



# STAKEHOLDER CONSULTATION ON PENANG'S GREEN INITIATIVES

## Solving Plastic Pollution at Source

27 February 2020, PAPER + TOAST Powered by Think City, UAB Building,  
Georgetown Penang

Prepared by: Penang Green Council with  
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## 1.0 Summary

The Ministry of Energy, Science, Technology, Environment & Climate Change (MESTECC) is collaborating with UN Environment Programme (UNEP), the Coordinating Body on the Seas of East Asia (COBSEA) in implementing a regional project entitled “Reducing marine litter by addressing the management of the plastic value chain in South East Asia” – SEAcircular Project which is supported by the Government of Sweden via the Swedish International Development Cooperation Agency (SIDA). This project aims to reduce the adverse impact of plastic pollution on the marine environment, by transforming plastic management and preventing waste leakage with a focus on the value chain stages of (i) Production of plastic products, (ii) Plastic use, and (iii) Collection / sorting / recycling. The precursor to the Stakeholder Consultation in Penang organized by the Penang Green Council (PGC) with MESTECC was the National Consultation that took place on 15 October at MESTECC and a follow-up in Port Dickson from 5-6 November 2019, where 120+ stakeholders deliberated and provided feedback on why Penang (comprising of island and mainland, working with two local governments) was chosen as one of the two locations in Malaysia to participate in documenting a case study to help identify and develop market-based solutions to reduce single-use and hard-to-recycle plastics, promote recycling and increase recovery of plastic. The Stakeholder Consultation on Penang’s Green Initiatives: Solving Plastic Pollution at Source was held on 27<sup>th</sup> February 2020 at PAPER + TOAST Powered by Think City, UAB Building, Georgetown Penang to discuss and deliberate on the various green initiatives that have taken place thus far in relation to tackling plastic pollution at source in Penang, as well as planning the way forward for 2020 including the know-how in embedding Circular Economy solutions within the Island and mainland’s ecosystem. Present at the consultation were a diverse range of stakeholders, which included government agencies, private sector, researchers and academia, international organizations, associations, not for profit organisations, recyclers, and non-governmental organisations (see **Annex 1 – Participants List**).

The stakeholder consultation (see **Annex 2 – The Programme**) was formulated to provide a strategic and enviable platform to convene the experts together with the stakeholders to take stock of current green initiatives and to recommend further improvements where implementation can be strengthened by applying a people-centric approach to solve the plastic pollution problems in close collaboration with the above mentioned stakeholders and potential partners in Malaysia. The stakeholder consultation provided a perfect opportunity for stakeholders to connect and to voice out their creative ideas on what they envisage for 2020 and years to come. By employing an innovative yet simple to use audience interaction

platform called Slido, an 83% stakeholder engagement score was achieved (see **Annex 3 – Back End Analytics**).

## 2.0 Objectives

The purpose and objectives of the consultation were:

1. To discuss a collaboration to document a case study on a current 3R pilot project initiative in Penang in cooperation with local government to demonstrate good practice of 3R (reduce, reuse, recycle) interventions and implementation of circular economy solutions from 2020 onwards.
2. To receive updates on Penang's current initiatives (community and commercial sectors) after implementation of the Waste Segregation at Source (WSAS) policy.
3. To nominate the project's implementation partners and stakeholders in Penang.
4. To explore opportunities for collaboration among other initiatives and partners.

There were five parts to the stakeholder consultation:

- Part 1 – Multi-Stakeholder Presentation & Dialogue ;
- Part 2 – Expert Panel Discussions;
- Part 3 – Site visits;
- Part 4 – Single-use Plastic Campaign in Penang; and
- Part 5 – Follow-up meeting for the Case Study

**Part 1:** A sharing session by experts from various backgrounds such as the Local Government of Penang, City Councils, private sector players, researchers & academia, associations, not for profit organisations, recyclers, and non-governmental organisations paved the way for an all encompassing overview of the big-picture to understand where was Penang 5 years ago and where it is today. For this session, organisations shared their green initiatives, provided updates on waste segregation at source policy, presented research findings and also their future plans on tackling plastic pollution at source.

**Part 2:** The panel discussion session involved leaders and professionals from different areas of expertise. In this session, each panelist shared their own opinions towards the subject matter presented in Part 1 and received questions from the floor, hence bringing participants through a thought-provoking and well-rounded discussion.

