parks, and vibrant community spaces, enhancing the overall quality of urban life. Additionally, underground pedestrian links directly connected to MRT lines provide commuters with comfortable, air-conditioned, and weather-proof routes, thereby encouraging more people to use public transport.

Artist's Impression of Tuas Nexus
IMAGE CREDIT: PUB

CASE STUDY

Tuas Nexus

When completed, PUB's Tuas Water Reclamation Plant (TWRP) will be co-located with the National Environment Agency's (NEA's) Integrated Waste Management Facility (IWMF) to form Tuas Nexus, Singapore's first integrated used water and solid waste treatment facility that will be fully energy self-sufficient. Tuas Nexus will harness potential synergies of the water-energy-waste nexus by integrating used water and solid waste treatment processes. For example, food waste from IWMF is sent to TWRP to be digested together with used water sludge, increasing the overall yield of biogas due to the synergistic effect of co-digestion; the biogas will then be used at the Tuas Nexus for its energy needs.

OPTIMISING INFRASTRUCTURE PLANNING AND ENHANCING INFRASTRUCTURE RESILIENCE

URA plays a key role in optimising the planning of infrastructure and enhancing its readiness to cope with unforeseen demands, so that our infrastructure can continuously remain adequate to serve Singapore's current and future needs. We do so at both the upstream planning stage and detailed implementation level by developing the National Infrastructure Plan (NIP) and spearheading the annual review process of the NIP with other government agencies and utility licensees, and assigning Lead Implementing Agencies to coordinate the planning and implementation of infrastructure and utilities projects along the same corridor.

As part of the NIP, URA conducts an annual review to ensure alignment between major infrastructure plans and land development strategies for the upcoming 15 years. This process involves close collaboration with Land Development Agencies and Infrastructure Agencies. Through this process, issues that could affect provision and prioritisation of infrastructure are also identified and the associated trade-offs discussed and resolved between agencies early. These efforts provide greater alignment across the various agencies to follow up with detailed design and implementation to ensure sufficient infrastructure to support development plans for the next 15 years while improving coordination to identify conflicts and hotspots and mitigate them accordingly, monitor development trends with potential cross-cutting needs, and pursue co-location and integration of infrastructure installation and facilities to reap synergies. This comprehensive approach fosters greater alignment across various agencies, facilitating opportunities to co-locate and integrate compatible infrastructure installations and facilities. This optimises land and unlocks potential synergies between the various integrated uses, such as at the Tuas Nexus.

With the plans that agencies have made available through the annual NIP review, our approach to infrastructure resilience also involves proactive planning and coordination across agencies by incorporating provisions in planned major infrastructure network projects to consider future needs by other infrastructure networks that are implemented later. To facilitate this, URA has developed a new Major Infrastructure (Network) Approval Workflow to plan, design, and/or implement utilities within the same corridor to optimise space for all existing and future infrastructure, reduce abortive works and multiple diversions, and reap synergies, as well as cost, land, and carbon savings during implementation. A Lead Implementing Agency is appointed for each major infrastructure network project, with the strategy to maximise efficiency by optimising space for both existing and future infrastructure, reducing unnecessary work and repeated diversions, and capitalising on synergies to save resources, costs, and land. Ultimately, this forward-planning methodology enhances Singapore's infrastructure adaptability, enhancing the ability of our infrastructure to respond to future development needs.

PLANNING FOR CIRCULARITY AND RESOURCE EFFICIENCY

We adopt a systems-level planning approach, bringing together common resource loops through co-location and strategic siting of industries to reap synergies and reduce wastage while increasing efficiency, cost savings, and environmental gains.

To prepare for potential crises, Singapore's urban planning strategy integrates measures to build resilience and adaptability into the city's infrastructure.

Planning for Flexible Spaces:
We are working to designate buffer spaces within integrated hubs and on reserve sites that can be quickly repurposed to address emergency needs, including converting community spaces and buffer zones into critical-use areas during times of crisis.

Supporting Singapore's Food Resilience:
With the majority of our food imported, local production is important to reduce our reliance on food imports. We work in partnership with the Singapore Food Agency (SFA) to set aside sufficient land for agriculture, while exploring ways to intensify food production through innovations like high-rise farming and utilising industrial spaces for food production.

> **"As part of the National Infrastructure Plan (NIP), URA conducts an annual review to ensure alignment between major infrastructure plans and land development strategies for the upcoming 15 years."**

2 A Liveable and Inclusive City for All

IMAGE CREDIT: URA

A variety of homes in Queenstown
IMAGE CREDIT: BRYAN JH GOH

2.0 WHY IS THIS IMPORTANT?

A liveable and inclusive city is crucial for enhancing the quality of life of Singapore's residents. To achieve this, our land use, infrastructure, and land developments must foster thriving communities while addressing the evolving economic, environmental, social, and cultural needs of our society. By doing so, we create spaces where everyone can live, work, and play in harmony, fostering long-term sustainability and well-being for all.

2.1 LIVEABLE, INCLUSIVE AND ATTRACTIVE LIVE, WORK, AND PLAY DISTRICTS

Homes are where families are raised, bonds are formed, and where a sense of community is fostered. We create districts where Singaporeans can have fulfilling lives and thrive. To achieve this, we collaborate with industry partners and the community to develop vibrant neighbourhoods that integrate homes, workplaces, and recreational spaces. This holistic approach to urban planning ensures that residents have easy access to housing, employment, and leisure, with a good quality of life wherever they live. This is especially important as Singapore's population grows and our demographics evolve; the timely provision of social and community facilities becomes critical in meeting changing needs, while keeping communities together.

2.1.1 LIVE

URA works closely with HDB to plan and develop self-sufficient towns with a range of housing options to cater to the diverse and evolving needs of the population. Our holistic approach contributes to Singapore's dynamic urban landscape by ensuring that all residents have access to and enjoy adaptable, high-quality living spaces supported by easy access to transportation, commercial, recreation, community, and social facilities.

MEETING RESIDENTS' HOUSING NEEDS BY PROVIDING GEOGRAPHICAL DIVERSITY AND DESIGNING NEW HOUSING TYPES

Through our planning for land use across Singapore, URA ensures that ample land is set aside for housing, and that Singaporeans have access to a range of housing options across the island to meet diverse needs and aspirations for upward housing mobility. Through the Government Land Sales (GLS) programme, URA releases land and calibrates the GLS supply to ensure adequate and timely provision of new sites across Singapore for a wide variety of uses, including for housing, while also aiming to keep prices and rentals stable.

More homes and neighbourhoods are being planned in central locations to enable more people to enjoy the benefits of city living, including the proximity to workplaces in the CBD and easy access to amenities. New homes, with a mix of public housing, rental flats, and private homes will be made available at Pearl's Hill. This marks the first time in 40 years that new public housing is introduced to the Pearl's Hill area. Apart from the city centre, plans are underway to introduce more homes in various areas within the Central Region, extending the convenience and accessibility to a broader segment of residents. These include Bukit Timah Turf City, Mount Pleasant, and the former Keppel golf course site.

To meet evolving needs, we have worked with industry partners to introduce new housing options. Until recently, Singapore's housing landscape for seniors only featured conventional residential housing or institutionalised care facilities. To expand the range of privately developed housing-cum-care options for seniors to live independently within the community, the first Assisted Living Facility GLS site was made available and successfully awarded in June 2023.

In December 2023, Long Stay Serviced Apartments (SA2) were introduced to diversify the options available for rental accommodation and support the long-term needs of our resident and expatriate populations. The first GLS site with SA2 use at Zion Road was successfully awarded in April 2024.

We also continue to explore innovative housing solutions through research, having partnered with Institutes of Higher Learning and Research Institutes to understand the impacts of different housing types on seniors' quality of life. Additionally, URA's long-term planning considers future trends like an ageing population, flexible work arrangements, e-commerce, smart technology, and climate change, ensuring that our living spaces remain relevant and adaptable.

> **"More homes and neighbourhoods are being planned in central locations to enable more people to enjoy the benefits of city living."**

Artist's Impression of Private Assisted Living Development at Parry Avenue
IMAGE CREDIT: PERENNIAL HOLDINGS PRIVATE LIMITED

CASE STUDY

Private Assisted Living Development at Parry Avenue

The private assisted living development at Parry Avenue will help expand the range of housing-cum-care options to better cater to seniors' diverse lifestyles, preferences, and changing housing needs. The development is located within Rosyth Estate and is close to amenities such as Serangoon North Neighbourhood Centre and Heartland Mall, as well as a new neighbourhood park, to provide a pleasant and conducive environment for seniors to live independently within a mature residential neighbourhood. The development will also include an integrated health and social care hub and communal areas to provide more meaningful opportunities for interactions among residents.

BUILDING VIBRANT NEIGHBOURHOODS PLANNING FOR SOCIAL AND COMMUNITY FACILITIES WHILE PROMOTING HEALTH AND WELLNESS

In addition to planning for sufficient housing, we also plan for and design new, self-sufficient districts which include convenient amenities, transport options, recreational spaces, and nearby employment areas.

Districts are equipped with sufficient social and community facilities (SCFs), such as community centres, healthcare centres, and schools to meet the needs of residents while also building a sense of community. By conducting lifecycle planning and using data analytics, we work with relevant agencies to project the needs of residents, enabling us to better plan for the long-term provision of SCFs and other amenities. Furthermore, to foster social interaction and community engagement, we provide incentives for developers to integrate spaces that serve as hubs for community gatherings and social activities into their designs. These include indoor recreation spaces in private residential developments (weather-protected areas where residents can come together for leisure and interaction), Privately-Owned Public Spaces (first-storey covered communal areas), and community and sports facilities in commercial developments.

Educational institutions form a core part of our neighbourhoods. Our planning provides for a range of schools and educational options in our neighbourhoods. These span from kindergartens to higher education, training institutes, and foreign and special schools. These meet the varied needs of our students and learners, while optimising space to benefit the community. Beyond the critical role they play in teaching the next generation, school facilities can also serve as a space for community gathering. Presently, many school sports facilities are open for public usage after school hours via free-to-play and booking arrangements, through the Dual Use Scheme. We will continue to explore new typologies to enable schools to play a key role as community places, such as Eunoia Junior College being co-located with Marymount Community Club.

For our foreign workers, URA works with other agencies to plan for living spaces such as purpose-built dormitories and recreational centres for workers. We have also developed amenity guidelines for key amenities such as recreational facilities, food outlets, and healthcare services to be integrated within these facilities to meet workers' needs.

Moving forward, we are focused on improving the quality of life for our ageing population and community at-large.

We aim to support our seniors in leading fulfilling lives by planning and designing towns and facilities that encourage active and healthy ageing. An example is the Health District in Queenstown, which fosters "purposeful longevity" by providing a wide range of learning and volunteering opportunities within the estate. Residents of Queenstown will have greater access to healthcare facilities and care coordinators to improve their access to preventive healthcare services. URA will also partner with agencies such as HDB to develop infrastructure that supports a healthier way of life, such as including wellness trails surrounded by greenery near the upcoming HDB flats at Queen's Arc.

Another focus area for the coming years is to better understand the intricate links between the built environment and our overall health. URA has commissioned a three-year project led by researchers from A*STAR to study how the built environment affects both our physical and mental well-being. The insights from this project will better guide our future designs and plans.

Thoughtful urban design enhances the functionality of spaces, promoting walkability while incorporating green spaces that improve air quality and overall well-being. We also incorporate environmental modelling in our planning, by evaluating urban heat, wind flow, and thermal comfort. These measures strive to enhance liveability while ensuring that our districts remain energy-efficient and comfortable for residents.

EXERCISING OUR REGULATORY ROLE TO SUPPORT THE PROPERTY MARKET AND PROTECT HOMEBUYERS

Apart from planning and designing towns and districts, URA also acts as the Controller of Housing and protects home buyers' interests through implementing policies and regulations aimed at ensuring fair practices and that home buyers' instalment payments are used towards the development of the project. Furthermore, we monitor feedback from buyers and impose conditions on developers, such as CONQUAS[2], to ensure that housing developments meet high-quality benchmarks.

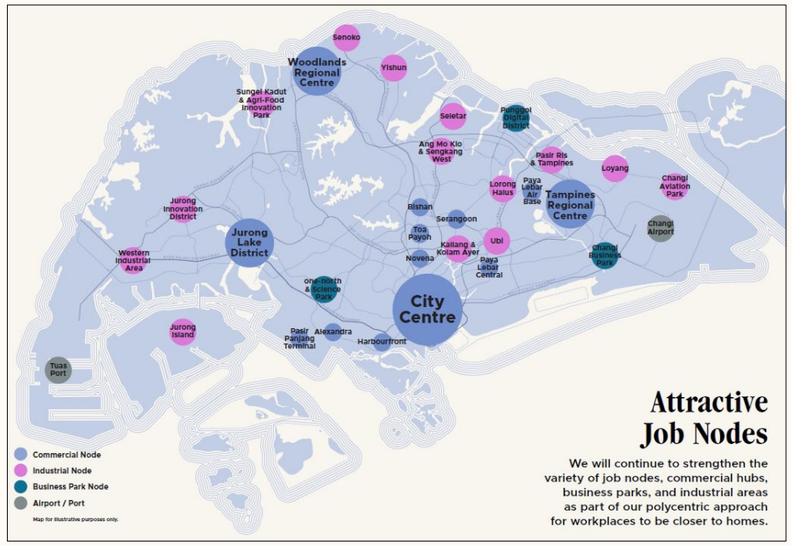
Through our regulatory role, we also focus on minimising environmental disruptions such as noise from new developments. We work closely with LTA to assess areas prone to traffic congestion and limit developments and uses that might exacerbate these issues. For example, we work with LTA on the maximum number of residential units that can be built on a plot and restrict the establishment of new Food & Beverage outlets in certain zones to prevent further traffic and parking problems. These measures help safeguard the neighbourhood's living environment and provide a pleasant urban experience for all.

2.1.2 WORK

A thriving economy depends on more than just job creation – it requires diverse workplaces and accessible employment opportunities. To ensure that jobs are closer to homes and residents can benefit from a better work-life balance, we need to strengthen and diversify our commercial, business park, and industrial nodes across the island.

URA plays a crucial role in shaping Singapore's economic landscape through our development plans for current and upcoming job nodes. The growth areas have been designed to meet future economic needs, create diverse job opportunities, and ultimately enhance Singapore's competitiveness on the global stage.

We ensure there is sufficient and suitable land available for a variety of business uses, such as commercial, business park, and industrial functions, taking into consideration the changing preferences and needs of businesses.



Attractive Job Nodes – LTPR 2021
IMAGE CREDIT: URA

[2] The Construction Quality Assessment System (CONQUAS) was introduced in Singapore in 1989 and is a widely recognised and internationally accepted benchmarking tool for construction workmanship quality of building projects.

