

Proposed talking points for D/CLC Elaine's panel sharing and moderated discussion

Session 3: Circular Economy and Cities

2nd International Forum on Low Carbon Cities

Co-organised by the UN ESCAP and IMC on 6 December 2022, 2:50 – 4:20pm (SGT)

Session synopsis (provided by organisers)

The circular economy is a system solution framework that keeps resources in the economic system at the highest value possible. The session will listen to the local governments on their contributions to sustainable and circular societies at a city level.

Session format <no media, but accessible to public>

Session format	
3 mins	Emcee opening
15 mins each (~60mins)	Sharing by panellist (sequence of sharing TBC) <ul style="list-style-type: none">- Ms. Elaine Tan, Director of Centre for Liveable Cities Singapore- Ms. Shi Yi, Ecocycle Research Centre Shanghai- Ms. Kang Jinsuk, Director of Gwangmyeong City Upcycling Center, Republic of Korea- Mr. Boo Gichul, Director of Living Environment Division, Jeju city, Republic of Korea
30 mins	Panel discussion and Q&A
3 mins	Emcee closing

Session platform: In-person and zoom

Session attire: Business

Proposed talking points (~15 mins)

Singapore's context as a city-state

- Global urbanisation trends are set to accelerate over the next few decades. This will take place against the backdrop of an increasingly disrupted world, brought about by climate change and conflict, which can increase resource pressures on cities worldwide.
- Singapore faces even more acute challenges of limited land and natural resources as an island city-state. Because of that, Singapore has had to be very prudent in its development and sought to make the most out of its limited resources. This is reflected in our long term approach to planning, as well as the adoption of stringent plans and policy for water use, including water recycling, and our approach toward waste management, such as recycling and turning waste to energy, as we have no space to accommodate landfill.
- In Feb 2021, Singapore launched the Singapore Green Plan, a whole-of-nation effort to advance the national agenda on sustainable development to ensure the liveability and resilience of our city.

SGP 2030: Long term commitment to sustainability

- The Singapore Green Plan 2030 charts concrete sectoral plans and targets over the next ten years, positioning Singapore to achieve our long-term net-zero emissions target by 2050, and to build up our climate, resource, and economic resilience.

- It covers almost every aspect of life in Singapore – promoting and ensuring energy efficiency; setting aside more land for nature parks; promoting public transport while capping the growth of privately owned vehicles and phasing out cars with internal combustion engines; and growing more sustainability-related jobs and educational programmes.
- One of the key aims is for Singapore to be a zero waste nation powered by a circular economy, with a high rate of recycling so that our precious resources can be used many times over.
- To reach our target, Singapore aims to instil the principles of a circular economy where resources are efficiently used, reused, recycled, and upcycled, thereby minimising waste and optimising our use of land and resources.

Circularity is not a new concept for Singapore: Closing the water loop with NEWater

- Singapore has closed our water loop by recycling our used water to make NEWater. However, apart from the adoption of technology, it is also important to take a systems approach to the issue, to enable circularity. Hence, in addition to advancements in water technology, good pollution control and effective waste management is also critical to ensure that every drop of rainwater collected in Singapore is clean and ready for treatment.
- We will continue to draw on this experience in water management to make a similar strong push towards circularity in waste materials under the Singapore Green Plan 2030.

Improving circularity: Tuas Nexus – from Waste to Resource

- The upcoming Tuas Nexus is an example of how we can improve circularity, where we co-locate the Tuas Water Reclamation Plant (WRP) and the Integrated Waste Management Facility (IWMP) and harness synergies between both. Tuas WRP will have an initial treatment capacity of 800,000m³ per day, about 320 Olympic-sized swimming pools. IWMP will be Singapore's largest waste incineration plant and will be equipped to improve energy and resource recovery from waste.
- As the world's first integrated waste and water treatment facility, it is expected to result in carbon savings of more than 200,000 tonnes of CO₂ annually, equivalent to taking 42,500 cars off Singapore's roads. It is scheduled for completion in 2025 and will be one of the 6 Waste-to-Energy (WTE) plants that reduce waste to ash through incineration, saving space at Singapore's only landfill.

Improving circularity: NEWSand – Giving waste a second lease of life

- We maximise resource recovery of demolition materials for reuse and recycling at the end of the building's lifecycle. For example, recycled concrete aggregates (RCA), made from demolition materials, is reclaimed, and can be used in cement for non-structural applications or in the sub-base layer in roads. In 2021, 99% of the 1.013 million tonnes of demolition waste was successfully recycled in this manner.
- A more recent example of a project that utilises recycled materials is the new Samwoh HQ, the Samwoh Smart Hub. It uses recycled materials processed from construction and industrial waste, like sedimentary rocks excavated from Jurong Rock Caverns.
- Singapore is also promoting circularity by recovering the incinerated bottom ash (IBA) to be used as a new construction material, NEWSand. We envision NEWSand to be used as a sand replacement in construction.

- Since 2020, field trials have been conducted on the use of NEWSand made from IBA as a road base or sub-base material in road construction projects, at a stretch of Tanah Merah Coast Road. The trials seek to assess the in-situ environmental performance of the treated IBA and gather data for review NEWSand's provisional environmental standards.

Policy frameworks to accelerate shifts: The Resource Sustainability Act

- There is a need for good governance through policy and regulatory frameworks for such shifts to improving circularity to take place.
- The Resource Sustainability Act, introduced in 2019, is an integral part of Singapore's strategy to build a sustainable, resource-efficient, and climate-resilient nation. The Act has allowed regulation of priority waste streams, such as e-waste, food waste and packaging waste, including plastics.
- On e-waste specifically, the National Environment Agency (NEA) has introduced a regulated e-waste management system, with the assignment of responsibilities to key stakeholders through an Extended Producer Responsibility (EPR) approach.
- Under the EPR framework, producers of regulated electrical and electronic products will be made responsible for the collection and proper treatment of their e-waste. These producers are companies that manufacture or import regulated products for supply on the local market. All e-waste collected under the e-waste management system will have to be channelled to licensed e-waste recyclers for proper treatment.
- The implementation of a regulated e-waste management system in Singapore will ensure the proper and safe handling and extraction of resources from e-waste. This system will also fund the aggregation and recovery of valuable resources from e-waste for reuse, turning trash into treasure. The NEA is working closely with the industry to implement the e-waste management system.

Conclusion: A Commitment to translate Ideas to Action

- To conclude, the recent United Nations Climate Change Conference (COP 27) has reinforced the urgency of sustainable development. In line with the UN's 2030 Sustainable Development Agenda and Paris Agreement, Singapore is charting ambitious and concrete targets over the next few years, to achieve our long-term net zero emissions aspirations, with the Singapore Green Plan 2030. This is a living plan, which will continue to evolve as new technologies become available and as we continue to translate ideas into action.
- With that, I thank you for your time.