**Part 3:** Site visits were carefully selected by PGC in consultation with Penang State Government, City Councils and other stakeholders when formulating the programme agenda.

It was conducted in the afternoon and involved Penang Green Council team led by Ms Josephine Tan, General Manager, MESTECC team, and Mr. Faisal Abdur Rani, Operations Director from ImpactLution. The two organizations selected for the site visits are recognized for their activities and programmes in reducing single-use plastic waste.

**Part 4:** Commitment to stakeholders is one key element the state is committed to. Penang Green Council upholds the principle that stakeholders are the recipients of policy and data collection and is the most crucial element in formulating a policy before implementation. Penang moves by phases before imposing the full ban of single-use plastic. As part of policymaking, surveys are sent out to all stakeholders in the initial stage. Penang Green Council has conducted a public survey to understand how the public perceives the usage of single-use plastic items at food eateries in Penang. In addition, the survey provides policymakers a better understanding about public views before developing a state policy to ban single-use plastic items. In order to collect feedback and inputs from stakeholders prior to the implementation of the campaign, Penang Green Council has also worked together with the Solid Waste Management Unit and Penang Economic Planning Unit to conduct twelve dialogues with the stakeholders (see ***Annex 4 - No Single-use Plastic Campaign in Penang***).

**Part 5:** The follow up meeting was carried out a day after the Stakeholder Consultation, involving Penang Green Council team and Ms. Jacqueline Chang, National Consultant, SEAcircular Project – Solving Plastic Pollution at Source from MESTECC to discuss about the case studies in Penang. The discussions and key takeaways during the stakeholder consultation provided valuable inputs to the project team to further develop the case study according to the Terms of Reference and how to get multi-stakeholders on board. From this meeting, the work plan and Terms of Reference for the case study was finalised (see ***Annex 5 – Terms of References for Case Study***).

## Part 1: Stakeholder Presentation

During the morning session, the stakeholder consultation focused on green initiatives that were implemented by the Penang state government and other organisations to tackle plastic pollution at source. Some of the key takeaways from the sharing session are as follows:



Figure 1 Group Photo during Stakeholder Consultation

### 1. Updates on Waste Segregation at Source (WSAS) Policy and Future Plans

*Presenter: Mr Oon Lai Kuan, Head Division of Solid Waste Management Unit, Local Government Division, Setiausaha Kerajaan Negeri Pulau Pinang*

- 1.1. The implementation strategy, approach and steps taken to tackle waste management in Penang differs from the Federal level. Penang State has been exempted from the Solid Waste Management and Public Cleansing Act 2007 [Act 672]. In light of that, Penang state has adopted the Local Government Act 1976, which allows Penang State to manage all its waste working together with their local councils.
- 1.2. All waste from both island and mainland is sent to the one available landfill, namely Pulau Burung Sanitary Landfill that is located at Nibong Tebal, Pulau Pinang. In 2014, the amount of waste generated and sent to the landfill amounted to 656,090 tonnes. As a result, Penang State took the initiative and decisions to simultaneously introduce a policy to prolong the lifespan of the landfill, and reduce the cost of waste management. The Waste Segregation at Source (WSAS) Policy was implemented in 2016 and enforced in June 2017.
- 1.3. There are eight categories for the mechanism of collection, which are: Village Premise; Landed Residential; Low Cost High-rise; Residential High-rise; Factories;

Shopping Malls; Government & Institutions; and Hotels & Restaurants. Each category has a different collection mechanism. The residents in Penang need to segregate their waste at least into two streams – recyclable and general waste (applicable for landed property only).