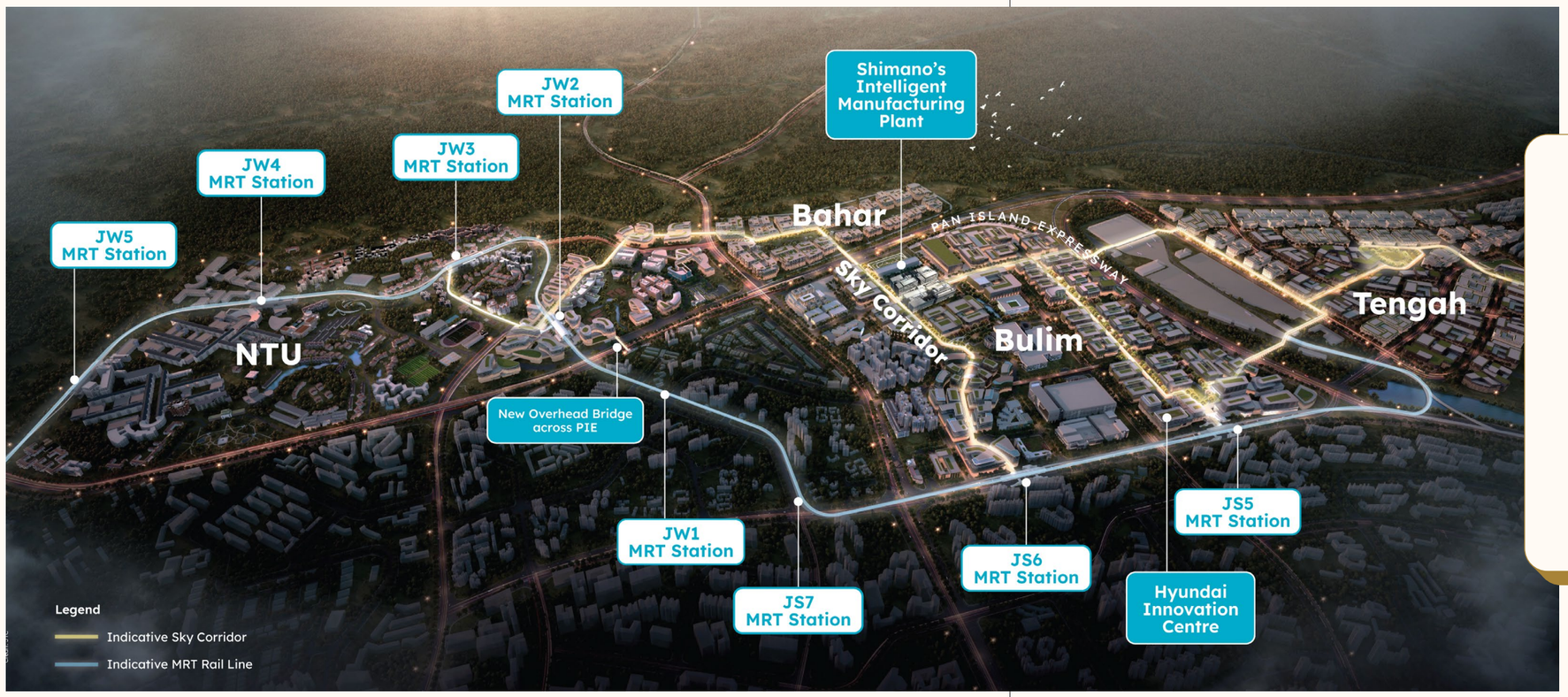
In addition, we routinely carry out policy reviews and seek feedback from industry to identify how we can enhance land use guidelines to meet evolving business needs, such as providing innovative and inclusive spaces within our economic zones. These go towards supporting new ways of working and creating opportunities for businesses of all sizes.

CASE STUDY

Woodlands Experimental Zone

In JTC's Woodlands North Coast estate, the Woodlands Experimental Zone has been piloted at 1 North Coast, which is the first development that offers businesses the flexibility to use up to 70% of space for service-driven and knowledge-intensive activities alongside manufacturing operations. This allows companies to house production, R&D, product design, prototyping, and even after-sales services under the same roof.

Artist's Impression of North Coast Vista
IMAGE CREDIT: JTC



Jurong Innovation District. Station names are subject to confirmation
IMAGE CREDIT: JTC

CASE STUDY

Jurong Innovation District

Jurong Innovation District is Asia's leading advanced manufacturing hub with a growing ecosystem of research institutes, capability developers, technology and training providers, and advanced manufacturers. As part of the Enterprise District Programme, the Innovation District's master developer has the flexibility to decide how best to utilise space to allow sharing of amenities, foster a more agile response to market demands, and enable more comprehensive and cohesive infrastructure planning.

2.1.3 PLAY

Leisure and recreational spaces are vital to enriching urban life. By diversifying and expanding recreational offerings, we enliven the urban environment and improve overall liveability. Making parks, recreational areas, and leisure spots accessible to more people ensures that Singapore remains an attractive and vibrant place to live, where residents can relax, connect, and enjoy their surroundings.

Recreation Master Plan
IMAGE CREDIT: URA

CASE STUDY

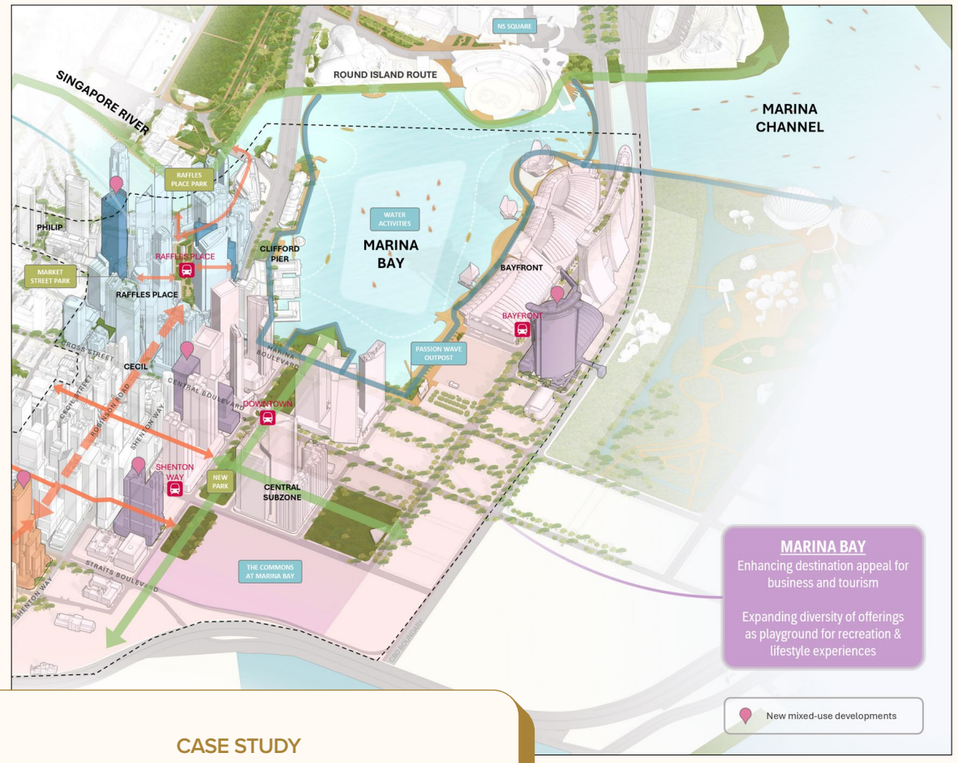
Recreation Master Plan

Recreation planning has always been an integral aspect of Singapore's land use planning, aimed at enhancing our physical, mental, and social well-being as well as bringing people and communities together. As part of DMP2025, URA has developed a Recreation Master Plan to outline our plans and strategies to support more recreational opportunities for Singaporeans. In 2024, we hosted a series of roving exhibitions islandwide to seek the public's ideas and suggestions on various projects and proposals for recreation in their neighbourhoods across Singapore. More than 66,000 people have visited the exhibitions.

Recreation Master Plan Roving Exhibition at One Punggol
IMAGE CREDIT: URA

Recreation Master Plan Roving Exhibition at VivoCity
IMAGE CREDIT: URA

> By diversifying and expanding recreational offerings, we enliven the urban environment and improve overall liveability."



New developments and recreational offerings around Marina Bay
IMAGE CREDIT: URA

CASE STUDY

Water Recreational Activities at Marina Bay

In line with the positioning of Our Downtown as 'A Place to Be', Marina Bay is planned as a mixed-use district around a 'People's Bay' with a necklace of attractions including arts, culture, and sporting offerings in and around the water. Marina Bay will continue to expand its offerings as a playground for recreation and lifestyle experiences.

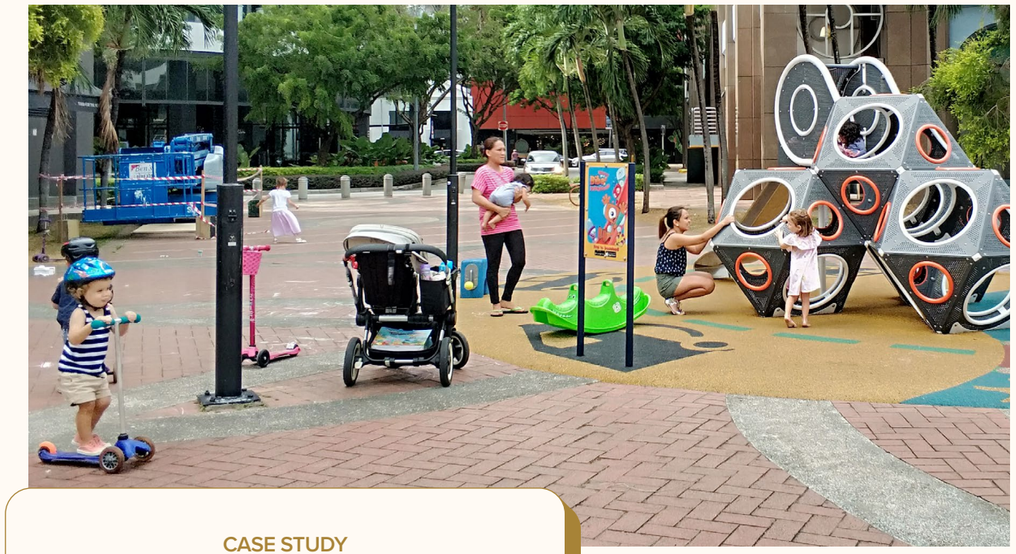
Upcoming developments such as the NS Square will feature a permanent stage deck and grandstand, community sports facilities including a water sports centre, a new public waterfront promenade, and a National Service-themed gallery. Marina Bay Sands' expansion, to be completed by 2029, will include a 15,000-seat world-class entertainment arena, more facilities for business events, and an iconic hotel tower with a public rooftop attraction. In 2025, the new PAssion Wave Outpost @ Bayfront will offer a variety of recreational water activities such as dragon boating, kayaking, and pedal boating in Marina Bay. In the Central Subzone, near to the Marina Bay Financial Centre, there are also opportunities to inject exciting interim recreation and lifestyle activities in areas designated for longer-term expansion of the CBD.

EXPANDING SITES FOR ARTS AND LEISURE

We are also identifying more sites for arts, tourism-related ventures, and sports, especially within the city. This includes increasing water activities at Marina Bay and creating dynamic spaces for both leisure and cultural engagement.

COLLABORATION WITH LOCAL BUSINESSES AND COMMUNITY PARTNERS

We work closely with local businesses and community partners to activate public places through programmes and events. Through our pilot Business Improvement Districts (BIDs) and Lively Places Programme, we have partnered with relevant stakeholders to encourage active participation from the public, enriching the urban experience and fostering a greater sense of belonging within the city.



Playground at Robertson Quay
IMAGE CREDIT: SINGAPORE RIVER ONE

CASE STUDY

Pilot Business Improvement District at Singapore River One

The pilot BID programme was launched by URA in September 2017 to encourage private sector stakeholders to play an active role and collectively fund and implement plans and initiatives that would improve their precincts. A grant of up to $500,000 a year was provided by the Government based on dollar-for-dollar matching for membership fees collected from the stakeholders over a four-year period.

Singapore River was the first precinct to come onboard the programme. URA worked closely with the local precinct association, Singapore River One (SRO), and the stakeholders in the area, including property and business owners, to facilitate the implementation of their initiatives to enhance their precinct.

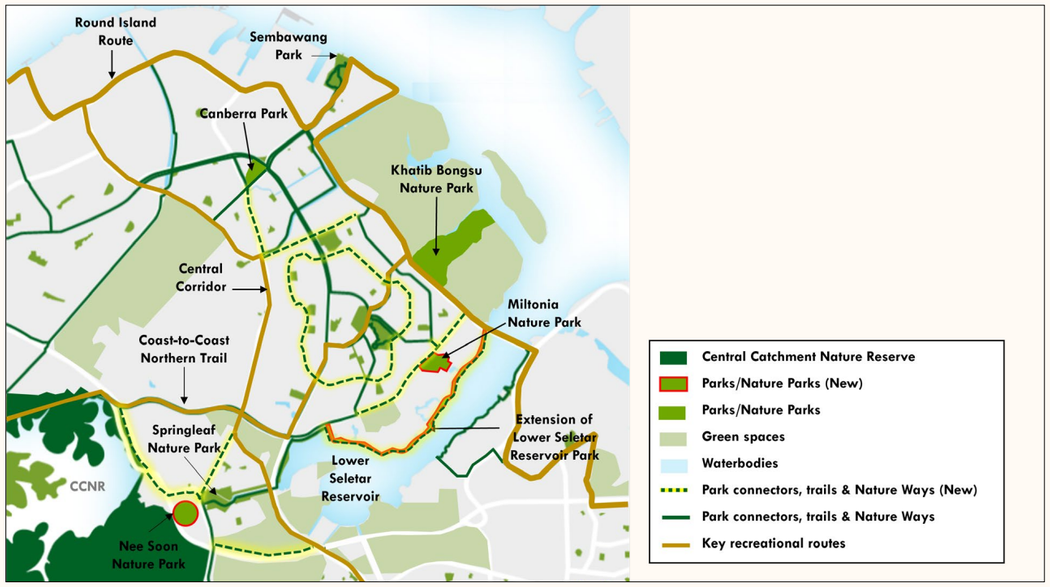
Over the years, SRO has implemented a range of interesting initiatives from precinct-wide events and programmes such as the signature Singapore River Festival and annual St Patrick's Day Street Festival, to public space enhancement projects, such as the delightful playground at Robertson Quay, as well as attractive artworks and murals on the shophouse facades, in the back lanes, and along the underpasses. These efforts have helped to enhance the vibrancy and visitor experience to the precinct, and strengthen stakeholder and community involvement in shaping a distinctive and endearing Singapore River.

URA continues to facilitate and guide the pilot BIDs in the execution of their plans and initiatives, and support the pilot BIDs in the growth and development of their placemaking capabilities, such as by organising placemaking talks and seminars.

2.2 A CITY IN NATURE

Despite the land use challenges that Singapore faces, URA carefully stewards our green and blue spaces to protect our local flora and fauna. We also harness nature as an avenue for recreation, relaxation, and protection against the effects of climate change. To achieve our vision for Singapore as a City in Nature, we collaborate with the National Parks Board (NParks) and other key agencies to integrate greenery into our medium- and long-term plans.

