



Keeping Singapore Green

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This is the second part of a three-part series entitled “Success Matters” which explores narratives less explored in the discussion of Singapore’s success.¹

Introduction

Singapore’s greening efforts date back to colonial times when the British administration became concerned over the rapid depletion of the island’s natural rainforests due to commercial cultivation of cash crops, especially that of gambier.

Before gambier cultivation went into full gear in the 1830s and 1840s, most parts of Singapore were covered with fertile rainforests. The success of gambier as a cash crop spurred the clearing of much forest land for gambier cultivation. At its peak, the gambier sector comprised some 600 plantations in the late 1840s. To make way for these, Singapore’s natural foliage was cleared indiscriminately, drastically reducing the area under primary forest.

In 1848, the colonial government was concerned enough about the effect of such wanton deforestation that it issued a prohibition against any further destruction of forests hills. The clearing of forests nevertheless went ahead unabated. Alarmed at the depletion of forests in the Straits Settlements – the group of British Southeast Asian territories consisting of Singapore, Malacca, Penang and later, Labuan, the colonial government commissioned Nathaniel Cantley, the Superintendent of the Singapore Botanic Gardens, to survey the extent of forests in these territories. The survey, done in 1883, showed that only 7 per cent of Singapore had remained forested. Cantley’s report also recommended measures to arrest the situation. These included the formation of local forest reserves and the collection and propagation of the best indigenous timber seeds.

That Singapore’s greening movement has its roots in the efforts of the colonial government is something that is acknowledged by the post-independence greening pioneer Wong Yew Kuan. Wong led the first standalone government department charged with the task of the

¹ The first part of this three-part series traces the evolution of the parking coupon system in Singapore, and is available at:

http://www.spp.nus.edu.sg/ips/docs/enewsletter/Mar2011/Azhar_The%20Parking%20Coupon%20System_010311.pdf

country's green makeover, the then-newly carved-out Parks and Recreation Department (PRD) from 1974 to until his retirement in 1983. He said:

"Very frankly, even during the (colonial) city administration there was some sort of horticulture unit (akin to the PRD and its present-day incarnation, National Parks Singapore or NParks). The British were quite keen on greening the environment. When I came to Singapore (from his Penang hometown) in 1953 to the University of Malaya, except for the really urban areas, Singapore was already quite green. They did quite some good work."

Right in the heart of the city, it was quite barren. The urban areas like Chinatown, North Bridge and South Bridge Roads, all the way to Kallang, there was no green at all. There was no (green) planning at all. – **Wong Yew Kuan, former Commissioner for Parks and Recreation**

This good work continued after the Second World War, as the colonial government embarked on a tree planting and landscaping drive to beautify the island. A Parks Department was formed to take care of tree-planting activities within city limits while the Public Works Department was made responsible for planting of trees along rural roads.

Changes and a New Purpose

However, as Wong observed, the greening efforts did not apply uniformly across the island, with the city centre, in particular, a concrete jungle even back then. Indeed, by the end of the 1950s, residential areas were found to be well-planted but the business areas of the city was still tree-less.

He said, "Right in the heart of the city, it was quite barren. The urban areas like Chinatown, North Bridge and South Bridge Roads, all the way to Kallang, there was no green at all. There was no (green) planning at all. But in the suburban areas like Bukit Timah, Napier Road and Stevens Road, it was quite green."

This anomaly was also noted by Singapore's first Prime Minister Lee Kuan Yew, whom Wong credits as the man with the green fingers that made the greening drive bloom islandwide. In his memoirs, "From Third World to First – The Singapore Story: 1965 – 2000", Lee said:

"We did not differentiate between middle-class and working class areas. The British had superior white enclaves in Tanglin and around Government House (now known as Istana) that were neater, cleaner and greener than the 'native' areas."

Focusing the greening efforts on these areas, added Lee, would have been "politically disastrous for an elected government".

