

MAKING A CASE FOR **ZERO WASTE**

Laying the Groundwork for Zero Waste



ZERO WASTE CITIES ASIA SERIES
Penang, Malaysia



How to use herbs for disease-free life : Selvi's contribution towards zero waste is significant because she is reaching out to the community continuously. © THEEBAN GUNASEKARAN

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Penang, Malaysia is an opportunity waiting to happen. Host to various Zero Waste initiatives that are now ripe for scale up, the state can be an inspiration for a national direction towards Zero Waste. And with the strong participation of schools and youth, the knots and bolts are already in place. It will just be a matter of time and one decisive directive towards the right direction for Penang to become the country's pioneer in Zero Waste.

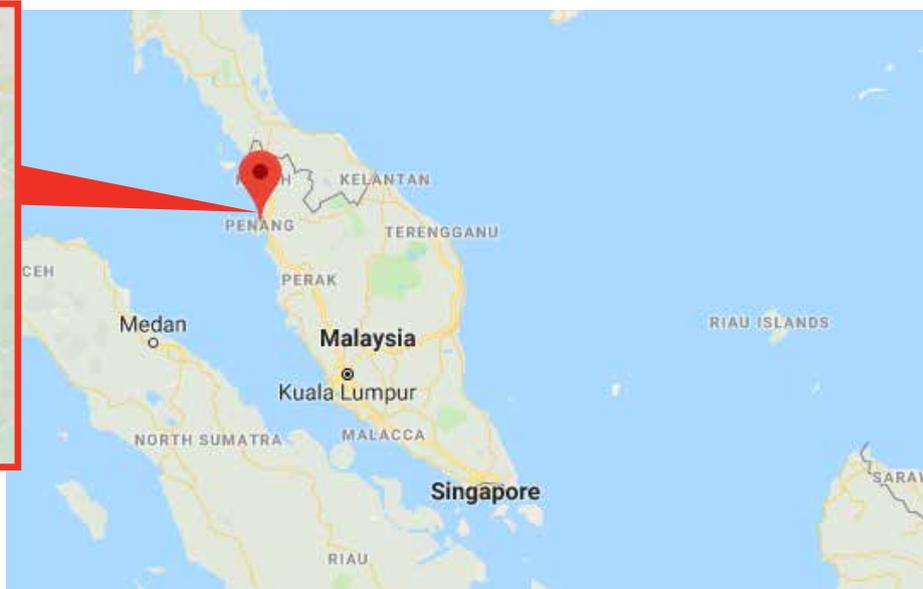
PENANG IN FOCUS

Penang is a state in northwest Malaysia composed of mainland Seberang Perai and Penang Island with a population of 1.7668 million. Thanks to the existing Zero Waste policies in Penang, the state has been performing fairly well in recovering materials from its households and businesses. It boasts the highest recycling rate in Malaysia at 43%, more than double than the national average of 21%.¹

Penang's waste segregation at source policy was enforced on June 1, 2017, under the regulations in the Local Government Act 1976 – Separation of Waste and Licensing of Recyclable

Waste Collection Services By-Laws 2016. The objectives of the policy are to (1) reduce environmental pollution and maintain ecological balance; (2) reduce the cost of waste management; (3) reduce increasing volume of waste generation to landfill; and (4) prolong the lifespan of Pulau Burung landfill. Each Penang resident generates at least 1.1 kg of waste daily. Around 1,800 tonnes of waste are dumped at the Pulau Burung Landfill daily.

Under the policy, residents of landed properties have to place recyclables such as paper, plastic, used glass containers, and aluminium tins beside their rubbish bins for collection. For landed properties, the collection is done



PENANG

Population: 1.766 million (2018)
 Population Density: 1,684/km²
 Size: 1,048 km²
 Waste Generation: 0.71kg/person
 Recycling Rate: 43%

every Saturday by the Penang Island City Council (MBPP) on the island and Seberang Perai City Council (MBSP) on the mainland. For high-rise dwellers, the duty falls on the joint management bodies (JMB) or management corporations (MC) to manage the system. They have their own right to sell the recyclable items.