Artist's Impression of Nee Soon Nature Park
IMAGE CREDIT: NPARKS



Khatib Nature Corridor
IMAGE CREDIT: NPARKS

CASE STUDY

Khatib Nature Corridor

The Ecological Profiling Exercise (EPE) had identified important source habitats of native biodiversity in the Central Catchment Nature Reserve and Khatib Bongsu Nature Park, with ecological corridors between these two source habitats running along Lower Seletar Reservoir. The Khatib Nature Corridor was thus identified and will comprise a series of upcoming parks and Nature Parks that will serve as stepping-stone habitats, including Khatib Bongsu Nature Park, Nee Soon Nature Park, Miltonia Nature Park, and extension of Lower Seletar Reservoir Park. A network of park connectors, Nature Ways, and trails through Lower Seletar Reservoir and the surrounding Khatib areas will be curated to connect the various green spaces.

INTEGRATING NATURE AND GREENERY INTO OUR PLANS

Today, we have 7,800ha of green spaces, which include our four gazetted Nature Reserves, as well as our Nature Parks, Nature Areas, parks, and park connectors. By 2035, we aim to extend our network with an additional 1,000ha of green spaces. As we review our plans, we work closely with NParks to develop strategies to extend our natural capital – for example, as part of the recent Long-Term Plan Review, we worked with NParks to strengthen our ecological connectivity through translating the results of NParks' Ecological Profiling Exercise (EPE) into the creation of Nature Corridors. These Nature Corridors can be established through a network of green infrastructure, including parks, park connectors, nature trails, and Nature Ways, which link core habitats across the island and offer new nature-based recreational opportunities at the same time.

INTEGRATING NATURE AND RECREATION

We collaborate with other government agencies to identify and curate opportunities to integrate recreation with our existing biodiversity and ecological corridors, providing more fulfilling experiences for our residents and enhancing their appreciation of our City in Nature.

Engagements with the Community along the Rail Corridor
IMAGE CREDIT: URA

CASE STUDY

Rail Corridor

The Rail Corridor is the former Keretapi Tanah Melayu (KTM) railway line stretching from Tanjong Pagar Railway Station in the south to Woodlands in the north. It is a 24km green recreational corridor that threads through diverse communities and connects around one million residents within a 1km radius, workers in industrial areas and business parks like one-north, students, and visitors from all walks of life.

The Rail Corridor journey has been more than 14 years in the making, following the return of the railway land to Singapore in 2011. Since then, URA has worked with agencies and stakeholders to understand people's diverse aspirations for the Rail Corridor through workshops, exhibitions, surveys, and site walks.

These include extensive consultations with the Friends of the Rail Corridor, residents, students, heritage and nature groups, and the industry, to chart plans for the Rail Corridor and bring them to fruition. From these engagements, several recurring themes have emerged, such as retaining the Rail Corridor's lush greenery and railway heritage, and making it a more inclusive, accessible, and safe space for visitors of all ages and abilities.

The Rail Corridor has been progressively implemented together with agencies' support. Today, visitors can access 21km of continuous connectivity from Kranji in the North to Spooner Road in the South. We have also worked with agencies to seek public ideas on, and design and implement, various community nodes along the Rail Corridor that would serve as gathering spaces and activity hubs for visitors and nearby residents. These include the Kranji node, Pan Island Expressway (PIE) viaduct, former Bukit Timah Railway Station, Buona Vista node, and more.

In 2024, URA launched 'From Dreams to Rail-ity', an Ideas Competition on how to re-purpose the former Tanjong Pagar Railway Station, and the Queensway Node Design Competition, to seek proposals for the development of two more community nodes along the Rail Corridor. We will continue to engage stakeholders and residents to shape the Rail Corridor to offer more inclusive recreational options for people to enjoy.

BALANCING DEVELOPMENT NEEDS WITH OUR NATURAL CAPITAL

We aim to preserve as much of our existing nature areas and prioritise developing brownfield sites where feasible. We do this by optimising housing densities in new developments, co-locating compatible uses on a single site, and redeveloping areas such as golf courses as leases expire. We also use underground spaces and deep cavern spaces for infrastructure and are moving major infrastructure to free up land for redevelopment, such as by consolidating the port at Tuas for the Greater Southern Waterfront and by relocating Paya Lebar Air Base to Tengah.

However, many of these long-term moves take time to coordinate, implement, and develop, and to impact people, communities, industries, and livelihoods. Hence, after carefully weighing the alternatives and trade-offs, there will still be a need to develop some greenfield sites to meet the needs of our people. Any decision to develop on greenfield sites is made only after detailed study of the trade-offs and alternatives, including the assessment of the ecological and biodiversity value of these sites through the Environmental Impact Assessment (EIA) Framework.

For projects with a significant impact on nature and biodiversity, such as those near Nature Reserves, coastal areas, or biodiversity-rich habitats, we work closely with agencies like NParks, NEA, Maritime and Port Authority of Singapore (MPA), and SFA, to assess if more in-depth environmental studies are needed. Before granting planning approval, the Ministry of National Development (MND) and URA review the project's environmental impact carefully. Developers must implement mitigation measures and monitoring plans to minimise environmental effects before starting any work.

We engage residents, local communities, nature groups, and other stakeholders early for upcoming projects that could have significant environmental impacts. This collaborative approach not only ensures that the planning process comprehensively accounts for relevant factors that are significant to the community, including environmental considerations, but also allows us to co-create solutions to minimise a development's impact on the environment.

Former Bukit Timah Railway Station
IMAGE CREDIT: YK PHOON

Golden Mile Complex
IMAGE CREDIT: URA

CASE STUDY

Conservation of Golden Mile Complex

URA studies the conservation of significant buildings in tandem with development plans. In 2021, URA announced that Golden Mile Complex would be gazetted as a conserved building — the first large-scale, strata-owned post-independence building to be conserved — in recognition of its architectural and engineering ingenuity, encapsulating the 'can-do' spirit of our pioneer generation during the post-independence years.

The decision followed an extensive two-year study that included engaging diverse groups of stakeholders, as well as working with various agencies. A package of incentives was offered to support the building owners' interest in a collective sale while also enhancing the commercial viability for potential buyer-developers to conserve the building for meaningful adaptive re-use.

2.3 A MODERN CITY WITH HERITAGE & IDENTITY

Familiar places and distinctive buildings anchor our sense of belonging to Singapore. As the national conservation authority, we are committed to protecting Singapore's built heritage by integrating Heritage & Identity (H&I) considerations into our land use and development plans. This preserves our diverse cultural heritage and strengthens our sense of rootedness and identity. Additionally, conserving buildings and areas reduces the need for demolition, which, in turn, lessens associated emissions.

We are dedicated to studying and conserving buildings and areas of historical significance, creating policies and incentives to facilitate the conservation of both public and private structures. We also establish and enforce conservation guidelines for gazetted areas, buildings, and structures. These guidelines allow for modern upgrades while preserving key architectural elements. URA also actively monitors compliance and engages stakeholders to maintain high standards of conservation, and issues guidelines to protect the integrity of conserved buildings.

In addition, we develop urban design guidelines to maintain the unique character of places rich in heritage and identity. Through these efforts, we not only safeguard the physical remnants of our past but also enrich the cultural tapestry of our city, making Singapore a modern metropolis that cherishes its rich heritage and unique identity.

INTEGRATING HERITAGE CONSIDERATIONS IN PLANNING

URA has developed an island-wide Heritage and Identity Plan to identify, retain, and enhance heritage and identity sites, urban corridors, and buildings. It also maps out their potential to contribute to the many layered and rich stories of our island. From national monuments to conserved buildings, identity nodes, heartland and other heritage areas, and identity corridors, the island-wide plan guides our efforts to study, sustain, enhance, and protect our heritage assets to strengthen our sense of identity and history, in partnership with the community.

Our initiatives include the development of safeguards for our heritage assets, urban design guidelines that enhance streetscapes and landscapes for identity nodes and corridors, and efforts to recall memories or tell stories. By collaborating with stakeholders and the public, URA fosters opportunities for public space co-creation, strengthening the community's connection to its heritage.

Similar to our work on EIAs, URA requires that Heritage Impact Assessments (HIAs) be conducted to mitigate the potential impact of developments in areas of heritage significance. Public projects with significant potential impact on heritage undergo thorough consultations with both URA and the National Heritage Board (NHB). Where necessary, heritage studies are conducted to offer a deeper understanding of the significance of buildings and sites.

FOSTERING PARTNERSHIPS AND ENGAGING WITH THE COMMUNITY TO ENHANCE OUR CONSERVATION EFFORTS

To better support collaboration with the public and private sectors in shaping and promoting our built heritage and identity, URA established the Heritage and Identity Partnership (HIP) in 2018. The HIP brings together experts from fields like the arts, heritage sectors, and academia. The HIP collaborates with URA through regular dialogues to promote the conservation of cultural sites, ensuring that development plans respect Singapore's built heritage. URA also enhances professional standards through engaging conservation professionals, and cultivates a greater appreciation for Singapore's built heritage through industry engagement and community outreach.

URA co-creates heritage and identity plans with stakeholders and the public. For example, URA collaborated with the local community and business stakeholders to unveil a draft Kampong Gelam Place Plan in November 2022 to chart the future of the Kampong Gelam Historic Area, and kickstarted public engagement efforts to invite views and feedback for the plan. This comprehensive blueprint outlines the long-term strategic development of the Kampong Gelam Historic District, focusing on four key aspects. These include celebrating its rich history, heritage, culture, and the arts; creating vibrant public spaces and community areas; enhancing connectivity; and curating a diverse tenant mix while preserving traditional trades. Through this collaborative effort, the plan aspires to preserve Kampong Gelam's unique character while promoting its continued vibrancy and relevance in the years to come.

Artist's Impression of sustainable living at the upcoming Marina South mixed-use precinct
IMAGE CREDIT: URA

2.4 *Central Area*

Singapore's Central Area (CA) is home to a global business and financial hub and a 24/7 lifestyle destination. Plans are in place to support the sustainable growth and evolution of the CA to become even more vibrant, by accommodating a greater diversity of uses and offering more jobs and business opportunities for the future economy.

Planning for Sustainable Development in New Areas:
New districts at Marina Bay and Marina South are planned as sustainable, mixed-use precincts. Marina South has been planned as a sustainable and car-lite waterfront precinct, offering residents the experience of living in a green, blue, and cool urban oasis with a comprehensive cycling network for convenient last-mile connectivity. Streets and social spaces will be well-shaded throughout the day by lush greenery and the placement of tower blocks to mitigate the urban heat island effect. As a sustainable town of the future, developments at Marina South will be required to attain the accreditation of Green Mark Platinum Super Low Energy certification, as well as Maintainability, Whole-of-Life Carbon, and Health and Wellbeing badges. This could be achieved through adopting energy-efficient initiatives such as using centralised cooling systems and pneumatic waste management systems.

In Marina Bay, developments are required to meet a 100% greenery replacement to achieve a lush precinct. Our planning and coordinating role has also allowed us to effectively implement district-level infrastructure such as the Marina Bay CST, which consolidates services into a common tunnel that allows a plug-and-play environment for developers to easily connect to services without the need to dig up roads and disrupt traffic, and the DCS in Marina Bay, which enhances resource efficiency, reduces energy consumption, and increases the reliability of services.

Policies and Incentives to Encourage Sustainable Brownfield (Re)development:
URA encourages the redevelopment of existing built up areas to be transformed into experiential spaces that align with our vision of a mixed-use, dynamic CA, such as through the CBD Incentive Scheme which encourages the conversion of office space to residential and other mixed uses, and the Strategic Development Incentive (SDI) Scheme which encourages the comprehensive redevelopment of two or more developments to bring about transformative impact at a precinct-scale. Considering that brownfield (re)development incurs embodied carbon emissions generated through construction, redevelopment proposals under our rejuvenation schemes are subject to a minimum building age criteria (i.e. at least 20 years from the date of the last issued Temporary Occupation Permit [TOP]) and are required to achieve Green Mark Platinum Super Low Energy certification.

Promoting Liveability and Social Inclusivity Through Planning and Urban Design:
The CA is planned to encompass vibrant, mixed-use precincts integrating residential, commercial, and recreational areas to foster community interaction and accessibility. Thoughtful urban design enhances aesthetics and functionality of spaces, promoting walkability and public transport usage, public space provision, and greenery that enhances quality of life, social inclusivity, and overall well-being.

Integrating Heritage and Identity:
URA's conservation efforts ensure that the CA retains Singapore's unique identity while embracing future growth. Historic districts such as Chinatown, Kampong Glam, Little India, and Boat Quay — gazetted for conservation in 1989 — continue to provide a distinctive blend of historical charm and modern vibrancy. Many of our National Monuments and conserved buildings have been repurposed as cultural institutions, such as The Peranakan Museum and the National Gallery Singapore. Others have been creatively integrated into new mixed-use developments, like the former Beach Road Camp at South Beach and the old warehouse that housed Zouk nightclub, now part of a new residential development along the Singapore River.

Adaptive Reuse of No. 17, 19 & 21 Jiak Kim Street Warehouses (Former Zouk)
IMAGE CREDIT: FRASERS PROPERTY SINGAPORE, FINBARR FALLON

2.5

Bukit Timah Turf City

Bukit Timah Turf City was home to Singapore's second racecourse from 1933 to 1999, a popular horse racing venue patronised by locals from a variety of backgrounds. It is set amidst greenery and vegetated areas that are of potential ecological importance. As the site is intended to be developed into a new housing estate, URA commissioned both an EIA and HIA to guide the development of plans that balance future housing needs with safeguarding our most significant heritage and nature assets.

Protecting Nature and Biodiversity at Bukit Timah:
As the former Turf Club is located near Bukit Tinggi and Eng Neo Avenue Forest and also near the Central Catchment Nature Reserve, an EIA was conducted to study the potential impacts of development on biodiversity. Based on the recommendations of the study, we will plan for the retention of some of the forested areas, as well as enhancing ecological connectivity in the area. We are continuing to develop our plans for the area, and will account for the mitigation measures suggested when planning for upcoming development.

Preserving and Enhancing Our Heritage:
Concurrent with the EIA, an HIA was conducted to better understand the heritage significance of Bukit Timah Turf City and assess the potential impacts of development on our heritage.

Bukit Timah Racecourse, 1965
IMAGE CREDIT: PETER D. HUGGETT & COLIN PHILLIPS

Planners sharing conceptual plans with young Bukit Timah residents as part of engagements for "My City, My Home" exhibition.
IMAGE CREDIT: URA

We are also incorporating the findings from the HIA into our long-term plans for the area, such as creating a new central open space that pays homage to the former racecourse track as the centrepiece of the new estate. We are also studying the retention of five clusters of 27 buildings and structures for repurposing into community and retail uses.

Consulting with a Wide Range of Stakeholders:
URA sought feedback from expert stakeholder groups, residents from areas around Bukit Timah Turf City, and the general public to seek ideas on the plans and ensure that community needs and concerns are addressed effectively. We also showcased our plans at a public exhibition, and sought the public's feedback, thoughts, and memories of the site.

