Is Singapore Truly Sustainable?: Greenwashing in the 'City in a Garden

This blog interrogates Singapore's sustainability strategy and uncovers how the city-state employs a sustainability 'smokescreen' to hide its more deleterious development practices, writes Noah Powers.

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[…] Recently, critics have increasingly sought to address the environmental deleterious practices of 'sustainable' cities to reveal how governments employ sustainability to justify economic development. In Singapore, the city could be Asia's *physically* Greenest City with its lush greenery, but Singapore's existence relies on inherently unsustainable practices. Both the Supertrees and NEWater seem like sustainable and technological marvels but, they, along with a multitude of Singapore's other developmental practices, are not as environmentally-friendly as they seem.

As mentioned, the Supertrees are part of the larger Gardens by the Bay that includes vast amounts of imported, non-native plants, and massive glass, climate-controlled structures, including the world's largest glass greenhouse. Non-native plants require different conditions to survive than native plants, including climate and irrigation control and the use of pesticides and insecticides. If environmental sustainability was truly the goal with the Gardens by the Bay project, wouldn't it have been more eco-friendly to plant real trees that were native the wider Johor region, rather than producing these expensive and eye-catching Supertrees? Further, as a significant part of Singapore's water provision strategy, NEWater is an essential facet of Singapore's existence. However, the production of NEWater is energy intensive, as it uses between five and 17 times more energy than treating rainwater. The process also produces 'sludge,' a waste product that consists of materials that are filtered out during the process. This waste is incinerated, and the 'sludge' ash is dumped in the Pulau Semakau Landfill, further increasing the negative environmental impact of the NEWater purification process.

As shown, these two large-scale 'sustainable' projects in Singapore are not what they seem, but is there more to Singapore's 'greenwashing' story?

Singapore has relied heavily on land reclamation, or the process of dumping solids (mainly sand and concrete, but Singapore also uses waste products for land reclamation, including the 'sludge' ash mentioned above) into the ocean to increase a territory's land area. Over the past two centuries, Singapore has increased its land area by 25%, from 581.5km^2 to just over 719km^2. While these

projects are deemed essential for Singapore's growth, land reclamation is well-known to have deleterious environmental impacts, both at where land is reclaimed, and where the sand is mined. Prominently, land reclamation in Singapore has targeted the city-state's mangrove forest. The extent to which mangrove forest has been destroyed is astounding: in 1819, they covered approximately 75km^2 of land, now they barely cover 6.5km^2 , a reduction of more than 90% (Yee, Ang, Teo, Liew, & Tan, 2010). If that weren't enough, land reclamation has long-lasting impacts: the process has been shown to permanently change tidal patterns that lead to further mangrove and coral reef deterioration (Priyandes & Majid, 2009). Further, Singapore's promotional rhetoric frequently highlights the use of solar electricity as a sustainable feature of Singapore's energy provision strategy, but it makes up less than 1% of Singapore total electricity generation. Rather than focusing on rolling out a widespread solar power program (Singapore has a maximum potential for solar power of 1,580 Kwh/m^2/year; to meet demand for electricity, the city would need to capture 40% of this) or electricity conservation strategies (electricity use in Singapore is around 180% of the electricity use of the United Kingdom, with 1/10th of the population), Singapore relies heavily on imported energy, mainly from fossil fuels.

Singapore is also a regional leader in oil and gas refining, a primary contributor to the global climate crisis. In an attempt to reduce reliance on imported energy, Singapore has sought new energy production methods, such as palm oil biodiesel. The city is home to the world's largest palm oil diesel plant, with an annual capacity of 800,000 tons of palm oil, aiming to take advantage of the fact that Singapore is located in the heart of the region that supplies 84% of the world's palm oil. Known as one of the most unsustainable agricultural products, palm oil cultivation directly contributes to climate change, deforestation, and habitat loss. Even though Singapore claims to be a leader in sustainability, that doesn't seem to be the case in this regard, as Members of the European Parliament voted to phase out palm oil in biofuels due to its negative environmental impacts.

While Singapore presents itself as a bastion of urban sustainability, with a focus on technologically-advanced and seductive initiatives, underneath this glitzy rhetoric and fantastical imagery is a development strategy that is rooted in unsustainability. But, Singapore isn't alone in its sustainability performance, cities and states around the world use similar tactics to provide a 'sustainability smokescreen' to divert attention away from their environmentally-deleterious practices (Boykoff & Mascarenhas, 2016). In a world where 'true' sustainability will only become more critical, it is essential that these underlying practices are exposed and uprooted, and that alternatives to this developmental greenwashing are explored.