Those who fail to carry out waste separation will be slapped with a maximum fine of RM2,000, or a jail term of up to one year, or both, upon conviction starting from June 1, 2017. Besides the compound, those who continually ignore the law will be taken to court, where a fine of up to RM2,000 (USD 477) or a year's jail or both awaits. A compound of RM250 (USD 60) would be imposed on the MCs or JMBs of high-rise buildings, or individuals of landed housing areas.

In 2017, MBPP and MBSP allocated RM95.64million (USD 22.8 million) and RM98.99 million (USD 23.6 million) respectively to deal with waste and public health. An estimated RM2.5million (USD 596,162.5) can be saved annually if the waste taken to landfills is reduced by 4%. As for the whole country, the federal government spends almost RM2 billion (USD 476,930,000) a year on solid waste disposal and public cleansing works. At present, only 17.3% of the solid waste is recycled. The government aims for a recycling rate of 22% by 2020.

In 2017, Penang reported a recycling rate of 43.25%, up from 39.65% in 2015 when segregation was not yet required. Per capita waste generation, meanwhile, was 1.2 kg in 2017 compared to 1.6 in 2016. All these indicate a positive mindset towards recycling.

Perai. On the other side of the state — Penang Island — MBPP does not have a specific program for organic waste management. Nearly half or more of waste generated at homes comprise of organic waste made up of kitchen waste (peelings) and food waste.

Recycling Rate in Seberang Perai, 2008-2017

TAHUN (Year)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SISA (Waste generated) (TONS)	564,941	560,602	555,956	546,345	528,275	635,555	667,955	729,718	756,198	798,364
KITAR SEMULA (Recycled) (TONS)	124,121	132,039	129,804	144,682	157,286	207,849	233,790	289,258	322,189	345,329
	(21.97%)	(23.55%)	(23.3%)	(26.48%)	(29.77%)	(32.7%)	(35%)	(39.64%)	(42.60%)	(43.25%)

FIRST STEP: COMPOST ORGANIC WASTE

The Consumers' Association of Penang (CAP) has leveraged on the existing waste segregation-at-source policy in the state of Penang, which has been in place since 1 June 2016. The policy — Separation of Waste and Licensing of Recyclable Waste Collection Services By-Laws 2016 — however, was limited to separation and collection of dry and clean recyclables such as paper, plastic, glass, aluminium cans, and metals, among others. Organic waste, meanwhile, are discarded as general waste and collected twice a week.

On the mainland, MBSP has initiatives towards diverting organic waste from the general waste in Seberang

Hence, CAP focused on recovering organic waste from the general waste by introducing various methods of composting at the domestic level.

CAP partnered with schools and residential complexes in Penang to introduce various types of composting methods. Apartment dwellers need a composting method that does not involve much work, is free of unpleasant odours, and requires less time. Composting methods and tools varies according to the type of waste produced. Adopting composting methods learned from a study tour in India, CAP introduced pipe composting to Penang households, particularly those residing in apartments. Meanwhile, dried leaf composting is well suited for residents with large backyards to maximize aeration and accelerate the

composting process. The main challenge for CAP and Penang's citizens is how to encourage people to do composting, as it is not required by law. Likewise, it is easier for people just to throw away their organic waste rather than to compost them.

CAP also worked closely with several schools to manage garden waste, kitchen waste, and food waste in their schools. Each school places five composting pipes labelled from Monday to Friday. Organic waste for composting is disposed in the pipe allocated for that day. It takes another seven days to dispose organic waste into the same pipe again which gives ample time for the composting process to take place. Students are assigned to manage the composting activity. This composting effort is well-received by the school administration as they have diverted waste from the landfills.