Former Turf Club workers and their families sharing stories of their time spent at Fairways Quarters as part of heritage documentation efforts.
IMAGE CREDIT: URA

3 Strengthening Partnerships, Within and Beyond Singapore

Kampong Gelam
IMAGE CREDIT: URA

3.0 WHY IS THIS IMPORTANT?

Partnerships are crucial in our mission to develop Singapore as a sustainable city for all. This starts with engaging the people who live, work, and play in towns and districts that are shaped by our planning. We engage widely with various community and interest groups, professional and industry associations, as well as academia. These engagements enable us to understand diverse stakeholder concerns and feedback to create more robust and inclusive plans, and to improve existing guidelines and policies. We also collaborate with stakeholders to explore solutions to address new challenges and develop new ways of working. Be it rallying the public to be actively engaged in shaping the city or steering the industry towards higher standards of sustainability, the common goal driving our partnerships is a more sustainable Singapore – built through our collective effort and consensus.

Beyond Singapore, URA plays an active role on the global stage to advocate for sustainable urban planning practices through internationally recognised events and awards. We help to promote knowledge sharing and best practices of sustainable urban planning to global communities.

Underpinning our engagement efforts is our use of technology as a key enabler to support URA's partnerships at all levels. By harnessing the capabilities of digital tools, we achieve better outcomes in steering the industry and promoting active citizenry.

3.1 EMPOWERING THE PUBLIC AND PROMOTING ACTIVE CITIZENRY THROUGH STAKEHOLDER ENGAGEMENT

URA values diverse perspectives. Our inclusive approach identifies and engages all relevant parties – from residents, businesses, community groups to experts – in various stages of the planning process. We provide information to enable them to gain a deeper appreciation of URA's planning principles and approach as well as consider multiple perspectives collectively. Through various feedback channels and partnership avenues, we provide stakeholders with opportunities to participate in the formulation of our plans, policies, and initiatives. We also organise dialogues among key stakeholder groups, fostering a deeper understanding of the trade-offs involved in planning, development, and policy-making, and tapping on their expertise to improve our initiatives. Mass awareness for URA's plans, policies, and initiatives is further gained through social media and mainstream media publicity.

The Singapore City Gallery is an important outreach and engagement touchpoint for us. It chronicles Singapore's past, present, and future physical transformation, and how we will continue to chart Singapore's future development by taking a long-term perspective. We also leverage digital tools to extend our reach. For our LTPR 2021, despite the social restrictions that were instituted due to the COVID-19 pandemic, we were able to engage the public extensively by using digital platforms such as online polls, virtual workshops, dialogues, and discussions.

> **URA values diverse perspectives. Our inclusive approach identifies and engages all relevant parties – from residents, businesses, community groups to experts – in various stages of the planning process."**

3.1.1
LTPR 2021 Engagements

URA's review of the Long-Term Plan every ten years demonstrates our commitment to building a future Singapore that meets the diverse needs and aspirations of many generations to come.

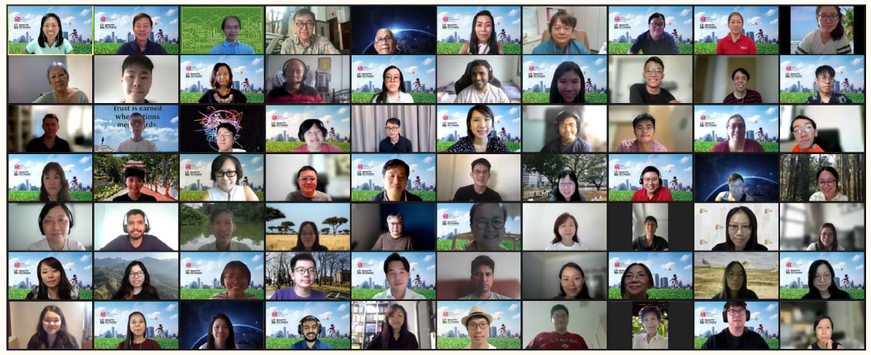
The latest LTPR launched in July 2021 saw the most extensive public engagement URA had undertaken to date. It featured four key phases covering sentiment gathering, brainstorming sessions, discussions on planning principles, and presentation of long-term strategies co-created with the public and stakeholders. The LTPR 2021 public engagement, which involved more than 15,000 people, not only underscored the value of working with the people to shape plans that are relevant to them, but also the role that technology can play in stakeholder engagement, through enabling virtual dialogues during the COVID-19 pandemic.

In an uncertain time of social restrictions put in place as a response to the COVID-19 pandemic, URA integrated online surveys to gather public sentiments and virtual workshops to discuss these findings from the first phase of the exercise.

In the second phase, webinars co-organised with partner agencies facilitated a collection of ideas. These complemented discussions held with different stakeholders to explore possible land use strategies to achieve the desired outcomes of a Singapore that is Inclusive; Adaptable and Resilient; Sustainable; and Distinctive and Endearing.

Having developed strategies based on future challenges Singapore might face, virtual dialogues were held in the third phase to discuss the implications and trade-offs behind them and round up the engagements.

Finally, the fourth phase showcased the proposed strategies through public exhibitions that also leveraged digital mediums to increase interactivity and elevate storytelling. Overall, URA's approach for the LTPR 2021 public engagements emphasised inclusive engagement, making it easier for citizens and others to participate and contribute to Singapore's long-term urban planning.



LTPR 2021 Public Engagement held over Zoom
IMAGE CREDIT: URA

LTPR 2021 Public Exhibition
IMAGE CREDIT: URA

LTPR 2021 Public Exhibition
IMAGE CREDIT: URA

3.2 ADVOCATING FOR SUSTAINABLE URBAN PLANNING WITHIN AND BEYOND SINGAPORE

URA advocates for best practices in urban planning, architecture, and urban design excellence in Singapore, and around the world. By leveraging our expertise and experience, we support the creation of sustainable, liveable, and resilient cities that benefit people across the world. Our efforts in capability building in this area involve sharing Singapore's development journey and demonstrating how our planning strategies strive to foster and balance economic, social, and environmental well-being in the short- and long-term, as well as providing platforms to showcase and share other cities' innovations and urban solutions.

ADVOCATING FOR SUSTAINABLE URBAN DEVELOPMENT WITHIN SINGAPORE

In our push for raising professional standards in urban planning and design, we collaborate with institutions such as the Singapore Institute of Planners (SIP) and the Singapore Institute of Architects (SIA). URA representatives supported and advised SIP on the development of the Singapore Institute of Certified Planners (SICP) certification programme, as members of the SICP Advisory Panel, to provide certification of planners' qualifications in Singapore. URA representatives also regularly serve on the judging panels for the biennial SIP Planning Awards, which recognise outstanding planning projects in Singapore and overseas, as well as individuals who have contributed towards the advancement of the planning profession in Singapore. We also contribute to SIP's training programmes. To challenge the larger industry – from students to planners – and to raise the bar for sustainable urban planning, we collaborated with SIP and SIA on planning projects, such as the 2019/2020 Ideas Competition for the redevelopment of Paya Lebar Airbase: "Runway for Your Imagination".

Through public programmes, including exhibitions, seminars, and publications, URA also promotes best practices in planning, architecture, and design. URA has hosted public seminars which explore key urban issues, uncovering fresh insights and future trends shaping Singapore. In 2023, URA launched two guidebooks, "A Distinctive & Delightful City" and "A Green & Liveable City", as part of a series on Singapore Urban Design.

The Singapore Architecture Collection, launched in 2023, is a curated showcase of notable works.

P*DA 2023 Design of the Year recipient — Singapore Pavilion Expo 2020 Dubai — is a successful prototype that shows how sustainable built environments could be designed for future cities.
IMAGE CREDIT: URA

A collaborative effort with other agencies, this documentation and archival of Singapore's architectural heritage was shared with the public through events, exhibitions, and a commemorative book that fosters awareness and discussion about design quality and the role of local architecture in Singapore's cultural identity.

ADVOCATING FOR SUSTAINABLE URBAN DEVELOPMENT BEYOND SINGAPORE

Our commitment to sharing and cross-learning best practices in urban planning and design also goes beyond our shores. URA regularly hosts visits and conducts training sessions to share Singapore's planning and development experience with overseas government officials and planning professionals.

From our journey and experience, we contribute to thought leadership in sustainable urban development amongst city leaders and urban planning professionals. A key platform for promoting planning strategies that contribute to economic, social, and environmental well-being is the biennial World Cities Summit, co-organised by URA and the Centre for Liveable Cities. A global platform for government leaders and industry experts to discuss challenges and share solutions pertaining to urban development, the summit has attracted the participation of more than 250 cities around the world. As part of the event, the Lee Kuan Yew World City Prize is conferred in recognition of outstanding achievements and contributions to the creation of vibrant and sustainable urban communities.

Jointly organised by URA and DesignSingapore Council, the President's Design Award (P*DA) is another key platform for raising the profile of good design across all disciplines, which often embodies sustainable designs. The award is Singapore's highest honour for design professionals, and it recognises the achievements of designs that make a difference to the lives of not just Singaporeans, but also the global community. P*DA 2023 recipients include CapitaSpring *(next page)*, a biophilic skyscraper recognised for its vertical urbanism filled with lush greenery and a range of publicly accessible spaces; and the Singapore Pavilion Expo 2020 Dubai *(left)*, a successful prototype that shows how sustainable built environments could be designed for future cities.

> **"URA advocates for best practices in urban planning, architecture, and urban design excellence. We support the creation of sustainable, liveable, and resilient cities that benefit people across the world."**

CapitaSpring, a biophilic skyscraper and P*DA 2023 Design of the Year recipient, was recognised for its vertical urbanism filled with lush greenery and a range of publicly accessible spaces.
IMAGE CREDIT: FINBARR FALLON

> **“In promoting equitable partnerships, URA has also established feedback mechanisms to address issues and public concerns, ensuring that our decision-making is both responsive and accountable.”**

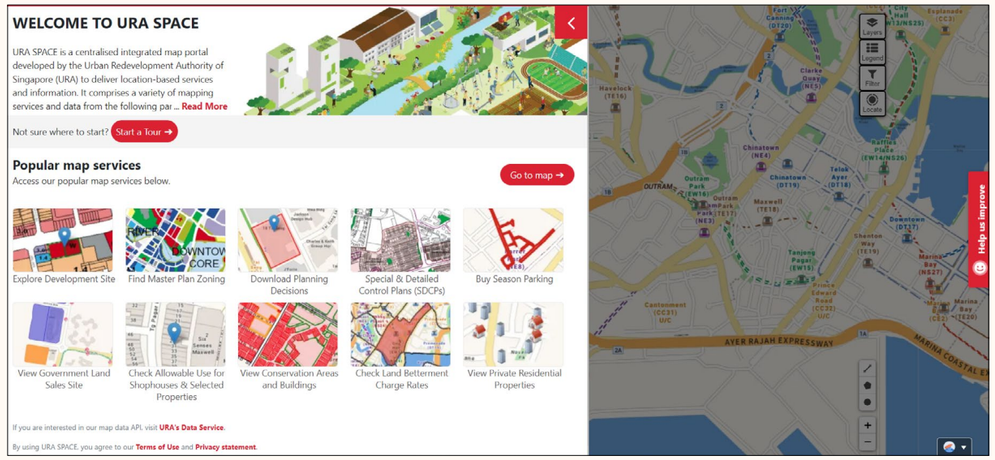
3.3 DRIVING COLLABORATIONS WITH THE INDUSTRY AND STREAMLINING REGULATIONS THROUGH TECHNOLOGY AND DIGITALISATION

Designated the Whole-of-Government Urban Planning & Design Technology Centre of Excellence (URBEX), URA leads the planning and design sector in building up strategic and critical science and technology capabilities. Since 2022, we have been leveraging our partnerships with industry and Professional Institutes to drive innovation and collaboration with partner agencies to strengthen synergies and build up digital capabilities within the larger planning community.

Working with the Building and Construction Authority (BCA), regulatory agencies, leading built environment professionals, firms, and Trade Associations and Chambers, we are leading the co-creation of CORENET-X, a platform that re-engineers the business processes of the construction industry through Building Information Modelling (BIM) technologies and collaborative workflows. Alongside other tools such as URA’s One-Stop Developers’ Portal (OSDP), a digital platform for developers’ land administration and regulatory services, CORENET-X helps to streamline regulatory governance and processes for our industry partners, while promoting synergy among agencies.

Our industry outreach efforts also include the development and enhancement of platforms that provide planning and development information. This includes the digital map URA SPACE, which allows building professionals, business operators, and members of the public to access planning data by location. Such initiatives ensure that the industry and other stakeholders have transparent and ready access to information regarding development policies, regulations, and projects.

In promoting equitable partnerships, URA has also established feedback mechanisms to address issues and public concerns, ensuring that our decision-making is both responsive and accountable. These measures are integral to our mission in facilitating orderly developments according to planning intentions and supporting a pro-business regulatory environment.



URA SPACE
IMAGE CREDIT: URA

Public Service Science, Technology and Engineering Conference 2024 Excellence Award
IMAGE CREDIT: S&TPPO

3.3.1

Urban Planning & Design Technology Centre of Excellence

As the designated URBEX in Singapore, our work in reimagining planning practice with a digital core is guided by four focus areas:

Focus Area 1 – Improve Quality and Access to Planning Data:
To cohere and standardise datasets for effective cross-agency collaboration, URA collaborates with planning agencies to identify planning use cases, key planning datasets for critical topics, and establish automated data pipelines to bring relevant datasets into our Planning Sectoral Data Hub for data fusion. This entails initiating the adoption of cloud-based tools for data governance and compliance, and data processing and management.

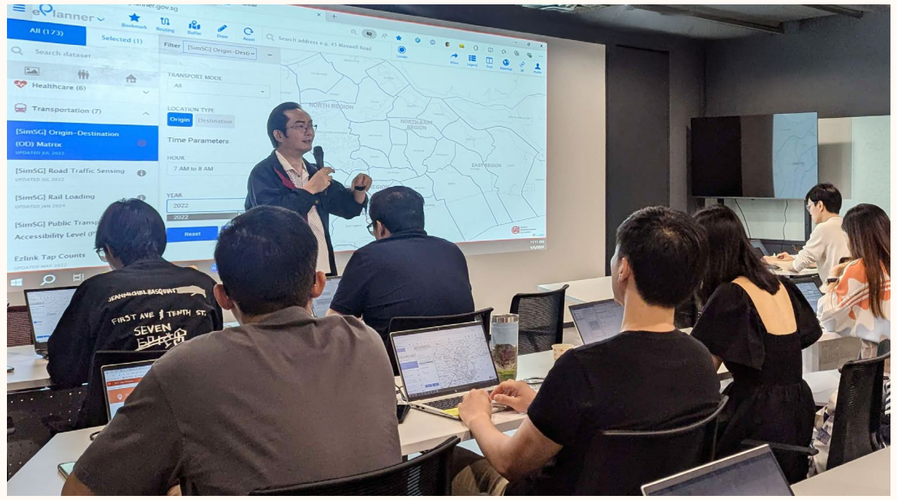
Focus Area 2 – Develop Models and Tools, and Embed Them within Workflows to Mainstream Analytics:
URA works closely with partner agencies and the research community to develop models and digital tools to support planners' work. New analytical tools have been created and used, such as the Accessibility to Opportunities & Services dashboard, which allows planners to evaluate how easily residents can access important amenities. Additionally, modelling and simulation (M&S) has allowed us to improve land use and urban design at Lentor Hills Estate, JLD, and Marina South, by enhancing wind flow and outdoor comfort through wind simulation. These tools have been progressively developed and made available through our web-based geospatial platform, ePlanner, which has over 200 data layers and is used by more than 1600 users from across 40 agencies. ePlanner supports both 2D and 3D data analytics and provides tools such as 3D site simulation and accessibility analytics.