1.4. After the WSAS policy was implemented, the total weight and revenue of recyclables collected by both local councils (island and mainland) are 475,520.7kg and RM111,767.23, respectively. The table below shows details of the collection since 2016:

Year	MBPP		MBSP	
	Weight (kg)	Revenue (RM)	Weight (kg)	Revenue (RM)
2016	37,582.0	10,087.64	60,138.9	14,034.23
2017	25,490.2	9,635.79	137,790.0	30,009.04
2018	11,881.7	4,045.53	81,944.0	16,920.93
2019	15,907.9	5,536.87	107,786.0	21,497.20
<b>Total</b>	90,861.8	29,305.83	384,658.9	82,461.40

Figure 2 Collection of Recyclables Items

1.5. Future plans for Waste Segregation at Source:

- i. Encourage participation of private sector:
  - Darco (Waste to Energy Biogas Project) - collection of food waste from premises to convert to biogas and digestate (organic fertilizer).
  - Eurasia Express Sdn. Bhd (Organocycler EESB Project) - generates protein from organic municipal solid waste (MSW) for animal feed.
- ii. Continue education, monitoring & enforcement of WSAS.
- iii. Introduce incentives/recognition for WSAS for plastic and other materials for recycling.
- iv. Encourage more buy back centres.
- v. Setting up of more Environment Resource Centres.

## 2. Introduction to Green Initiatives by Penang Island City Council

*Presenter: Xavier Sebastian, Deputy Director of Urban Services Department, Penang Island City Council*

2.1. Penang Island City Council (MBPP) is the local government that administers the city of George Town, which includes the entirety of Penang Island. Many green initiatives were done by MBPP in order to support the Penang State's vision to be a Cleaner, Greener, Healthier, Safer, and Happier state.

2.2. Initiatives by Penang Island City Council to reduce the usage of single-use plastics included educational talks, distribution of recycled bags at Bazar Ramadhan during the fasting month, and distribution of “Say No to Single Use Plastics” posters to food and beverage outlets on the island. Penang Island City Council works closely with the State Government to ensure that the sub-national campaigns at state level is delivered to the community effectively.

2.3. In addition, Penang Island City Council has been and continues to be proactive in educating the public on Waste Segregation at Source Policy through Public Private Partnerships, establishing recycling banks in schools, and introducing various urban farming programmes at schools and community areas.

### 3. Introduction to Green Initiatives in Seberang Perai City Council

*Presenter: Ahmad Zabri Mohamed Sarajudin, Acting Director of Urban Services Department, Seberang Perai City Council*

3.1. Seberang Perai City Council (MBSP) is the local government which administers Seberang Perai, the mainland of the Penang state. MBSP has already set its targets in becoming a carbon neutral city by 2030, and eventually a zero-carbon city by 2050. These targets are available at Seberang Perai Climate Action Strategy’s book and Seberang Perai Low Carbon City Greenprint 2020’s book.



Figure 3 Seberang Perai Climate Action Strategy



Figure 4 Seberang Perai Low Carbon City Greenprint 2020

3.2. Initiatives by MBSP:

- i. **Recycle for Life (RFL)** for all MBSP staff- A recycling initiative for plastics and other materials developed by E-Idaman Sdn. Bhd. in collaboration with the Seberang Perai City Council (MBSP). Through this system, MBSP personnel collect recyclable items, weigh them and credit a cash value in the Recycle for Life smart cards, based on the current market value. The collected Malaysian Ringgits can be used to purchase items at Eonsave Supermarkets, Giant

Supermarkets, MBSP cafeterias, Syarikat Air Darul Aman (SADA) bill payments, and a few selected restaurants. A list is available at Recycle for Life website<sup>1</sup> for the public's easy reference.

- ii. **Waste to Protein** – Food waste is used to breed Black Soldier Flies (BSF). BSF larvae provides high level of protein for animal feed.
- iii. **Waste to Compost** – Food waste is composted and used for agriculture.
- iv. **Waste to Energy** - Green waste / food waste / organic waste are used as a source of energy. For example, woodchip production is converted to fuel for the boiler industry.

3.3. MBSP also has a unique Upcycle Park, the first recreational park in the country developed with creative use of unwanted and discarded materials.



Figure 5 Upcycle Park at Seberang Perai City Council area

#### 4. Penang's Plastic Journey

*Presenter: Ms Siti Najihah Che Saad, Senior Officer of Penang Green Council*

4.1. Penang has made numerous efforts to divert and reduce waste in hopes to extend the lifespan of the landfill. Currently, Penang has made progressive breakthrough with the total ban on polystyrene packaging and also on the free plastic bags by supermarket and hypermarkets.