The focus of the greening efforts in post-Independence Singapore was quite different from that under the British -- at least in the early years. The British were quite concerned about deforestation and the destruction of Singapore's natural foliage, and had recommended solutions such as the formation of local forest reserves and the collection and propagation of the best indigenous timber seeds. As former NParks chairman, Professor Leo Tan Wee Hin, noted, the two largest nature reserves in Singapore, the Bukit Timah Reserve and the

Central Catchment Reserves were legacies of the British. Independent Singapore created two nature reserves very much later, Labrador and Sungei Buloh Wetland Reserve, both gazetted as nature reserves in 2002.

Indeed, Labrador Beach had been designated as a nature reserve by the British in 1951. This prevented any extensive development which might threaten the flora and fauna, from taking place. However, in 1973, it was downgraded to that of a nature park. The future of the beach habitat became uncertain, as there were no laws which prevented the destruction of nature parks. It was feared that the area would make way for another industrial site. There were consistent calls from the public to preserve the rich history and nature of that site, being the last mainland rocky shore and coral reef. On November 2001, it was announced that Labrador Park would be gazetted as a Nature Reserve. The oil refinery's jetty was renovated and open to the public, together with the rocky shore, while redevelopment and landscaping took place in the reclaimed section of the part, right up to Tanjong Berlayar.



The black-winged Starling, an endangered bird sighted in Singapore. Source: Calvin Teo, [Creative Commons](#).

As for Sungei Buloh, its importance as a nature area gained prominence only in 1986 when a call was made to conserve the area by members of the Singapore branch of the Malayan Nature Society. These conservationists highlighted Sungei Buloh's significance not just as a site with an unusually high variety of bird species, but also as an important transit point for migratory birds from as far as Siberia on their way to Australia to escape the winter months. Their suggestion was taken up by the government, and the site was given nature park status in

1989 before being gazetted as a nature reserve in 2002.

For Lee, greening up Singapore was part of a “dramatic way to distinguish ourselves from other Third World countries” by making the island “an oasis in Southeast Asia”. He also believed that neat greenery showed effort put into maintenance and would thus impress foreign VIPs. Said Lee, “(F)or if we had First World standards, then businessmen and tourists would make us a base for their business and tours of the region. .. To achieve First World standards in a Third World region, we set out to transform Singapore into a tropical garden city.”

After observing that his own efforts in planting trees at the opening of community centres and other public places were undermined by subsequent neglect, he established a department to follow up on such initiatives. He recalled, “Some (of the trees I planted) thrived, many did not. Revisiting a community centre, I would find a new sapling, just transplanted for my visit. I concluded that we needed a department dedicated to the care of trees after they had been planted.”

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In June 1963, the Parks and Trees Unit was formed under the Public Works Department (PWD) to spearhead the tree-planting programme and beautify highways, open spaces, road circuses, schools and other public institutions. That year, a more sustained effort at the

greening of Singapore took place when the government launched the Tree Planting campaign that was inaugurated by Lee. He set in motion, in his words, "...a careful tree planting campaign not only for the roadside and public places, but for all private land owners". Apart from wanting to improve the image of Singapore, the campaign also aimed at getting the public to be more aware of and appreciate the need for trees in the environment.

The aim was to yield 10,000 new trees annually, but the campaign did not quite bear much fruit in its early years due to the lack of not just public enthusiasm towards the greening drive, but also that of campaign expertise within the government.

Green Reboot

The greening campaign was given a reboot in 1971, when Singapore's planning authority, the Urban Renewal Authority (URA) drew up the first Concept Plan to guide the development of Singapore. The Plan incorporated the idea of turning Singapore into a Garden City and the campaign gathered momentum. That same year, a Tree Planting Day was introduced as one of the events to support the tropical garden city initiative. Set on every first Sunday of November, it roped in the public, with Singaporeans of all ages and backgrounds planting trees across the island in community centres, parks, schools and army camps.



Source: The Green Wave, 2010.