URA continues to build up M&S capabilities to help us plan more optimally, working closely with partners to develop the digital infrastructure that would integrate M&S tools seamlessly with ePlanner. This makes otherwise highly specialised tools readily available to planners.

URA has also been harnessing Artificial Intelligence (AI) under our Plan.AI programme since 2021 to improve productivity and achieve better planning outcomes, such as incorporating AI image generation into our urban design workflows and public engagement efforts, to support our architects and planners in generating new ideas and impressions more productively.

Focus Area 3 – Shape the Knowledge Frontier of Planning and Design Technology to Increase the Value of Research and Innovation for Planning Agencies:
URA works closely with various research bodies to develop new models and tools to advance urban planning and design technologies, in addition to regularly participating in various local and global forums, conferences, and sharing sessions. Some of these include knowledge sharing and presentations at the World Cities Summit 2024, STACKx Smart City 2024, Public Service Transformation Week 2024, and the Public Service Science, Technology and Engineering Conference 2024. In doing so, URA supports Singapore's position as a living lab to test-bed and implement innovative urban solutions by collaborating with the research community to expand our knowledge and create new methods. We then translate these ideas into practical tools that can greatly enhance policies, plans, and processes to achieve lasting results.

Focus Area 4 – Systematically Strengthen the Ecosystem of People at the Intersection of Technology and Planning:
URA builds up sector-wide capabilities in leveraging the datasets, models, and tools developed. This is done through training programmes such as the Analytics Immersion Programme (AIM), which has trained more than 600 participants from over 20 agencies. URA also organises various sharing sessions, such as the Design & Planning Exchange (DPXΔ) sessions, where professionals and researchers share the latest developments and insights relevant to urban planning and design technology. URA is also regularly in touch with users of our tools from within and beyond URA to gather feedback and use cases to better cater to our users' needs, as well as conduct workshops to onboard them onto our tools.



Analytics Immersion Programme (AIM) – 17th Run
IMAGE CREDIT: URA

Potential Negative ESG Impacts Arising from URA's Work and Mitigation Measures

We are cognisant that planning, designing, and constructing new buildings and infrastructure may result in potential negative impacts on our environment and built heritage. While we strive to achieve growth and effective land development, we are focused on minimising the potential negative impacts of development on the environment and on neighbouring communities, such as by carefully managing the process of ground preparation, material use, and optimising construction methods.

We actively engage and involve a wide range of stakeholders to understand their viewpoints. Through platforms such as the Heritage & Identity Partnership (HIP), Design Advisory Committee (DAC), and public engagements conducted as part of URA's planning exercises (e.g., LTPR and Master Plan Review), we gather valuable feedback to guide our decision-making process and identify potential mitigating actions. In addition to these formal channels, we also engage with residents, local communities, Nature Groups, and other stakeholders early in our development plans. By understanding their concerns and interests from the start, we can shape development plans in a way that balances heritage and environmental conservation with Singapore's growth and development needs.

Potential Negative ESG Impacts from Development	Mitigating Measures Taken by URA
Increased GHG Emissions and Disruptions from Development Building and infrastructure development requires land clearance, and ground and subterranean construction works. This could result in increased emissions and adverse effects on the environment, natural resources, and neighbouring communities. In addition, the construction of new buildings and infrastructure (including the raw materials used) by URA and private developers contribute to embodied carbon.	**Optimising Infrastructure Planning to Reduce the Environmental Impact of Infrastructure Development:** URA has developed a new Major Infrastructure (Network) Approval Workflow to plan, design, and/or implement utilities within the same corridor to optimise space for all existing & future infrastructure, reduce abortive works and multiple diversions, and reap synergies, as well as cost, land, and carbon savings during implementation. A Lead Implementing Agency is appointed for each major infrastructure network project, with the strategy to maximise efficiency by optimising space for both existing and future infrastructure, reducing unnecessary work and repeated diversions, and capitalising on synergies to save resources, costs, and land. Ultimately, this forward-planning methodology enhances Singapore's infrastructure adaptability, enhancing the ability of our infrastructure to respond to future development needs. **Encouraging more Sustainable Construction Methods and Materials:** In the construction phase, we require companies to reuse waste for construction materials, adopt more sustainable and productive construction materials such as green concrete, and adopt more sustainable and productive construction techniques such as prefabrication technologies, to improve both environmental and construction productivity, minimise waste, and accelerate the building process. **Implementing Requirements to Reduce Wasteful Demolition in the Central Area:** URA encourages the redevelopment of existing built-up areas to be transformed into experiential spaces that align with our vision of a mixed-use, dynamic Central Area through the SDI Scheme and CBDI Scheme. Considering that brownfield (re)development incurs embodied carbon emissions generated through construction, redevelopment proposals under our rejuvenation schemes are subject to a minimum building age criteria (i.e. at least 20 years from the date of the last issued Temporary Occupation Permit [TOP]) and are required to achieve Green Mark Platinum Super Low Energy certification.
Impact to Biodiversity and Ecosystems Construction works and reclamation works will also inevitably result in the loss of green and blue spaces, which may result in adverse impacts on our local ecosystems and biodiversity.	**Integrating Greenery into our Long-Term Plans:** URA carefully stewards our green and blue spaces to protect our local flora and fauna. We also harness nature as an avenue for recreation, relaxation, and to protect it against the effects of climate change. To achieve our vision for Singapore as a City in Nature, we collaborate with NParks and other key agencies to integrate greenery into our long-term and medium-term plans. **Conducting Environmental Impact Assessments (EIAs):** Any decision to develop on greenfield sites is made only after detailed study of the trade-offs and alternatives, including the assessment of the ecological and biodiversity value of these sites through the Environmental Impact Assessment (EIA) Framework. For projects with a significant impact on nature and biodiversity, such as those near Nature Reserves, coastal areas, or biodiversity-rich habitats, we work closely with agencies like NParks, NEA, MPA, and SFA, to assess if more in-depth environmental studies are needed. Before granting planning approval, MND and URA review the project's environmental impact carefully. Developers must implement mitigation measures and monitoring plans to minimise environmental effects before starting any work. *For further information, please refer to Chapter 2.2: A City in Nature.*
Loss of Historical and Cultural Identity and Heritage When areas with historical and cultural significance to Singaporeans undergo redevelopment, there is a risk that our heritage will be lost if heritage & identity considerations are not implemented during development.	**Conducting Heritage Baseline Studies (HBS) and Heritage Impact Assessments (HIAs) in areas of Heritage Significance:** URA requires that HIAs be conducted to mitigate the potential impact of developments in areas of heritage significance. Public projects with significant potential impact on heritage undergo thorough consultations with both URA and the NHB. Where necessary, heritage studies are conducted to offer a deeper understanding of the significance of buildings and sites. **Engaging Stakeholders to identify H&I Issues and Concerns:** To better support collaboration with the public and private sectors in shaping and promoting our built heritage and identity, URA established the HIP in 2018. The HIP brings together experts from fields like the arts, heritage sectors, and academia. The HIP collaborates with URA through regular dialogues to promote the conservation of cultural sites, ensuring that development plans respect Singapore's built heritage. URA enhances professional standards through engaging conservation professionals, and cultivates a greater appreciation for Singapore's built heritage through industry engagement and community outreach. *For further information, please refer to Chapter 2.3: A Modern City with Heritage & Identity.*

4 Striving for Excellence in Our Operations

IMAGE CREDIT: URA

4.0 WHY IS THIS IMPORTANT?

URA's commitment to organisational excellence helps to ensure that we can best fulfil our mission and enable our nation to meet the challenges of the 21st century. Organisational excellence in URA takes on three dimensions – ensuring good governance, pursuing environmental sustainability, and maintaining the well-being of our employees and workers while promoting equitable outcomes and empowering them to thrive in their careers.

We are dedicated to upholding the highest standards of governance expected from the public sector and have developed a comprehensive governance framework to safeguard our financial sustainability, prevent corruption and, in turn, bolster public confidence in URA. At the same time, URA has put sustainability at the forefront of our plans and operations and is aligned with the public sector's commitment to lead by example in reducing our environmental footprint. Lastly, we take proactive steps to make URA a place where our employees are safe and empowered to do their best.

4.1 UPHOLDING THE HIGHEST STANDARDS OF GOVERNANCE

A strong corporate governance structure, along with well-defined organisational frameworks and policies, form the backbone of URA's efforts to meet our organisational and sustainability goals. Upholding ethics and integrity, ensuring strong governance, and achieving financial sustainability, are crucial to enable URA to achieve organisational excellence. Fulfilling these responsibilities aligns with the Public Sector values of Integrity, Service, and Excellence, and are the cornerstone of achieving our sustainability ambitions.[3]

URA's Environmental, Social, and Governance (ESG) Governance Structure

BOARD

Provide oversight and guidance to URA on the inclusion of, and accountability, for Environmental, Social, and Governance (ESG) considerations in carrying out URA's mission.

MANAGEMENT COMMITTEE

Approve URA's ESG Framework and URA's Sustainability Report and Be Accountable for URA's ESG Contributions and Impacts.

ESG FRAMEWORK DEVELOPMENT TASKFORCE

Foster alignment in ESG accountability across the Groups, formulate URA's ESG Framework, and prepare URA's Sustainability Report.

Supported By

SUSTAINABILITY TEAM

Develop URA's ESG Framework and draft the content for URA's Sustainability Report.

SUSTAINABILITY REPRESENTATIVES FROM EACH GROUP

Support the ESG Framework Development Taskforce in providing inputs to URA's ESG Framework and Sustainability Report.

[3] For further information on URA's Board of Directors, please refer to our Annual Report 2023/2024.

> "URA upholds strong ethics and adopts a zero-tolerance attitude towards corruption to ensure that we remain transparent, accountable, and uphold public trust."

OUR ESG GOVERNANCE STRUCTURE

URA's ESG governance structure was developed to foster alignment in ESG accountability across the organisation. This structure is overseen by URA's Board, the organisation's highest governance body. The Board's diverse expertise spans strategic and operational knowledge of industry, regulations, and stakeholder interests – all of which go towards moulding our ESG Framework.

Strategic oversight and guidance on ESG matters is provided by the Board, and the responsibility for the management of ESG matters lies with the Management Committee, chaired by URA's Chief Executive Officer (CEO). The URA Management Committee has also appointed an ESG Framework Development Taskforce, chaired by URA's two Deputy CEOs (DCEOs), to formulate URA's ESG Framework and goals, and prepare URA's Sustainability Report.

OUR ENTERPRISE RISK MANAGEMENT FRAMEWORK AND BUSINESS CONTINUITY MANAGEMENT SYSTEM

URA has in place an Enterprise Risk Management Framework to effectively mitigate, pre-empt, and address risks that could impact the organisation's ability to deliver our mission. This includes regular reporting to the Management Committee on significant risks and risk indicators, followed by the Audit & Risk Committee and the Board. Our risk management framework calls for ongoing monitoring and enhancement of internal controls, alongside training initiatives designed to cultivate a robust risk management culture and promote accountability within URA. For further details on our risk management framework, please refer to pg. 43 of our Annual Report 2023/2024.

One key risk area that URA manages is ensuring the security of data and personal information. We also maintain full compliance with Whole of Government and URA data security, data governance, and cybersecurity policies. Essential to maintaining trust and confidence among stakeholders – including residents, businesses, investors, and other government agencies – these policies demonstrate URA's commitment to safeguarding stakeholders' interests and data privacy.

URA also has an established Business Continuity Management System (BCMS) to maintain the continuity of critical services in an incident and to minimise impact on the public and stakeholders. This is incorporated with the ISO22301:2019 BCMS Requirements to provide an overall picture of BCM processes in URA. The framework maps out the objectives, policies, deployment, review, and measurements to ensure that business continuity efforts are managed and sustained.

ETHICS AND CODE OF CONDUCT

URA upholds strong ethics and adopts a zero-tolerance attitude towards corruption to ensure that we remain transparent, accountable, and uphold public trust. We require all employees to adhere to a strict Code of Conduct that reflects URA's commitment to ethics and integrity.

We have also taken significant steps to prevent corruption within URA. A systematic framework which identifies work areas and jobs susceptible to potential corruption has been developed. These are tracked to ensure there are robust control measures put in place to mitigate these risks. We have also maintained comprehensive communication and training programmes on anti-corruption, with all officers being assessed at the end of their learning, as part of the Code of Conduct module on LEARN[4], to anchor their understanding of their obligations as a URA officer.

In line with Singapore's rigorous Anti-Money Laundering and Terrorism Financing (AMLTF) framework, we have also heightened our regulatory measures against money laundering and terrorism financing in the real estate sector, including the Developers (AMLTF) Act 2018, Housing Developers (AMLTF) Rules, and Sale of Commercial Properties (AMLTF) Rules that came into effect from 28 June 2023.

[4] LEARN is a one-stop digital learning application for public sector officers, launched by the Civil Service College in 2018.

Beyond safeguarding URA's ESG interests, these acts and rules also steer Singapore's property developers to implement measures that protect our real estate sector from money laundering and terrorism financing during the sale of new development projects.

Whistleblowing and grievance mechanisms, alongside other internal feedback channels for URA employees to raise concerns and issues, further complement our anti-corruption and anti-fraud policies. In FY2023, there were no incidents of corruption.

ENSURING ACCOUNTABILITY AND TRANSPARENCY IN OUR FINANCING

Our Finance and Investment Committee provides oversight on the use and investment of URA's surplus funds. The committee also considers and approves investment guidelines in line with policies approved by the Board.

URA has an ESG Investing Framework which provides a clear description of our ESG investing beliefs and guidance on ESG considerations for investment decisions. Our ESG Investing Framework aims to invest our reserves in funds that support the considerations of environmental sustainability, social well-being, and good corporate governance. Investing our reserves in this manner supports us in safeguarding our capital over the long term and is aligned with our commitment to shape Singapore into a liveable, sustainable, and resilient city of the future. Furthermore, investments in companies with strong sustainability practices can also offer better risk-adjusted returns over the long-term.

As part of URA's financial governance, we conduct regular fee reviews and implement prudent expenditure practices to minimise financial risks and ensure operational continuity. Additional checks and balances include the implementation of financial controls to safeguard URA's reserves and providing internal financial advisory and governance checks.

4.2 MANAGING OUR ENVIRONMENTAL FOOTPRINT

URA strives to reduce our environmental footprint across the facilities we manage, namely the URA Centre, URA East Wing, and URA-operated facilities at Marina Bay. To address current environmental challenges while positioning us for future advancements in sustainability, we have:

1. explored and implemented technologies and solutions to improve energy efficiency,
2. increased the use of renewable energy,
3. taken steps to minimise water usage and waste generation, and
4. continued to adhere to the public sector's inclusion of environmental sustainability considerations in our procurement practices.