The schools that are involved in the project have also geared towards not distributing mineral water bottles during meetings or events. Hence, waste is prevented and upcycling is also being

promoted among teachers and students to produce teaching aids. For example, discarded CDs or soldering boards are used for labeling. Other students arranged CDs to make up a board for writing, made cloth bags from discarded t-shirts, converted discarded containers as pots for planting.

In Seberang Perai, MBSP is also looking into anaerobic digestion to manage organic waste. It plans to further strengthen its waste separation campaign on food waste once its 200-tonne-capacity biogas facility is established.

BREAKING WASTEFUL TRADITIONS

Thaipusam is a festival celebrated mostly by Tamil Hindus and dedicated to the Hindu deity Lord Murugan. In Penang alone, hundreds of thousands of people gather at the temple to do their prayers and fulfil their vows. During this period, it is a norm for the devotees to break a coconut to fulfill their vow and as a sign of showing their devotion to

the God. Traditionally, broken coconuts are collected and the coconut meat either eaten raw, used in cooking, or sent for oil extraction. But through time, such practice faded. Most of the coconuts now end in the landfill. In 2017, it was estimated that around 400,000 broken coconuts with their meat intact ended in the landfills.

As the number of coconuts being broken and end in the landfill increases every year, CAP and other social organisations called for a press conference early January 2018, urging devotees to break fewer coconuts. A suggestion was also given to break just one coconut with full devotion and channel the money spent to breaking coconuts to other charity work.

During the same festival, a lot of service stalls along the road leading to the temple serve free food for the devotees and visitors. As the food is free, most people will get more than what they need and eventually the food is wasted. To conscientize consumers on this issue, CAP placed placards in every stall to remind them not to waste food.

REACHING OUT TO SCHOOLS

In an effort to increase awareness on waste reduction and recycling, Seberang Perai's Community Affairs Department established the Eco Community Unit on 3 January 2013. The Eco Community Unit handle around 20 city-wide activities such as Zero Waste Programs for schools and communities, recognition programs for school recycling and community farming activities, among others. The Green School Award, for example, has involved 109 primary schools and 43 secondary schools in raising environmental awareness among students.

Heading the Eco Community Unit of Seberang Perai City Council is Chew Eng Seng, who has turned the city into a hive of recycling activities towards Zero Waste. Chew continuously moves, motivates, and inspires the individuals, schools, organisations, industries and business establishments to plunge into recycling activities by clearing obstacles, connecting people, channelling resources and offering constructive ideas.



Children learn both solid waste segregation and organic waste composting at the Penang Suya Meiyarivagam centre. Parents and children bring their recyclables every Sunday to be segregated at the centre. The income from the sale is used to run the activities of the centre. © THEEBAN GUNASEKARAN



Darani (left) and Jennifer Ann (right) are in charge of collecting and adding dried leaves in the compost pipe. © THEEBAN GUNASEKARAN

"You name it. We recycle it." That is the impression you will get upon entering the Methodist Girls' School (MGS) at Anson Road, Penang. The teachers and students are invariably ebullient and ensure recycling, composting and other related activities take place without a halt in their school. For the school's commitment towards nature, it has won the Green School Award for Penang 2017. One of the requirements for the entry in the competition is to work closely with NGOs or social organisations. According to the teachers, CAP's contribution towards this end is significant in MGS.

Teacher Nurul Izza who is in charge of recycling said there is intense competition among the different classes to see who could collect the most recyclable items, because the class with the highest number of recyclables will be rewarded by their teachers. With their concerted effort, the SMK Methodist Girls' School divert 3.5 tonnes of solid waste yearly.