4.2. The No Free Plastic Bag Campaign journey shown in **Figure 6** below:

<sup>1</sup> Recycle For Life, viewed 20 March 2020, <<http://www.rfl.com.my/#merchant>>





Figure 6 Plastic Journey in Penang

4.3. On top of the success of the “No Free Plastic Bag” campaign, Penang also aims to be in line with “Malaysia’s Roadmap towards Zero Single-use Plastics 2018-2030” released by MESTECC in October 2018. Hence, the “No Single-Use Plastics” campaign was introduced.

4.4. This campaign was carried out in stages, starting from phasing out plastic straws at all food and beverage premises. The objectives of the campaign are:

- To minimise the quantity of plastic straws that is harmful to the environment in the short term through a variety of awareness programmes and campaigns.
- To abolish thoroughly the use of plastic straws in the long term through enforcement.

4.5. The mechanism of the No Single-use Plastic campaign are as follows:

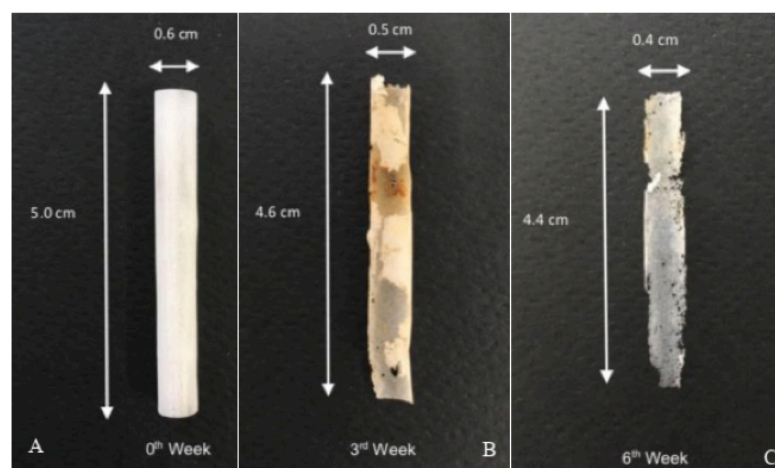
- Food and beverage premises will no longer be permitted to provide plastic straws in the room/corner/counter that can be obtained directly or via self-service by the consumers;
- Plastic straws will only be provided to consumers upon request only and is no longer given by default for every purchase of food and beverages.
- Food and beverage premises are allowed and encouraged to use the substitute items to replace plastic straws as long as the items do not have a negative impact on the environment.

## 5. Bioplastics as the Alternative for Conventional Petroleum-based Plastic

*Presenter: Prof K. Sudesh Kumar FASc (School of Biological Sciences, USM)*

5.1. Professor Sudesh and team are working to produce bioplastics (in particular PHA) made from renewable resources that are available in Malaysia.

- 5.2. Bioplastics are plastics that are derived from biological/renewable materials (not from petroleum, which is non-renewable) made from plants (e.g. sugars, oils, corn starch etc.). The production of bioplastics was discussed from the renewable biomass sources perspective, such as vegetable fats and oils, corn starch, straw, woodchips, sawdust, recycled food waste, etc. as well as bioplastics made from agricultural by-products and also from used plastic bottles and other containers using microorganisms.
- 5.3. Professor Sudesh articulated that the public must understand and have a clear picture about the suitable types of bioplastics. Bioplastics that are made completely of organic matter are capable of biodegrading safely back to the environment, while those that have a mixture of petroleum-based plastics in it, do not. In essence, 'degradable' does not imply it will be completely broken down safely, hence the need for properties in bioplastics to be fully bio-based and biodegradable.
- 5.4. Bioplastics minimizes dependency on petroleum, reduces CO<sub>2</sub> emission, pollution, and does in some way eradicate disposal to landfill problems but not in its entirety.
- 5.5. Some of the biodegradable plastic that has been tested and used are polyhydroxyalkanoates (PHAs) which are polyesters of hydroxyalkanoates (HAs) synthesised by numerous bacteria as an intracellular carbon and energy storage compound. PHAs are polyesters produced in nature by numerous microorganisms, including through bacterial fermentation of sugars or lipids.
- 5.6. The observation after conducting numerous research on PHAs has led him to discover that vegetable oils are excellent feedstock for high cell density fermentation, as well as for the production of PHAs itself. He conducted a field and science lab study as depicted in **Figure 7** below.