We have also placed greater focus on building a corporate culture that strongly values the environment and promotes a collective sense of responsibility to protect it through our work and daily activities.

MINIMISING URA'S ENVIRONMENTAL FOOTPRINT

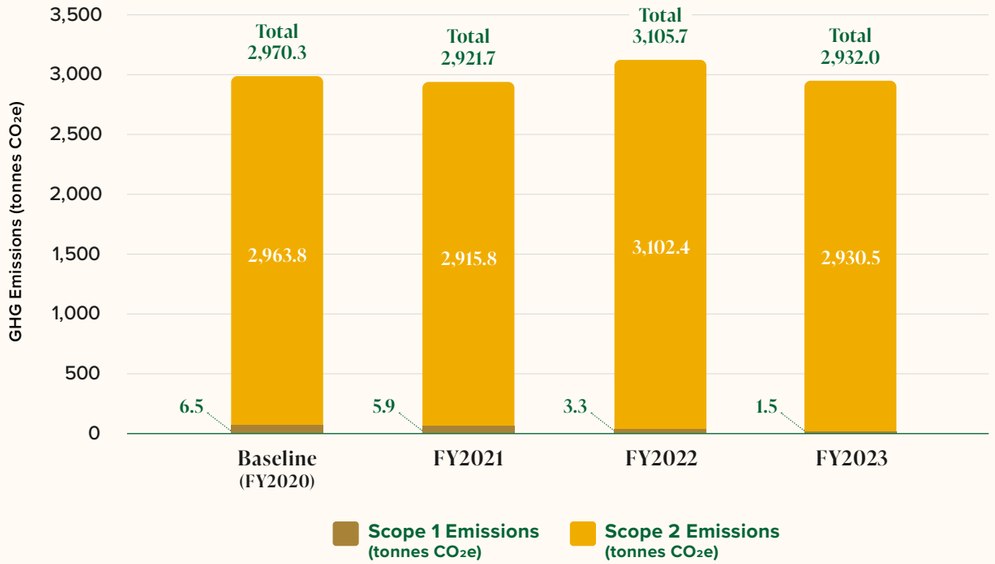
URA has taken a range of steps to help us achieve higher levels of environmental sustainability across our facilities, assets, and events. We are actively reviewing and adapting our ESG policies and processes to ensure that we do all that we can to reduce our environmental footprint while being more efficient with the energy and materials that we use.

> "URA strives to reduce our environmental footprint across the facilities we manage, namely the URA Centre, URA East Wing, and URA-operated facilities at Marina Bay."

GHG Emissions

GreenGov.sg Target
[Whole-of-Government level] Peak emissions around 2025 and achieve net-zero emissions around 2045 for Scope 1 and 2 emissions.

GHG Emissions Performance



Indicators	Baseline (FY2020)	FY2021	FY2022	FY2023
Scope 1 Emissions (tonnes CO_2e)	6.5	5.9	3.3	**1.5**
Scope 2 Emissions (tonnes CO_2e)	2,963.8	2,915.8	3,102.4	**2,930.5**
Total Scope 1 and 2 Emissions (tonnes CO_2e)	2,970.3	2,921.7	3,105.7	**2,932.0**

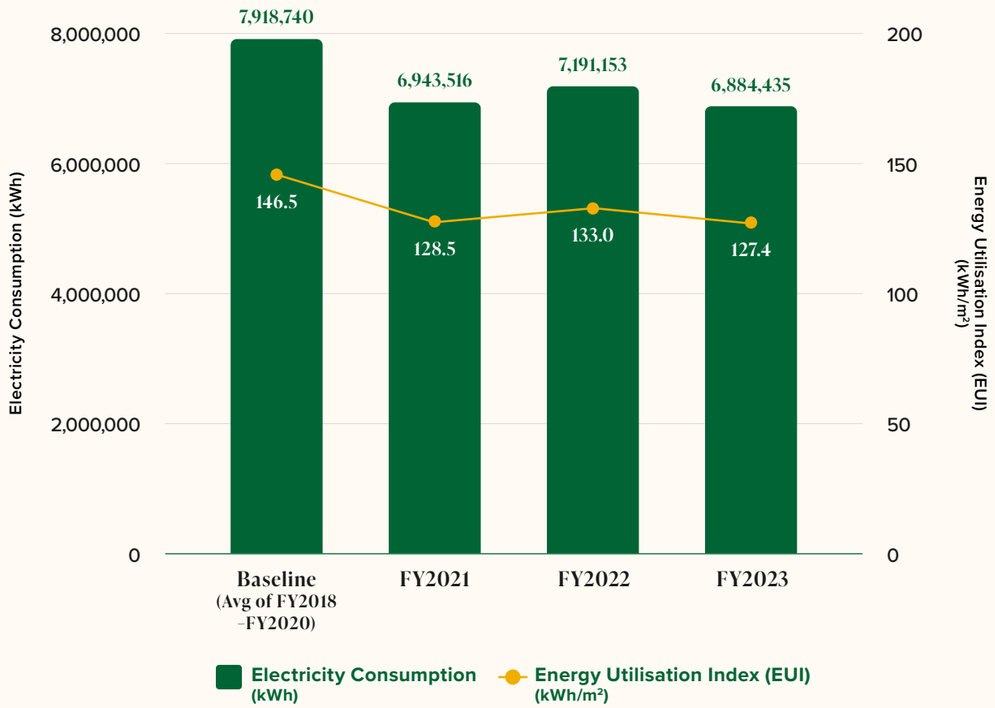
- There was a 76.9% reduction in URA's Scope 1 emissions in FY2023, compared to the baseline. This was due to the discontinued use of company vehicles that had been previously used for carpark operations. URA had redesigned and outsourced relevant work processes, leading to the discontinuation of the use of the vehicles.
- There was a 5.5% reduction in URA's Scope 2 emissions in FY2023, compared to FY2022, due to the reduction in energy consumption. Electricity consumption was also lower in FY2023 compared to the baseline year, resulting in lower Scope 2 emissions in FY2023 compared to the baseline.
- We will continue our efforts to reduce GHG emissions in subsequent years, to contribute towards the Whole-of-Government GreenGov.sg targets.

Electricity Consumption

GreenGov.sg Target

10% reduction in Energy Utilisation Index (EUI) by 2030, compared to the baseline, which is the average of 2018 to 2020 levels.

Electricity Consumption Performance



Indicators	Baseline (Avg of FY2018 –FY2020)	FY2021	FY2022	FY2023
Electricity Consumption (kWh)	7,918,740	6,943,516	7,191,153	**6,884,435**
Energy Utilisation Index (EUI) (kWh/m²)	146.5	128.5	133.0	**127.4**

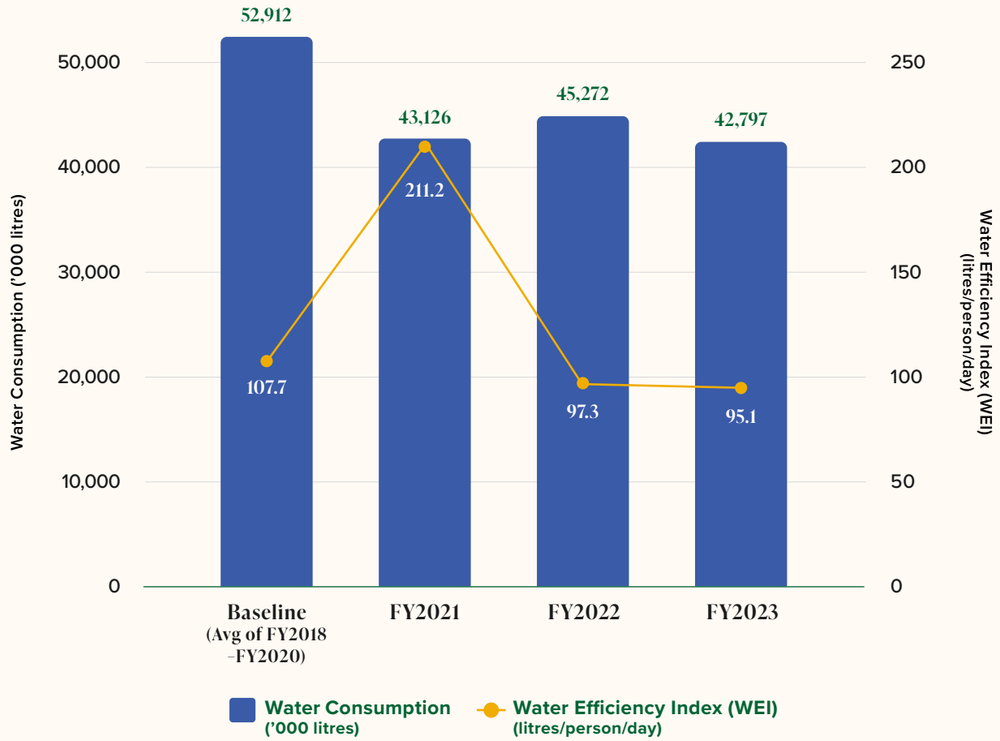
- URA has successfully achieved the 2030 GreenGov.sg target in FY2023, with a 13.0% reduction in EUI in FY2023 compared to the baseline.
- While there was an increase in URA's EUI in FY2022 (compared to FY2021) due to increased electricity use post COVID-19, we subsequently fine-tuned our air-conditioning equipment operations to optimise energy usage, leading to a reduction in URA's EUI in FY2023.
- Consumption patterns may vary in subsequent years, and we will continue to monitor and put in place relevant measures to optimise energy use.

Water Consumption

GreenGov.sg Target

10% reduction in Water Efficiency Index (WEI) by 2030, compared to the baseline, which is the average of 2018 to 2020 levels.

Water Consumption Performance



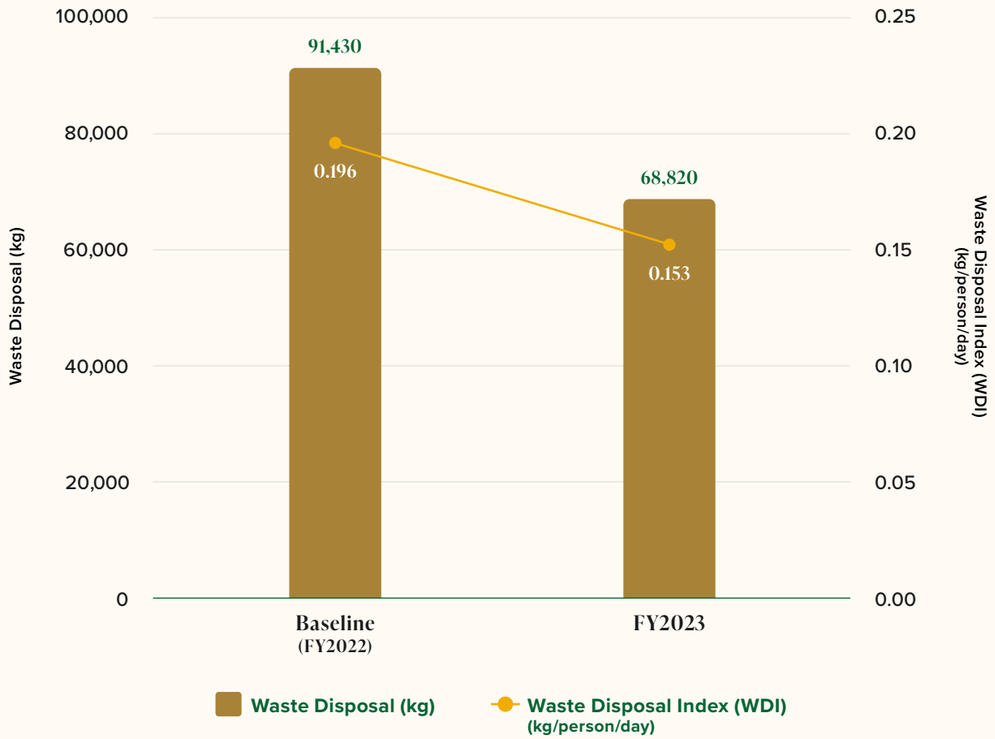
Indicators	Baseline (Avg of FY2018 –FY2020)	FY2021	FY2022	FY2023
Water Consumption ('000 litres)	52,912	43,126	45,272	**42,797**
Water Efficiency Index (WEI) (litres/person/day)	107.7	211.2	97.3	**95.1**

- URA has successfully achieved the 2030 GreenGov.sg target in FY2023, with an 11.7% reduction in WEI in FY2023 compared to the baseline.
- There was an increase in URA's WEI in FY2021, compared to the baseline. While the number of visitors and occupants remained low, we carried out maintenance activities (e.g. façade cleaning and deep cleaning of toilets), in view of staff returning to the office and resumption of work activities, post-COVID.
- Consumption patterns may vary in subsequent years, and we will continue to monitor and put in place relevant measures to optimise water use.

Waste Generation

GreenGov.sg Target
30% reduction in Waste Disposal Index (WDI) by 2030 from the baseline level in 2022.

Waste Generation Performance



Indicators	Baseline (FY2022)	FY2023
Waste Disposal (kg)	91,430	**68,820**
Waste Disposal Index (WDI) (kg/person/day)	0.196	**0.153**

- URA has not yet achieved the 2030 GreenGov.sg target as of FY2023, with a 21.9% reduction in WDI in FY2023 compared to the baseline.
- Enhanced measures were put in place by our cleaning team to better segregate general and recyclable waste before disposal, leading to a decrease in URA's WDI in FY2023.
- We will continue our efforts to reduce waste generation in subsequent years, to achieve the GreenGov.sg target.

URA Centre and East Wing:
We aim to improve the energy efficiency of the URA Data Centre. We do so by procuring equipment that meets the latest Energy Star standards, and by leveraging centralised Government green data centre cloud infrastructure where possible. These measures are collectively aimed at reducing the Power Usage Effectiveness of the URA Data Centre in the long term. We have also kickstarted initiatives to further minimise our environmental footprint, such as installing solar panels, optimising air conditioning and lighting, and implementing water-saving devices and initiatives.

URA generates waste from our facilities and from daily operations, but we make a conscious effort to reduce such waste as much as possible. We reuse and recycle materials where feasible during rectification and replacement works to further optimise resource management.

URA-managed Car Parks:
To reduce paper waste, URA has begun to phase out the use of physical parking coupons at our car parks across the island and replace these with digital solutions such as e-payment through the Parking.sg app and the automated Electronic Parking System. URA, alongside LTA and HDB, has also adopted a common parking enforcement approach to tap on economies of scale and scope in enforcement. This common approach reduces enforcement-related carbon emissions, such as duplicative trips by different agencies for patrolling purposes.

In terms of day-to-day operations, the conversion to light-emitting diode (LED) lighting for URA Car Parks since 2018 has helped to lower energy consumption by more than 50%.

Marina Bay Common Services Tunnel:
URA is responsible for the daily operations of the Marina Bay CST, an underground tunnel which distributes utility services such as electricity, water, and the DCS to developments along Marina Bay. URA has taken steps to reduce the environmental impact of the Marina Bay CST's operations and further improve our resource usage efficiency, such as by installing motion sensors in vent shaft entrances to reduce the energy required to turn on the lighting for tunnel access during on-site checking and maintenance. The conversion to LED lighting at the Marina Bay CST since 2016 has also helped to lower energy consumption by more than 50%.