The Tree Planting campaign was often led by Cabinet Ministers and Members of Parliament (MPs) who would mobilise tree planting activities in their own constituencies. A record 30077 plants were planted – including more than 7000 roadside trees and some 14300 shrubs -- during the inaugural Tree Planting Day on November 7, 1971, by then Deputy Prime Minister Goh Keng Swee, who was Acting Prime Minister during Lee's absence. As with most plans of the People's Action Party government, no detail was too small to escape Lee's

consideration. The November date, the beginning of the year-end rainy season in Singapore, was apparently picked for Tree Planting Day to minimise watering.

Apart from Tree Planting Day, other public outreach efforts of the 1970s included an initiative where plants were sold at half-price at the government plants sales centre in Dunearn Road to encourage people to buy trees for planting, as well as a short-lived tax rebate given to those who could prove to the authorities that they had spent money on greening the compounds of their homes.

These initiatives were driven by changes at the policy-implementation level, which in turn was directed by Lee's vision and, quite often as well, personal intervention.

James Koh Cher Siang, who was the Permanent Secretary of the Ministry of National Development from 1979 to 1987, a time when the greening effort came under the ministry, said,

“The one, the big push behind this was the PM himself. You know, he was like a big gardener. Wherever he goes, he would make it a point to notice the trees, the plants and makes comments on them. If the tree is not growing, he will write to (those in charge), “Why is this tree not growing? What have you all done? Yes, yes (right up to a specific tree on a specific road). He provided the push.”

Wong also noted that specific activities were “dictated to us”. He said, “(Lee would say) ‘I want this, I want that’... We used to get a letter from him every week, ‘do this, do that’.”

The former Prime Minister himself had admitted as much in his memoirs, recalling how he had “showered (Wong) with memos, endless wish lists that he assiduously responded to, successfully implementing many of them”.

Lee’s personal attention apparently included the choice of trees. According to Wong, Lee was partial to the now-ubiquitous angšana and raintree as these provided plenty of shade. The former Prime Minister has a well-known fixation with a cool ambient temperature. Lee, who has admitted to being very sensitive to heat and humidity, had in the late 1990s, hailed the air-conditioner as one of mankind's great inventions. “The humble air conditioner has changed the lives of people in the tropical regions,” he once said. Before “air-con”, productivity dropped as the mercury rose.



Creepers grow on an overhead bridge in Singapore, greening the drab concrete.

The former Prime Minister’s exacting demand also led to what Wong described as a “particularly challenging task” – making sure that greenery thrived under flyovers. This led to Wong and his colleagues coming up with the unique solution of recommending to the PWD that these structures have a gap in the middle to let sunshine and rain enter the otherwise shaded – and hence, plant-unfriendly -- areas under the flyovers. Where it was not possible to have this gap, Wong and his colleagues “cheated” by hiding the barren void under the flyovers with plants cultivated strategically at the sides of these structures as green screens.

The plus point of Lee’s micro-managing ways on the greening campaign was that “we could use his command to get things done”, added Wong, who credits Lee for the rapid expansion of the government body tasked with carrying the greening efforts.

Starting out as the Parks and Trees Unit under the PWD and led by an engineer, the entity was to first become a bigger Parks and Recreation Division – still within the PWD – led by a commissioner, before becoming the PRD, a full-fledged department under the Ministry of National Development in 1973-1974.

These changes were reflected in the increased staffing of the entity as well, with full support from not just the Ministry of National Development, but also the Prime Minister's Office. In 1974, PRD had a total of about 20 officers at Divisions 1 to 3 levels, but by 1978 the Department expanded to a structure comprising of about 40 Division 1 officers, 70 Division 2 officers and 140 Division 3 officers.

Said Wong, "In the case of PRD, we actually started in a very modest way (in terms of budget and staffing) and it went on in that fashion until 1978, PM thought he wanted an accelerated programme, with more parks to be created, more greening to be done, not only more but also to introduce some refinement to the landscape (with the addition of flowers to the then all-green plants).