**Figure 7 Biodegradation of PHA straw in mangrove**

## 6. Marine Microplastics

*Presenter: Dr. Woo Sau Pinn, Centre for Marine and Coastal Studies (CEMACS), Universiti Sains Malaysia*

- 6.1. CEMACS team has started researching on the impacts of microplastics in the marine ecosystem. According to National Oceanic & Atmospheric Administration (NOAA), microplastics are small plastic pieces less than five millimeters long which can be harmful to our ocean and aquatic life. Microplastics come from a variety of sources, including from larger plastic debris that degrades into smaller and smaller pieces. In addition, microbeads, a type of microplastic, are very tiny pieces of manufactured polyethylene plastic that are added as exfoliants to health and beauty products, such as some cleansers and toothpastes. These tiny particles easily pass through water filtration systems and end up in the ocean and rivers, posing a potential threat to aquatic life.
- 6.2. Microplastic can be very dangerous and poses a great threat to aquatic life as they are easily mistaken for food. As part of the food chain, humans would eventually consume the aquatic life with the plastics in them.
- 6.3. In the future, the world might face a more serious issue, which is nanoplastics (NPs). Nanoplastics are small microplastic particles defined in the range 0.2–2 mm. Studies and evidences from toxicological reports have indicated that when microplastics break down further into nanoplastics, it will create bigger problems that exacerbates human health further, as these virgin, coronated and isoalted nanoplastics may even penetrate into human blood cells.
- 6.4. CEMACS has conducted a research at three sampling points, which are Balik Pulau, Pasir Panjang, and Teluk Aling. From the results (**Figure 8**), it can be concluded that the main contributor of marine plastic debris pollution at these three sampling points is the plastic packaging.
- 6.5. Considering the many knowledge gaps inherent in today's circumstances, this stakeholder consultation further corroborates the National Consultation on 5 November 2019 that further research on the potential health risks is needed. The following has been proposed:
  - i. Determination of the ecological impacts of plastic on many scales.
  - ii. Quantification, speciation and monitoring of the distribution of microplastics in the components of the riverine and marine ecosystems.
  - iii. Determination of the content of microplastics in local food chain eg. fish and shellfish.

- iv. Determination of the transboundary route (land-to-sea interactions) taken by plastics waste that floats and pollutes in the environment. To target root causes related to plastic packaging.
- v. Implement site/waste specific solutions where the case study documents how an overarching Circular Economy and Source-to-Sea approach is being used and implemented; ensuring interventions are designed and implemented with an understanding of land-sea interactions. It is also catalytic in bringing together stakeholders in the region that have worked rather apart: the plastic producers and packaging manufacturers, waste managers including plastic recyclers, managers of marine and coastal resources, and those who are most vulnerable along the plastic value chain.

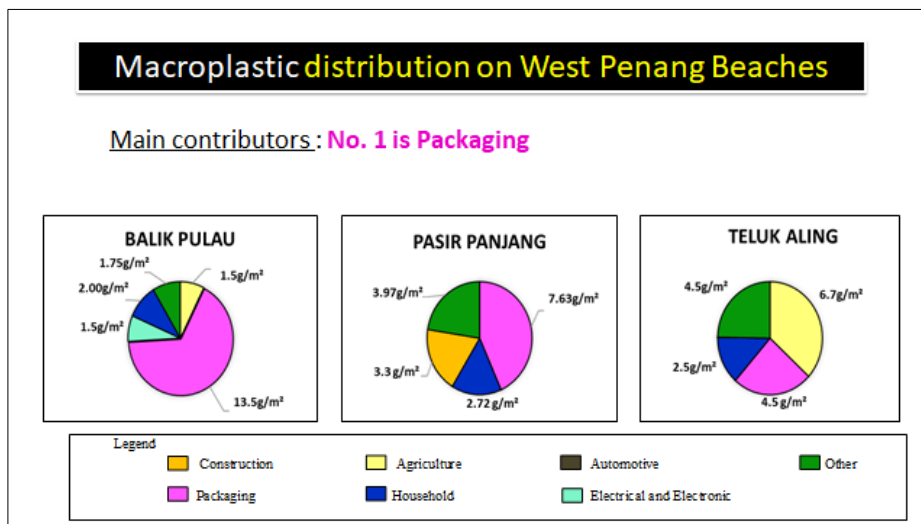


Figure 8 Macroplastic Distribution on West Penang Beaches

## 7. Malaysia Plastics Recyclers Association (MPRA)

*Presenter: Dato' Johnson Yoon, Secretary General, Malaysia Plastics Recyclers Association*

