2024 Singapore Sustainability Update

1.0 Introduction

Singapore continues to be a leader in sustainable built environment practices. This report provides an update on key initiatives and progress made in 2024.

2.0 Singapore Green Plan 2030 Update

- **Achieving net zero emissions by 2050**: The Singapore Green Plan 2030 aims to position Singapore to achieve its target of net zero emissions by 2050. This is a crucial point as it sets the overall goal for the sustainability movement.
- **Conservation and extension of natural capital**: The plan includes initiatives to transform Singapore into a City in Nature by conserving and extending natural capital island-wide. This includes the completion of nature ways and park connectors, as well as the planting of trees through the OneMillionTrees movement.
- **Building a climate-friendly Singapore**: The plan includes measures to encourage sustainable living, such as enhancing the Climate Friendly Households Programme to promote energy and water efficiency, expanding the energy labelling scheme for household appliances, and exploring the feasibility of expanding the Extended Producer Responsibility approach for packaging waste. The focus is on the importance of individual and household actions in reducing carbon emissions and promoting sustainability.
- **Advancing energy transition**: The plan includes the launch of the Future Energy Fund to catalyse infrastructure investments for the energy transition, the introduction of a Mandatory Energy Improvement regime for large energy-intensive buildings, and the adoption of best-in-class power generation technology, including hydrogen-ready Combined-Cycle Gas Turbine power plants. This year, the threshold is expected to be lowered, encompassing a wider range of buildings. Early estimates suggest MEI will drive a 10% reduction in energy consumption within the targeted buildings by 2028.
- **Promoting a green economy**: The plan includes initiatives to build sustainable enterprises, transform and decarbonize sectors, support businesses in adopting green solutions, develop training programs for carbon management, and explore carbon capture and storage as a decarbonization pathway.

3.0 GreenGOV.SG Report for Financial Year 2022 (Published in Dec 2023)

Singapore has committed to reduce our emissions to around 60 million tonnes of CO2 equivalent in 2030 after peaking our emissions earlier, and to achieve net zero emissions by 2050. The public sector will set an example for the rest of Singapore to follow. The public sector's target is to achieve net zero emissions around 2045, five years ahead of the national target of 2050. (See Annex A – Net Zero Roadmap for Public Sector)

The GreenGov.SG report details the emissions profile and resource footprint of the public sector. It also sets out the key strategies and initiatives to enhance environmental sustainability. To complement this report, all Statutory Boards will publish annual environmental sustainability disclosures, starting in Financial Year 2024.

The key highlights of the report are as follows:

- **Greenhouse Gas Emissions and Energy**: The public sector aims to achieve net zero emissions around 2045, after peaking emissions around 2025. There was a 5.3% decrease in emissions in FY2022 compared to the baseline, mainly due to the decommissioning of the Tuas Incineration Plant. The total electricity use and electricity used per unit area increased marginally in FY2022 compared to the baseline, due to the gradual reopening of the economy after the COVID-19 pandemic-related safe management measures.
- **Water**: The public sector aims to reduce water use by 10% from the baseline by 2030. There was a 1.2% increase in water use in FY2022 compared to the baseline, mainly due to the gradual reopening of the economy. More than 300 buildings have Water Efficient Building certification.
- **Waste**: The report does not provide specific performance data for waste due to challenges in data collection processes. The public sector aims to reduce waste disposed of by 30% from the baseline by 2030.
- **Green Economy**: The public sector aims to incorporate environmental sustainability considerations into all government procurement by 2028. Environmental sustainability considerations have been introduced for procurement across nine categories of goods and services. Up to 5% of evaluation points will be set aside for environmental sustainability in large construction and ICT tenders.
- **Green Citizenry**: The public sector aims to embed environmental sustainability into public touchpoints and community-based programs. 800 citizens have been engaged in the Green Action for Communities movement to generate ideas for local sustainability initiatives. Close to 200 projects have been supported under the SG Eco Fund, engaging more than 300,000 people in total.
- **Capability Building**: The public sector aims to elevate environmental sustainability awareness and knowledge across the public sector. More than 9,300 officers have been trained on environmental sustainability topics such as carbon accounting, energy management, and green finance.
- **Culture Building:** The public sector aims to enable public officers to take environmental sustainability action in the workplace and as part of daily living. More than 12,700 officers have been engaged on environmental sustainability through campaigns and events.

