Learning Journal 8

Throughout this environmental science course, I've gained deeper insights into how urban development impacts ecological systems and human wellbeing. Living in Singapore, I've witnessed firsthand both the challenges and opportunities in creating a sustainable city-state. The most convincing arguments that have shaped my perspective come from studying how cities like Curitiba have successfully implemented integrated sustainability solutions, demonstrating that with proper planning and political will, significant environmental improvements are achievable even in dense urban environments.

As a hypothetical leader of Singapore, I would propose three key strategies to enhance our environmental sustainability:

1. Expand Vertical Urban Farming Given Singapore's limited land area, expanding vertical urban farming would address multiple sustainability challenges. While Singapore already has some rooftop gardens and vertical farms, I would implement a comprehensive program requiring all new buildings above six stories to incorporate agricultural spaces. This would reduce our reliance on imported food (currently 90% of our food is imported), lower transportation emissions, enhance food security, and create green jobs. The Gardens by the Bay project has already demonstrated Singapore's capability to integrate nature with urban architecture - this expertise could be applied to productive urban agriculture. Studies have shown that urban farming can reduce urban heat island effects while improving air quality and biodiversity (Newman & Matan, 2021).
2. Implement a Comprehensive Waste Reduction Program Despite Singapore's efficient waste management system, our only landfill at Semakau is filling up faster than anticipated. I would introduce a "Pay-As-You-Throw" system where households and businesses are charged based on the amount of non-recyclable waste they generate. This would be coupled with expanded recycling infrastructure and education programs. Similar programs in cities like Seoul have achieved recycling rates above 70% (World Bank, 2018). Additionally, I would mandate that all food establishments participate in food waste recycling programs, converting organic waste into compost for urban farms or biogas for energy generation.
3. Transform Transportation Infrastructure While Singapore's public transportation system is already extensive, I would accelerate the transition to fully electric buses and taxis while expanding bicycle infrastructure. Currently, many neighborhoods lack safe, connected cycling routes to MRT stations. I would create a comprehensive network of covered bicycle lanes, separated from vehicular traffic, connecting residential areas to transport hubs and commercial centers. This would encourage more people to cycle for short trips, reducing reliance on cars and improving public health. Studies from Copenhagen show that investing in cycling infrastructure can reduce transportation emissions while delivering significant health benefits and cost savings (Gehl, 2013).

These strategies are interconnected and would reinforce each other - for example, compost from the waste reduction program could support urban farming, while improved cycling infrastructure would make it easier for people to access local food markets. The key is implementing these changes systematically while ensuring community buy-in through education and incentives.

References:

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