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"In fact, he personally directed that we should increase our staff, and I think he called a big meeting (attended by the Permanent Secretaries of the Finance and National Development Ministries, as well representatives of other related departments) in 1978... (where) he personally directed that more funds be allocated to increase the personnel of PRD so that it can take on more work."

"That of course is not the normal way a department expands. The normal way is in fact, stage by stage so to speak, as and when the progress justifies expansion. But the PRD had this rather unusual experience of the PM personally directing that it would be given expansion. And that really expanded the staff to the sort of figure I mentioned earlier. That came about after PM gave that big order."

The staff recruitment not just catered for numbers, but also the kind of expertise needed for the job, with landscape architects, botanists and agronomists coming on board. Wong recalled, "When we started all these programmes, we didn't have a landscape architect at all. Then, later we recruited someone from Hong Kong (Otto Fung Wai Chan, the first landscape architect recruited by the PWD's Parks and Trees Division) who has now become a citizen. We were also fortunate that JICA (Japan International Cooperation Agency) sponsored two or three Japanese landscape architects to come out to help us design the parks."

A key enabler of the greening campaign was the setting up of the Garden City Action Committee (GCAC), an early example of the all-of-government approach that is now de rigueur for most key government initiatives these days. Set up in 1973, the GCAC helped to maintain the greening momentum of the early 1970s, spearheading the formulation of a greening policy as well as directing the course of the Garden City Campaign in Singapore. The composition of the Garden City Action Committee comprises ranking government officials from key government agencies, reflecting the level of political will towards the greening effort.

Bringing together key stakeholders that included those involved in urban planning, roads network, and public housing, the high-powered GCAC helped the implementing agency of the greening campaign ensure that greening objectives were given due consideration vis-à-vis the possibly competing aims of other government agencies.

In 1975, the Government introduced the Parks and Trees Act which, according to a March 21 report in *The Straits Times* that year, was drafted to “ensure that the greenery in Singapore is enhanced, maintained and preserved”. Among other stipulations, the law made it an offence for anyone to fell a tree with a girth of one metre or more. It also empowered the authorities to serve notice to land owners of vacant or soon-to-be developed land to plant or replant any tree, or clear the land of weeds and overgrown grass. The Government could also carry out such works and recover the costs from the landowners.

One good example of how the greening impetus had become entrenched in Government planning was the building of the new airport in Changi. The PRD was invited to sit on the Executive Committee for Airport Development, formed to steer the project. This ensured that the whole area -- from where Bedok Interchange is, all along the East Coast Parkway and the Bedok Road areas, leading to the airport – had lush vegetation.

Recalled Wong, “We worked in such a way that, as and when the road was completed, we would move in to plant. In fact if you look at the trees now, you have a gradation of the ages and sizes (of trees) as you go towards the airport. Again, that was (Lee’s) decision. He said that when the first plane arrived, people should see well-planted greenery rather than ranch vegetation.”

Another example of how seriously the Government took the greening campaign was the way empty tracts of land slated for future developments are greened up at considerable cost even though the greenery might have to make way later. Said Koh, “Like (reclaimed land) Marina South, (on which) we planted greenery. After reclamation, we said ‘we plant trees first’. That’s the reserved land that in future we may need but let’s plant trees first.”

Public Buy-In

Getting the bureaucracy behind the greening movement was one thing. Getting the public supportive was another matter altogether, although efforts like getting communities, schools and army conscripts involved in greening activities on Tree Planting Day helped. Lee noted in his memoirs:

“Perseverance and stamina were needed to fight old habits, people walked over plants, trampled on grass, despoiled flowerbeds, pilfered saplings or parked bicycles or motorcycles against the larger ones, knocking them down. And it was not just the poor people who were the offenders. A doctor was caught removing from a central road divider a newly planted valuable Norfolk Island pine which he fancied for his garden. To overcome the initial indifference of the public, we educated their children in schools by getting them to plant trees, care for them and grow gardens. They brought the message home to their parents.”

As things got better, a different kind of problem surfaced. Both Tan and Wong recalled the issues that can perhaps be best described as the “not in our backyard” syndrome. In some cases, these involved actual backyards or front yards.