Events, Exhibitions, and Engagements:
Major events in the city such as Marina Bay Singapore Countdown and iLight Singapore are organised by URA working with government agencies and private sector partners. We acknowledge that carbon emissions – be it from fireworks, flying in artists from overseas, or printing flyers and setting up installations – are by-products of the events that we organise. To this end, we review the organising and execution process of these major events in the city to reduce the usage of fuel, electricity, and materials, where possible.

We are continuously exploring ways to reduce the use of materials for our stakeholder engagement activities, such as for exhibitions, and we aim to recycle and reuse materials where possible. For example, we have kickstarted an initiative to recycle the panels for our Singapore City Gallery exhibitions for future events.

CULTIVATING A SUSTAINABILITY CULTURE THROUGHOUT URA

The ethos of environmental responsibility extends into our daily operations and our efforts to build a sustainability-conscious culture. We share with URA officers the importance of sustainability and our ESG impact to raise awareness of sustainability practices. We have also kickstarted training programmes for both leaders and employees to build our overall competencies. The URA Recreation Committee also organises sustainability-related activities, such as the annual "Cycle-Run-Ride to Work" day.

> **We are actively reviewing and adapting our ESG policies and processes, to ensure that we do all that we can to reduce our environmental footprint while being more efficient with the energy and materials that we use."**

Cycle-Run-Ride to Work Day 2024
IMAGE CREDIT: URA

CASE STUDY

Cycle-Run-Ride to Work Day 2024

On 19 September 2024, over 40 URA employees shifted gears and spoke up for sustainability by taking part in our Cycle-Run-Ride to Work Day, in celebration of World Car-Free Day. As strong advocates for car-lite policies, URA is committed to promoting sustainable urban practices. Leading by example, CEO and DCEO & Chief Planner also joined the cycling event.

4.3 FOSTERING A SAFE, INCLUSIVE, AND INNOVATIVE WORKPLACE

URA is committed to creating a caring, engaging, and enabling workplace that values innovation and capability development. To deliver on this commitment, we believe in protecting the fundamental rights of our employees and ensuring that fair treatment and non-discrimination are practiced throughout the organisation. This is the cornerstone for cultivating a positive workplace experience, making URA a great place to work. Putting our people first, we also strive to uplift our workforce through continuous learning and fostering a culture of innovation, in turn preparing our people to tackle the challenges of the 21st century.

> **“URA’s focus on prioritising the development of our people’s skills and expertise underscores our investment in our employees’ career and capability development.”**

SAFE WORKPLACE

Employee and worker safety at URA is of the utmost importance to us. In compliance with Singapore’s Workplace Safety and Health Act, our occupational health and safety management system takes a comprehensive approach to workplace safety, with policies and protocols put in place to ensure compliance with safety procedures. All URA employees are covered under our Workplace Safety and Health (WSH) framework. Training sessions are also arranged to ensure that employees at all levels are kept up to date on WSH policies.

URA also places strict requirements for all external contractors to comply with our workplace safety and health requirements. We conduct regular safety audits for all projects, and regularly engage with our third-party contractors to raise awareness about workplace health and safety. Third-party contractors who undertake higher-risk work activities are required to minimally attain a BizSAFE Level 3 certification.

INCLUSIVE WORKPLACE

Building a Diverse Organisation:
Beyond aligning with the legal obligations and ethical standards expected of public sector organisations, URA promotes Diversity, Equity, and Inclusion (DEI) as a fundamental aspect of our ESG commitments. Starting with recruitment, DEI considerations are integrated within all aspects of employment at URA, from recruitment to remuneration. This manifests in fair and equitable pay structures aligned to guidance from the Public Service Division, transparent performance evaluation systems, and appropriate reward mechanisms.

Our commitment to ensuring DEI is also evident in our Board composition, which is diverse with representation across race and gender. URA Board members also have a range of experience across varied industries, including the built environment, finance, digital technologies, law, social sector, and academia, to support the Board and its committees in their work.

Employee Benefits and Organisational Bonding:
Our employees are also provided with a wide range of benefits such as insurance, healthcare, disability coverage, retirement provisions, flexible work arrangements, and 24/7 counselling services. Family Care, childcare, maternity, and paternity leave provisions also help our employees balance their work-life commitments, and further protect their physical and mental wellness.

Critical to our ability to attract and retain talent, positive workplace culture also allows our employees to perform at their optimum. Through close partnership with URA’s House Union, the Singapore Urban Redevelopment Authority Workers’ Union (SURAWU), we continuously improve and enhance policies that impact employees.

A culture of teamwork, supported by an emphasis on innovation and continuous learning opportunities, further allows the URA team to grow together. To foster a sense of unity between all URA employees and strengthen our culture as One URA, we hold URA-wide events such as our New Year Reception, URA Day, Staff Appreciation Dinner, and the Staff Conference. A dedicated Team Bonding Fund further enables respective URA Groups’ Recreation Committees to organise regular bonding and well-being activities. These include events that foster closer interpersonal ties within teams and improve emotional wellness and trust amongst employees.

INNOVATIVE WORKPLACE

URA’s focus on prioritising the development of our people’s skills and expertise underscores our investment in our employees’ career and capability development. We aim to be a workplace that provides employees with the necessary support to perform their roles effectively and efficiently while also being able to pursue their areas of interest, which in turn enables them to contribute to URA and Singapore’s goals.

We have developed a competency development framework and a learning roadmap to guide employees holistically in their development. The framework identifies ten core competencies that all URA employees are expected to have, differentiated by their current job roles, and clearly defines the expectations and capabilities of employees across the entire organisation. The framework also lays out mandatory and suggested training courses that employees can take to further build their competencies. In addition, URA is building our professional development programmes, such as the Planner’s Competency Roadmap (PCR) for new planners and architects, to equip them with critical skills for their work.

We also hold regular performance reviews for our employees to highlight their progress and any areas for improvement. In FY2023, all employees received a performance and career development review.

Recognising the varied needs of our employees, URA also implements programmes that allow employees to prepare for a ‘second career’ after URA or prepare for retirement. Such programmes include the Skills Enhancement Subsidy, and Financial & Retirement Planning. To empower employees to take charge of their own careers, the development guides and initiatives are made available on URA’s one-stop internal career and development portal, SPARK. We have also instituted the Organisation Development Fund to encourage learning and innovation for URA officers, and to celebrate key achievements by our Groups.

CASE STUDY

Planner's Competency Roadmap

The Planner's Competency Roadmap (PCR) is a three-year in-house training roadmap which is mandatory for new URA planners and architects to build core planning competencies such as understanding urban planning principles, integrating sustainability considerations in planning, and using digital tools and data analytics to aid their work. Since 2023, our PCR programme has been extended to officers from other government agencies involved in planning work as part of our efforts to build on common planning competencies and language across the Whole-of-Government.

The Integrated Urban Planning Course is a key component of the PCR. Through lectures, group discussions and site visits, planners from URA and other government agencies gain a deep understanding of the roles that URA and other government agencies (LTA, HDB, JTC, and NParks) play in the planning and development process.
IMAGE CREDIT: URA

This emphasis on our employees' capability development also translates to a culture of innovation: one that engages and empowers employees at all levels to contribute creative ideas and solutions, while growing professionally. Structures and processes are put in place to facilitate employee innovation, such as in our Business Process Re-engineering (BPR) efforts to digitalise processes, improve productivity and quality of work, and enhance service delivery to URA's stakeholders. Examples of our ongoing BPR efforts include our collaboration with BCA on CORENET-X, a one-stop integrated digital shopfront for the approval of building works, and the One-Stop Developers' Portal, an integrated platform that offers a digitalised end-to-end service journey for all users to conveniently access land administration and regulatory services. These projects are being developed using agile methodology, and services will be progressively introduced when ready.

To enhance knowledge management between staff, platforms for knowledge sharing and exchange on innovation are also created, such as the annual Learning and Innovation Festival (LIFE). To incentivise officers and encourage them on their innovation journeys, employees are recognised through internal or external awards.

Apart from allowing URA to proactively respond to sustainable development challenges through new ideas, approaches, and solutions, our culture of innovation also harnesses the collective creativity and expertise within URA and contributes to both employee engagement and higher productivity.

CASE STUDY

Skills Enhancement Subsidy

The Skills Enhancement Subsidy (SES) demonstrates our forward-thinking approach to help officers plan for their retirement or re-employment. This initiative empowers our employees to stay responsive and relevant in a dynamic workplace, even in areas beyond their current roles at URA. First introduced in 2012 and reviewed in 2021, URA has aligned the policy with the national SkillsFuture Framework and lowered the eligibility criteria from 55 years old to 40 years old. This will better support mid-career officers to benefit and start early in their planning. Officers have used SES to pick up baking, Japanese cooking, and even vocal techniques.

GIVING BACK TO OUR COMMUNITY

URA employees are also encouraged to participate in Corporate Social Responsibility activities that support our community and neighbours. The URA Recreation Committee organises regular bonding and well-being activities that are focused on local community needs. One example is the adoption of Maxwell Food Centre, where URA engages hawker representatives, prepares care packs for hawkers and cleaners, and organises group-buys for meals and distributes them to the nearby Banda Senior Activity Centre.

In 2023, URA worked with the Purple Parade to raise awareness of and celebrate Persons with Disabilities. In addition, URA worked with microbusinesses which support people with autism to sell handicrafts at the MND Charity Bazaar, and launched an internal series to raise awareness among employees on how people with autism can be gainfully employed.

In partnership with Yellow Ribbon Singapore, Business for Good, Crossroads Prison Ministries, and the Singapore Coffee Association, The Caffeine Experience opened a new café location at URA Centre in October 2024. The Caffeine Experience is a social enterprise focused on creating awareness and helping ex-convicts pick up necessary skills to make a living and integrate back into society, which aligns with URA's values to support communities-in-need. The café provides ex-offenders with opportunities for on-job barista and coffee roasting training, alongside other business skillsets, to create useful learning experiences for them.

Adoption of Maxwell Food Centre and Engagement with Banda Senior Activity Centre
IMAGE CREDIT: URA

Supporting Purple Parade 2023: Singapore's largest movement for Persons with Disabilities
IMAGE CREDIT: URA

Appendix

About URA

The Urban Redevelopment Authority (URA) is Singapore's land use planning and conservation agency. Our mission is "to make Singapore a great city to Live, Work, and Play". We strive to create an endearing home and a vibrant city through long-term planning and innovation, in partnership with the community.

We have transformed Singapore into one of the most liveable cities in Asia through judicious land use planning and good urban design. Adopting a long-term and comprehensive planning approach, we formulate strategic plans such as the Long-Term Plan and the Master Plan to guide the physical development of Singapore in a sustainable manner. Developed to support economic growth, our plans and policies are focused on achieving a quality living environment for Singapore.

We take on a multi-faceted role to turn plans and visions into reality. As the main government land sales agent, we attract and channel private capital investments to develop sites that support planning, economic and social objectives. Through our regulatory function, we ensure that development works are aligned with our plans. As the conservation authority, we have an internationally recognised conservation programme, and have successfully conserved not just single buildings, but entire districts. We also partner the community to enliven our public spaces to create a car-lite, people-friendly and liveable city for all to enjoy.

In shaping a distinctive city, we promote architecture and urban design excellence, and innovate to build a resilient city of opportunity that fulfils the aspirations of our people.

About This Report

Scope and Boundary

This first URA Sustainability Report, published on 9 December 2024, lays out URA's efforts to guide the physical planning and development of Singapore in a sustainable manner, while also minimising any adverse organisational impacts. We will continue to measure and report our progress in subsequent reports.

The identified Environmental, Social, and Governance (ESG) material topics are tracked from 1 April 2023 to 31 March 2024 (FY2023), unless otherwise stated.

Information in this report covers sustainability performances and practices across the organisation, unless otherwise stated.

Reporting Framework

This report has been prepared with reference to the Global Reporting Initiative (GRI) Standards 2021, which are the most widely adopted impact-based standards for reporting on environmental, social and governance topics.

External assurance has not been sought for URA's FY2023 Sustainability Report.

We welcome questions and feedback from all our stakeholders as integral partners in URA's sustainability journey. Please send your questions or comments via email to Heather Chi **(Heather_CHI@ura.gov.sg)**.

URA's Material Topics and Assessment Approach

Determining the topics and issues that are material to URA, and our stakeholders forms the fundamental aspect of our approach to sustainability. URA has identified key Environmental, Social, and Governance (ESG) issues through our materiality assessment, and this helps to inform the decision-making for Board and management, allowing us to focus efforts and drive change. This is underpinned by our risk management approaches, operational practices and newly formed governance structures.

1. **Identification Stage**
   The initial step involves pinpointing key sustainability issues through a combination of methods, including analyses of urban development trends, review of urban plans and policies, and review of best practices in sustainable land use and development. Additionally, an internal evaluation of the agency's strategic objectives in urban planning is conducted.

2. **Assessment and Ranking Phase**
   Both internal and external stakeholders were asked about their views on the significance of each identified issue on URA's operations and that of their stakeholders. The survey covered a wide range of stakeholders for a diversity of views, including various levels of agency personnel and external parties such as residents, business owners, developers, and civic organisations, to capture a broad range of viewpoints on the agency's influence on the urban environment, social fabric, and local communities.

3. **Prioritisation and Validation Process**
   Based on stakeholder inputs, the issues are then sorted and plotted on a matrix according to their assessed likelihood and potential impact. This matrix is subsequently reviewed and approved by the agency's leadership and relevant committees to ensure it accurately reflects the strategic priorities.

4. **Review Procedure**
   The identified material issues are subject to an annual evaluation by the agency's leadership and committees to confirm their ongoing relevance to the agency's mission and objectives. In FY2023, the leadership and committees reaffirmed the importance of the selected material issues for inclusion in the agency's reporting and strategic focus.

SDG Mapping Index

The United Nations Sustainable Development Goals (UN SDGs) are a set of 17 goals under the 2030 Agenda for Sustainable Development. These goals are a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030. As the national urban planning and redevelopment agency, URA supports Singapore's commitment to the SDGs by implementing strategies that promote economic growth, environmental sustainability, and social flourishing. The table below outlines the SDGs most relevant to URA's contributions in each chapter of the Sustainability Report.