3.0 Industry Trends

- **DfMA (Design for Manufacturing and Assembly):** The adoption of DfMA techniques for prefabricated building components is accelerating. This reduces construction waste, improves efficiency, and enhances overall building quality.

A prime example of DfMA in action is the construction of Punggol Townhub (Officially opened on 9 Oct 2022). By prefabricating key building modules off-site, the project reduced construction waste by 50% and shortened construction time by 20%.

- **Retrofitting:** A growing focus is on retrofitting existing buildings for improved energy and water efficiency. Government grants and technical assistance programs are helping to make these upgrades more accessible. The HDB launched the Enhanced CLIP (Commencement Loan Increase for Elderly) program in 2024. This program includes grants for upgrading older flats with energy-efficient appliances and water-saving fixtures.
- **Green Financing:** Financial institutions are increasingly offering green loans and other financial products to support sustainable building projects. UOB launched the region's first green mortgage product in 2024. This product offers preferential interest rates for buyers of certified green homes, incentivizing sustainable housing choices.

4.0 Key Achievements in 2024

- **Record Number of Green Buildings**: As of June 2024, over 58% of all buildings in Singapore are Green Mark certified. Currently, still on target to achieve greening 80% of Singapore's buildings (by gross floor area, GFA) by 2030. Notably, the recently completed One North One office development achieved the highest Green Mark Platinum rating ever awarded, showcasing the industry's commitment to pushing boundaries.
- **World Cities Summit 2024**: The summit featured a dedicated track on "Sustainable Buildings and Construction." Singapore unveiled its plans for a new green building innovation hub aimed at fostering research and development in this critical area. (see Annex B)

5.0 Challenges and Opportunities

- **Embodied Carbon**: While operational energy efficiency is improving, there is a growing focus on addressing embodied carbon in building materials and construction processes. The BCA launched the "Embodied Carbon Pathfinder Initiative" in 2024. This initiative brings together industry stakeholders to develop a framework for assessing and reducing embodied carbon in building projects. A pilot program is underway for several large-scale developments, aiming to establish best practices.
- **Innovation**: Continued innovation is needed in areas such as renewable energy integration, smart building technologies, and nature-based solutions for buildings. The Singapore Green Building Council (SGBC) launched the "Green Mark for Smart Buildings" pilot program. This program recognizes buildings that integrate smart technologies to optimize energy and water consumption, enhancing building performance and user comfort.

6.0 Looking Ahead

Singapore's built environment sector is on track to achieve significant sustainability goals. With a clear focus on policy, innovation, and industry collaboration, the city-state is well-positioned to achieve its ambitious sustainability goals. By continuing to push the boundaries of sustainable design and construction, Singapore can serve as a global leader in creating a more resilient and environmentally friendly urban landscape.

In Singapore, the QS plays a crucial role in promoting sustainable practices within the construction industry through various areas of service provision. Some significant contributions include:

- Advising on cost-effective sustainable design options and materials that to reduce lifecycle costs, such as energy-efficient systems or materials with lower environmental impact. They can perform lifecycle cost analysis to demonstrate the financial benefits of sustainable choices over time. QSs are familiarising themselves with Singapore's current sustainability initiatives developed by the Government and this knowledge enables them to provide informed advice to clients regarding cost premiums and their implications on project costs;
- Assessing the environmental impact of construction projects and suggesting ways to minimize carbon footprint and resource use. This includes evaluating the embodied carbon in materials and recommending alternatives that are more sustainable;
- Assisting in obtaining green building certifications (e.g., LEED, BREEAM) by providing cost estimates, feasibility studies, and documentation required for certification. They ensure that sustainable design features are integrated into the project within budget constraints;
- Actively participating and influencing procurement decisions by recommending suppliers and contractors with sustainable practices. The QS evaluate bids based on sustainability criteria and negotiate contracts that include sustainability targets and compliances;
- Educating Clients, design teams, and contractors about the benefits of sustainable practices. The QSs also advocate for sustainable design principles throughout the project lifecycle, influencing decision-makers to prioritize environmental and social responsibility;
- Contributing to research and development of sustainable construction techniques, materials, and technologies. The QS stay updated on industry trends and regulatory changes related to sustainability, incorporating new findings into their practice.

Overall, Singapore Quantity Surveyors are progressively integrating sustainability into their core services by balancing economic viability with environmental and social responsibility. Their expertise ensures that sustainable practices are not only feasible but also economically advantageous for construction projects.

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