Said Tan, "(NParks staff) told me they got a lot of flak from town councils and MPs, who had in turn been getting flak from residents who complained of green patches turning muddy and dirtying the place after rain, as well as cleaners who complained that they had to clean up the mud. So (questions were asked about) why don't we just concretise the whole area?"



Public Housing Estates in Singapore are well-greened with plants.

"(As for more natural-looking parks) Somebody would write to the press, 'aiyah mosquitoes breeding in such ugly-looking rough hedges'. So again, MPs will petition for fogging and for cutting and trimming. When crows came to roost on trees in public housing estates, (the request was) 'please chop off all the branches'. Okay if we chop off these branches, the crows would move to trees further away. Do we also cut off those trees? In the end we have a 'botak' estate - would you prefer that? And so we have to educate our political leaders in charge of these constituencies, to say, 'you have to educate the residents also about a balance. They don't want their estates to be hot (due to a lack of shade from trees) but they don't want crows to be sitting on those trees.'"

Added Wong, "(There was a question of) how do we deal with the public so that they sympathise with our work. This is a bit more difficult. Because I think, (beautification by) planting of trees and so on, could be a very subjective matter. And I think by and large the intelligentsia would agree that we should green up the city. Still, you'd be surprised that there are a lot of people who are not sympathetic towards this kind of philosophy. If a tree provides nice shade and also there are nice flowers in front, then they might tolerate a few leaves falling into their compound. On the other hand, the less sympathetic guys would think, 'it's a hell of a nuisance, I have to sweep up my own front yard every day'. These people would like to see all the trees chopped down."

As a whole however, the greening movement has taken root over the years. By 1980, after the initial greening effect of the city was achieved, the emphasis shifted to other trees based on factors such as quality of colour and scent of the flowers. In 1990, the 20th and last Tree Planting Day was held on Sunday 4 November 1990. It launched the first Clean and Green Week. Initially called the Good Environment Week, the Clean and Green Week expands the scope of Tree Planting Day but tree planting activities are still held during that time. In 2001, religious organisations were roped in to get more people to be aware of the green issues and in the planting activities. In 2002, the NParks began encouraging developers and building owners to set up roof gardens to achieve a greener skyline and keep the city cool.



The Garden City did not happen overnight. Stakeholders including the PWD, NParks, GCAC and Singapore's citizens were key to realising Minister Mentor Lee Kuan Yew's vision.

Noted Koh, "(T)he exercise in greening Singapore has gone on for many, many, years. It's not just something that has happened in the last five or 10 years. That's why the trees have all grown bigger. I think there was always (a continuous) effort and (Lee) led the way in making sure people don't forget."

Success Factors

Lee once said that "nature did not favour us with luscious green grass as it has New Zealand and Ireland", but that has not stopped Singapore from achieving its Garden City ambitions as well as to work towards being a "City in the Garden".

The key ingredients of this success have been political will, able leadership, and commitment. Wong noted that the early Singapore government, having decided that greening was a necessity, had the gumption to take on the financial and political costs of the effort, with more than just a little push from the then Prime Minister. Said Wong, "(Lee) gave PRD full support. For the first three to four years, we had to justify to the Finance Ministry our need for more money and people. The reply from the Ministry would be the usual four or five lines essentially saying 'we've done enough'. In 1978, Lee called for a big meeting where he gave a two-hour lecture at the end of which he said, 'look George (Bogaars, then-Permanent Secretary of Finance), give them the money'. Before 1978, money was harder to come by. ...After the meeting, we expanded our staff three times. After the meeting, money came from heaven."

According to Wong, just before he became involved with PRD, its budget was "very small, (about) \$2 million". In 1978-1979, the budget went up to "something like \$30 - \$40 million a year". He added, "This was a very enlightened attitude on the part of the government.