Chapter	SDGs Mapped
Chapter 1 : A Sustainable and Resilient City for the Future	2 ZERO HUNGER; 6 CLEAN WATER AND SANITATION; 7 AFFORDABLE AND CLEAN ENERGY; 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE; 11 SUSTAINABLE CITIES AND COMMUNITIES; 12 RESPONSIBLE CONSUMPTION AND PRODUCTION; 13 CLIMATE ACTION; 14 LIFE BELOW WATER; 16 PEACE, JUSTICE AND STRONG INSTITUTIONS
Chapter 2: A Liveable and Inclusive City for All	8 DECENT WORK AND ECONOMIC GROWTH; 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE; 11 SUSTAINABLE CITIES AND COMMUNITIES; 14 LIFE BELOW WATER; 15 LIFE ON LAND; 16 PEACE, JUSTICE AND STRONG INSTITUTIONS
Chapter 3: Strengthening Partnerships, Within and Beyond Singapore	11 SUSTAINABLE CITIES AND COMMUNITIES; 17 PARTNERSHIPS FOR THE GOALS
Chapter 4: Striving for Excellence in Our Operations	3 GOOD HEALTH AND WELL-BEING; 8 DECENT WORK AND ECONOMIC GROWTH; 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE; 12 RESPONSIBLE CONSUMPTION AND PRODUCTION; 16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Stakeholder Engagement Approach

Strategic engagement with key stakeholders is at the heart of our commitment to sustainability at URA. We recognise that our stakeholders, who are identified as individuals or groups that either have significant impact on the sustainability performance and business operations of URA or are significantly impacted by our activities, are vital contributors to our success.

By maintaining ongoing dialogue with these stakeholders, URA obtains critical perspectives which are instrumental for the organisation to discern the immediate and prospective effects of pivotal issues, and to formulate tailored responses to be incorporated into our sustainability framework and strategic planning.

Stakeholder Groups Engaged	Purpose of the Engagement	How URA Seeks to Ensure Meaningful Engagement with Stakeholders
Members of Public	• Feedback on future plans (Long-Term Plan Review and Draft Master Plan). • Specific future locational plans.	• Engaging a wide demographic of members of public through different fora with various levels of interaction, e.g. Focus Group Discussions, exhibitions etc.
Developers, Architects, Industry Partners	• Collaboration and engagement to ensure that planning and urban design intentions are met in the implementation of plans and policies.	• Engaging targeted industry partners through Focus Group Discussions, closed-door sessions, regular meetings.
Environmental and Heritage & Identity Interest Groups, Grassroots Leaders, Local Communities	• Collaboration and engagement on URA's plans and policies.	• Engaging targeted interest groups / grassroots leaders / local communities through Focus Group Discussions, closed-door sessions, regular meetings.
Ministries and Other Government Agencies	• Alignment of policies and initiatives across Whole-of-Government.	• Engaging different ministries and government agencies through different touchpoints, e.g. regular meetings.
URA Employees	• Raise awareness and alignment on URA's ESG impacts and initiatives.	• Engaging URA employees through different touchpoints, e.g. URA Staff Conference.

Glossary

AI	Artificial Intelligence
AMLTF	Anti-Money Laundering and Terrorism Financing
BCMS	Business Continuity Management System
BID	Business Improvement District
BPR	Business Process Re-engineering
CA	Central Area
CBD	Central Business District
CONQUAS	Construction Quality Assessment System
CST	Common Services Tunnel
DAC	Design Advisory Committee
DCS	District Cooling System
DEI	Diversity, Equity and Inclusion
DMP2025	Draft Master Plan 2025
EIA	Environmental Impact Assessment
EPE	Ecological Profiling Exercise
ESG	Environmental, Social, and Governance
EUI	Energy Utilisation Index
EV	Electric Vehicle
GFA	Gross Floor Area
GLS	Government Land Sales
GRI	Global Reporting Initiative
H&I	Heritage & Identity
HBS	Heritage Baseline Study
HIA	Heritage Impact Assessment
HIP	Heritage and Identity Partnership
JLD	Jurong Lake District
LIFE	Learning and Innovation Festival
LTPR	Long-Term Plan Review
LUSH	Landscaping for Urban Spaces and High-Rises
M&S	Modelling and Simulation
NIP	National Infrastructure Plan
PCR	Planner's Competency Roadmap
P*DA	President's Design Award
R&D	Research & Development
SA2	Long Stay Serviced Apartment
SCF	Social and Community Facilities
SDI Scheme	Strategic Development Incentive Scheme
SIA	Singapore Institute of Architects
SICP	Singapore Institute of Certified Planners
SIP	Singapore Institute of Planners
SURAWU	Singapore Urban Redevelopment Authority Workers' Union
TOP	Temporary Occupation Permit
UHI	Urban Heat Island
URBEX	Urban Planning & Design Technology Centre of Excellence
WDI	Waste Disposal Index
WEI	Water Efficiency Index
WSH	Workplace Safety and Health

Definitions, Methodologies, and Sustainability Data

ENVIRONMENTAL DATA

GHG Emissions

Performance

Indicators	Baseline (FY2020)	FY2021	FY2022	FY2023
Scope 1 Emissions (tonnes CO_2e)	6.5	5.9	3.3	**1.5**
Scope 2 Emissions (tonnes CO_2e)	2,963.8	2,915.8	3,102.4	**2,930.5**
Total Scope 1 and 2 Emissions (tonnes CO_2e)	2,970.3	2,921.7	3,105.7	**2,932.0**

- Scope 1 emissions relate to the direct burning of non-renewable fuel on site. This entails combustion of natural gas, town gas, petrol, and diesel amongst others. The emission factors for Scope 1 emissions were obtained from the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines Volume 2 Chapters 2 and 3. For URA, Scope 1 emissions pertain to diesel consumption from generators at URA Centre and East Wing, and petrol consumption from a corporate vehicle.
- Scope 2 emissions relate to purchased electricity consumed and includes standard infrastructure [publicly accessible buildings with a computable gross floor area i.e. URA Centre and East Wing] and non-standard infrastructure [premises and assets that are either not publicly accessible or have no meaningful floor area]. For URA, Scope 2 emissions pertain to electricity consumption at URA Centre and East Wing, and Marina Bay Promenade and the Lawn. To calculate Scope 2 GHG emissions, the latest Grid Emissions Factor (GEF) data was obtained from the Energy Market Authority's website.
- The Scope 2 emissions generated by EV charging stations at URA Centre and East Wing were 34.8 tonnes CO_2e in FY2022, and 44.2 tonnes CO_2e in FY2023.

Electricity Consumption

Performance

Indicators	Baseline (Avg of FY2018 –FY2020)	FY2021	FY2022	FY2023
Electricity Consumption (kWh)	7,918,740	6,943,516	7,191,153	**6,884,435**
Energy Utilisation Index (EUI) (kWh/m^2)	146.5	128.5	133.0	**127.4**

- EUI is defined as the total electricity consumed by a facility in one year divided by its total gross floor area (GFA) (including consumption and GFA of tenants). For URA, this includes URA Centre and East Wing.
- The formula used to calculate the EUI is as follows: Agency EUI in Year N = (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).

Water Consumption

Performance

Indicators	Baseline (Avg of FY2018 –FY2020)	FY2021	FY2022	FY2023
Water Consumption ('000 litres)	52,912	43,126	45,272	**42,797**
Water Efficiency Index (WEI) (litres/person/day)	107.7	211.2	97.3	**95.1**

- WEI is defined as the daily water consumption divided by the total headcount of public officers, including visitors to the premises. For URA, this includes URA Centre and East Wing.
- The formula used to calculate WEI is as follows: Agency WEI in Year N = [Total amount of water consumed for all Agency premises in Year N] / [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))].

Waste Generation

Performance

Indicators	Baseline (FY2022)	FY2023
Waste Disposal (kg)	91,430	**68,820**
Waste Disposal Index (WDI) (kg/person/day)	0.196	**0.153**

- WDI is defined as the total waste disposed of per day divided by the total headcount of public officers, including visitors to the premises. For URA, this includes URA Centre and East Wing.
- The formula used to calculate WDI is as follows: Agency WDI in Year N= [Total amount of waste disposed of for all Agency premises in Year N] / [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))].

SOCIAL DATA

Employee Profile by Gender and Age Category

Category	% of Employees
Male	40
Female	60

Category	% of Employees
Under 30 years old	16
30-50 years old	54
>50 years old	30

Average Number of Training Hours per Year by Gender and Employee Category

Average Number of Training Hours Per Year (By Gender)		
YEAR	FEMALE	MALE
FY2023	22 hours	21 hours

Average Number of Training Hours Per Year (By Employee Category)		
YEAR	NON-MANAGEMENT	MANAGEMENT (DIRECTOR & ABOVE)
FY2023	21 hours	27 hours

URA Worker Safety and Health Policy

100% of URA employees are covered under our WSH framework detailed below. Since the implementation of the URA WSH policy and framework on 1 July 2024, there was one reported workplace injury to an employee in September 2024 and no reported fatalities.

Workplace Safety and Health Policy

Urban Redevelopment Authority (URA) is committed to the safety of every person who works at or used our place(s).

We firmly believe that a strong safety culture is key to creating a safe environment for our partners, employees, and the public.

We comply to statutory requirements and implement a corporate framework in the management of workplace safety and health.

We are committed to:
Continually improve WSH performance and management to strive towards **ZERO incidents** in the workplace;

Encourage an open and learning culture that promotes safety and health;

Provide the necessary resources and training to instil safety awareness, knowledge, and skills in officers;

Encourage teamwork with our partners to enhance safety and health;

Communicate WSH and **SGSecure** awareness throughout URA.

Approved by:
Name: Lim Eng Hwee / Designation: Chief Executive Officer
Date: 1 July 2024

GRI Content Index

Statement of Use	URA has reported with reference to the GRI Standards for the period 1 April 2023 to 30 March 2024.
GRI 1 used	GRI 1: Foundation 2021

General Disclosures (GRI 2: General Disclosures 2021)			
GRI Disclosures		Report Section and/ or Reasons for Omission	Page Reference
The Organisation and its Reporting Practices			
2-1	Organisational details	About URA	66
2-2	Entities included in the organisation's sustainability reporting	About This Report	66
2-3	Reporting period, frequency, and contact point	About This Report	66
2-4	Restatements of information	No restatements as this is URA's first report.	
2-5	External assurance	About This Report	66
Activities and Workers			
2-6	Activities, value chain and other business relationships	Chairman's Statement	3
		URA's Mission and Shaping Sustainable Physical Development in Singapore	4
		About URA	66
Governance			
2-9	Governance structure and composition	Annual Report 2023/2024 pg 41-42	
2-11	Chair of the highest governance body	Annual Report 2023/2024 pg 41-42	
2-12	Role of the highest governance body in overseeing the management of impacts	Upholding the Highest Standards of Governance	54
2-13	Delegation of responsibility for managing impacts	Upholding the Highest Standards of Governance	54
2-14	Role of the highest governance body in sustainability reporting	Upholding the Highest Standards of Governance	54
2-17	Collective knowledge of the highest governance body	Upholding the Highest Standards of Governance	55
Strategy, Policies and Practices			
2-22	Statement on sustainable development strategy	Chairman's Statement	3
2-23	Policy commitments	Definitions, Methodologies, and Sustainability Data – Social Data	72
2-25	Processes to remediate negative impacts	Upholding the Highest Standards of Governance	55
2-26	Mechanisms for seeking advice and raising concerns	Upholding the Highest Standards of Governance	55
Stakeholder Engagement			
2-29	Approach to stakeholder engagement	Stakeholder Engagement Approach	68
Material Topics			
3-1	Process to determine material topics	URA's Material Topics and Assessment Approach	66
3-2	List of material topics	URA's Material Topics and Assessment Approach	67

Chapter 1: A Sustainable and Resilient City for the Future

GRI Disclosures		Report Section and / or Reasons for Omission	Page Reference
GRI 3: Material Topics 2021			
3-3	**Management of material topics**	A Sustainable and Resilient City for the Future: Why is this important?	11
		Towards A Net-Zero City	11
		Highlight: Jurong Lake District	14
		Towards a Climate-Resilient Singapore	15

Chapter 2: A Liveable and Inclusive City for All

GRI 3: Material Topics 2021			
3-3	**Management of material topics**	A Liveable and Inclusive City for All: Why is this important?	23
		Liveable, Inclusive and Attractive Live, Work, and Play Districts	23
		A City in Nature	30
		A Modern City with Heritage & Identity	35
		Highlight: Central Area	36
		Highlight: Bukit Timah Turf City	38

Chapter 3: Strengthening Partnerships, Within and Beyond Singapore

GRI 3: Material Topics 2021			
3-3	**Management of material topics**	Strengthening Partnerships, Within and Beyond Singapore: Why is this important?	42
		Empowering the Public and Promoting Active Citizenry through Stakeholder Engagement	42
		Advocating for Sustainable Urban Planning Within and Beyond Singapore	44
		Driving Collaborations with the Industry and Streamlining Regulations through Technology and Digitalisation	47

Chapter 4.1: Upholding the Highest Standards of Governance

GRI 3: Material Topics 2021			
3-3	**Management of material topics**	Upholding the Highest Standards of Governance	54
GRI 205: Anti-corruption 2016			
205-3	**Confirmed incidents of corruption and actions taken**	Ethics and Code of Conduct	55

Chapter 4.2: Managing our Environmental Footprint

GRI 3: Material Topics 2021			
3-3	**Management of material topics**	Managing our Environmental Footprint	56
GRI 302: Energy 2016			
302-1	**Energy consumption within the organisation**	Managing our Environmental Footprint	58

Chapter 4.2: Managing our Environmental Footprint

GRI Disclosures		Report Section and / or Reasons for Omission	Page Reference
GRI 302: Energy 2016			
302-1	**Energy consumption within the organisation**	Definitions, Methodologies, and Sustainability Data – Environmental Data	70
302-3	**Energy intensity**	Minimising URA's Environmental Footprint	58
		Definitions, Methodologies, and Sustainability Data – Environmental Data	70
GRI 303: Water and Effluents 2018			
303-3	**Water withdrawal**	Managing our Environmental Footprint	59
		Definitions, Methodologies, and Sustainability Data – Environmental Data	71
GRI 305: Emissions 2016			
305-1	**Direct (Scope 1) GHG emissions**	Managing our Environmental Footprint	57
		Definitions, Methodologies, and Sustainability Data – Environmental Data	70
305-2	**Energy indirect (Scope 2) GHG emissions**	Managing our Environmental Footprint	57
		Definitions, Methodologies, and Sustainability Data – Environmental Data	70
GRI 306: Waste 2020			
306-3	**Waste generated**	Managing our Environmental Footprint	60
		Definitions, Methodologies, and Sustainability Data – Environmental Data	71

Chapter 4.3: Fostering a Safe, Inclusive, and Innovative Workplace

GRI 3: Material Topics 2021			
3-3	**Management of material topics**	Fostering a Safe, Inclusive, and Innovative Workplace	62
GRI 401: Employment 2016			
401-2	**Benefits provided to full-time employees that are not provided to temporary or part-time employees**	Inclusive Workplace	63
GRI 403: Occupational Health and Safety 2018			
403-1	**Occupational health and safety management system**	Safe Workplace	63
403-5	**Worker training on occupational health and safety**	Safe Workplace	63
403-6	**Promotion of worker health**	Inclusive Workplace	63
GRI 404: Training and Education 2016			
404-1	**Average hours of training per year per employee**	Definitions, Methodologies, and Sustainability Data – Social Data	72
404-2	**Programs for upgrading employee skills and transition assistance programs**	Innovative Workplace	63
404-3	**Percentage of employees receiving regular performance and career development reviews**	Innovative Workplace	63
GRI 405: Diversity and Equal Opportunity 2016			
405-1	**Diversity of governance bodies and employees**	Definitions, Methodologies, and Sustainability Data – Social Data	72

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