CAP was also able to engage the students SJK Tamil Nibong Tebal with their composting system by teaching them how to turn garden waste, kitchen waste, and food waste produced by the school into compost. With guidance from their teacher Vatsala Jayaraman, the students did not only set the compost pipes next to their school canteen but also channelled their creativity into making the compost pipe look attractive by painting it with beautiful pictures. The

team comprising six members is headed by Tamil Mugillan. The school has five composting pipes labelled from Monday to Friday. Organic waste for a particular day is disposed in the pipe allocated for that day. It takes another seven days to dispose the waste into the same pipe again, which gives ample time for the composting process to take place.

CHALLENGES

Penang has initially opposed to adopting incineration in handling waste, but a state executive councillor recently issued statements mulling over the technology. State exco Jagdeep Singh Deo rationalised that the proposal could help address congested landfills in Penang and is aligned with the federal government's plan of states having their own incinerators. If the plan pushes through, tipping fees are expected to reach four times the cost of transporting waste to landfills, which is currently at MYR 22.22 (5.31 USD) per tonne.

CAP has repeatedly urged the state government to stay on course towards Zero Waste. With Penang achieving a record-high 43% recycling rate in 2018, the state has great

potential in reaching a higher waste diversion target. Likewise, Penang should join countries and cities that are closing their doors to incinerators and embracing Zero Waste.

Chew propounds on the dangers of incinerators and asks the stakeholders' opinion whether they still want incinerators to be installed in the country. When they say no, he takes the opportunity to commit them to 3Rs [Reduce, Reuse, and Recycle]. These methods of evoking concern and compelling them to a task work better, claims Chew.

"In 2001 we started with the green school programme where students were guided to do recycling, to use environmentally friendly products, learn about urban farming and cleanliness. At that time there was no school involved in recycling and we are the first one to start. Now practically every school has a recycling centre," said Chew. "This year we want schools to calculate their carbon

2014

Polystyrene
ban in food
containers

2010

Plastic bag levy
in supermarkets
and department
stores

footprint. This can be done by taking into account the number of students, electricity, gas bills, water usage, the amount of rubbish generated, number of trees and so forth," he added.

MOVING FORWARD

With the experience of being at the helm of a few organisations and penchant for community work, it was not a difficult task for Dato' Sr Haji Rozali bin Haji Mohamud, Mayor of Seberang Perai City Council, to develop Seberang Perai as a fine example of recycling city. A public consultation on Budget Dialogue in 2012 with the stakeholders, cleared one thing: that all of them gave priority to cleanliness. Cleanliness includes a vast array of things; and recycling, composting, and upcycling are inseparable aspects of it.

This laid the foundation for the setting up of Environment Resource Centre in each district.

This was followed by Zero Waste programmes that emphasize on recycling and composting. In 2018, Seberang Perai set its sights to become a low-carbon city by 2022 by increasing its recycling rate from 42% to 70%, and by reducing landfill-bound waste by 50%.² To achieve these goals, Mayor Rozali, Mr. Chew and CAP hope that Penang will reconsider its incineration ambition and continue its path to Zero Waste.

"Experience taught me that issuing directives alone will not bear fruit. Thus, we often go to the field, motivating the schools, encouraging the householders, apartment dwellers and ensuring the business establishments to take part in our earnest efforts of making

Seberang Perai cleaner, environmentally friendly and livable place for all," said Mayor Rozali.

NOTES

1. <https://www.malaymail.com/news/malaysia/2019/07/26/penang-hits-42pc-in-recycling-double-national-rate/1774981>
2. <https://www.thestar.com.my/metro/metro-news/2018/08/21/aiming-for-green-state-goal-reappointed-mpp-president-wants-to-increase-mainlands-recycling-rate#xZHvVb0e6X6vkZKT.99>

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2016

Segregation of waste at source

2018

Segregation of Food Waste in Restaurants, Hotels, and Factory Canteens

Grow Community Market at Auto-City - a community based platform for local farmers, artists and NGOs to promote green and healthy lifestyle. The market is held first on the second Sunday of the month. The main organiser for the Grow Market, Hoy Yee (far left) has been instrumental in the success of the market. © THEEBAN GUNASEKARAN



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