Perhaps many developing countries would not think that such a vast sum of money should be spent on the environment. Of course now it's a different thing (with environmental concerns well-documented and known). I think at the moment you can drum up quite a bit of enthusiasm easily, but in the 1970s it was a very different time. The fact that our government had that kind of philosophy is something that we should remember.”

Commitment was demonstrated by the continued maintenance of plants long after they were first planted. Lee made sure this was forcefully drummed into the psyche of public servants. In his memoirs, he said:

“After some progress, I met all senior officers of the government and statutory boards to involve them in the ‘clean and green’ movement. I recounted how I had visited almost 50 countries and stayed in nearly as many official guesthouses. What impressed me was not the size of the buildings but the standard of their maintenance. I knew when a country and its administrators were demoralized from the way the buildings had been neglected – washbasins cracked, taps leaking, water-closets not functioning properly, a general dilapidation and inevitably, unkempt gardens. VIPs would judge Singapore the same way.”

Hence, a big sum of the budget given to PRD would go into maintenance activities such as the regular pruning, recalled Wong. He said, “The government has been quite generous in providing the personnel, the finances, so that the whole population of trees and shrub is looked after.”

The greening movement would also not have been successful without various innovations, at different levels, that took place. Indeed, latching on to greening as a means of differentiating Singapore from other developing nations in the region and of showcasing the nascent city-state’s ability to follow through on its national agenda, was an innovation in itself. Incorporating pro-greening stipulations, as opposed to merely protecting existing greenery, in the Parks and Trees Act also helped propel the campaign forward. So did other public outreach and awareness initiatives like the half-price sales of plants from government nurseries to the public and the short-lived tax incentive for greening.

Innovation was also fertile at the bureaucratic level, where the formation of the GCAC was one of the first formal whole-of-government initiatives. This ensured that any conflict, arising from the varying objectives and interests of different government stakeholders, would be resolved by empowered decision-makers at an early stage.

At the operational level, the relentless drive from the top led to solutions such as starting nurseries from scratch and having built-in gaps for flyovers wherever possible. Another innovation at this level was the use of “instant trees”. In his oral history interview with the National Archives, the late Arthur George Alphonso,

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former Acting Director of the Singapore Botanical Gardens – which was tasked to help out in the greening campaign in the early days – recalled:

“At that time they wanted results, so we planted a lot of angsanas. These angsanas, you don’t have to plant the seedlings. You can plant 10-foot stumps and they grow straight away. So we used these angsanas for roadside planting.”



An overhead bridge beautified with bougainvillea flowers.

Koh added, “One of the things I remember we did was (beautifying) overhead bridges (with plants like) bougainvilleas. That came from my time (as Permanent Secretary). We decided that it was a good thing to provide these troughs up there and we planted the bougainvilleas. We put in place a system whereby we can pump the water up, so that we don’t have to go and water it up there. So there’s a system of pipes. We also have our own devices, for example, in many of our planting trees by the road side, we always have a reservoir there to make sure that, in case it’s too dry and there’s no rain, that reservoir keeps enough water for the plants.”

Notwithstanding the generous resources given to the greening efforts, those in charge of carrying out the activities were also mindful of stretching the taxpayers’ dollars. To that end, it came up with the innovative “musterling system” of labour deployment. In this system, curators were put in charge of specific geographical areas. They plan the work needed to be done and pull labour from a pool of workers with specific skills such as pruning, fertilizing or soil treatment. The conventional way would have been to have dedicated teams of workers for specific areas, but this would have meant that those with specialised skills would not be occupied fully for a significant part of the time, as the need for their skills would be cyclical. The “musterling system” ensured that there was more efficiency in terms of labour utilisation.

These success factors would again be necessary for the next phase of Singapore’s journey in greening Singapore, which will see greater focus on three areas: recreation and leisure, catering for different interests and lifestyle aspirations; innovation and creativity in greening up Singapore, including to add a vertical dimension with skyrise greenery; and enhancing Singapore’s urban biodiversity and environmental sustainability through increased conservation efforts and education.

If you have comments or feedback, please email ips.eneews@nus.edu.sg