- 7.1. Malaysia is in the process of recovering from the crisis caused by plastic waste after China stopped taking 24 categories of paper and plastics waste in 2018 (Lee, 2018).
- 7.2. Unlicensed and unregulated factories mushroomed in places like Jenjarom and Teluk Gong, Selangor and Sungai Petani, Kedah have been identified. Numerous unlicensed operators are operating in makeshift factories without environmental safeguards and processes.
- 7.3. If the Coronavirus outbreak is not eliminated or put to an end by April, it will cause bankruptcy to recyclers. There is a need to provide recyclers with suitable recyclable waste/clean feedstock for the current mechanical recycling in Malaysia. Recycling cost should be factored alongside the feedstock received by the recyclers. If not, recyclers are not able to sustain their resources to run their factories effectively.

7.4. The recyclers support stronger enforcement and higher penalties against both smuggling and illegal importation of plastic waste that couples unlicensed recycling activities.

## 8. Malaysia EcoBrickers Community Programme

Presenter: Mr Faisal Abdur Rani, Programme & Operations Director, Impact Revolution Enterprise

8.1. EcoBrickers Community Programme, running since 2016, is a partnership programme under the management of ImpactLution (Impact Revolution Enterprise), a social enterprise with the full support and development by the Sustainable Business Network Association Malaysia, ISWA YPG Malaysia Chapter and supporting partners.

8.2. Ecobrick is a plastic bottle packed to a set density with used, cleaned and dry plastic to achieve a building block that can be used in multiplicity of times. It was designed to leverage the longevity and durability of plastic and to create an indefinitely reusable building block.

8.3. Eco-bricks are used to make modular furniture, garden spaces, walls and even full-scale buildings. Eco-bricks are an exciting way that individuals, communities, and companies can start their immediate transition from plastic towards ever greener harmony with the Earth's cycles.

8.4. Through this programme, the team has collected 10,800 Ecobricks since 2016; total of 4,073.4 kg of single-use plastic waste has been prevented from ending up in landfill; and around 24,440.18 kg of CO<sub>2</sub> that the programme has successful off-set from 2016-2019.

YEAR	NUMBER	WEIGHT (kg)
2016	19	10.45 kg
2017	567	214.06 kg
2018	4,679	1,604.07 kg
2019	5,535	2,244.78 kg
<b>TOTAL</b>	<b>10,800</b>	<b>4,073.364 kg</b>

Figure 9 Eco-brick Collection on a Yearly Basis

YEAR	WEIGHT (kg)	WEIGHT CO <sub>2</sub> (kg)
2016	10.45	62.70 kg
2017	214.06	1,284.36 kg
2018	1,604.07	9,624.44 kg
2019	2,244.78	13,468.68 kg
<b>TOTAL</b>	<b>4,073.364 kg</b>	<b>24,440.18 kg</b>

Figure 10 Carbon Offset Data

## Part 2: Panel Discussion

The panel discussion brought all minds together and provided a platform to raise practical and realistic solutions in addressing a myriad of challenges. A summary of the discussion is below:

### 1. **YB Phee Boon Poh - Penang State Exco for Environment, Welfare and Caring Society cum Vice Chairman of Penang Green Council**

YB Phee declared that the state has launched a campaign against single-use plastic bags and straws. The campaign is made up of 3 phases, namely educational awareness, educational enforcement and full enforcement. At the present moment, the state is at the educational awareness stage. Given that much of the problem boils down to current behaviours, involvement of the “nudge theory” would be effective in supporting positive and lasting behavioural changes. Inspired by the train lines and their corresponding colors as seen in Japan, YB Phee also highlighted the use of color schemes nationwide in differentiating types of plastics, thereby making segregation of plastic waste easier for the public.

### 2. **Dato’ Johnson Yoon - Malaysia Plastics Recyclers Association (MPRA)**

Dato’ Johnson provided clear insights into the struggles of the plastic recycling industry in Malaysia. Stakeholders learned that the plastic recycling industry in Penang have not been given enough credit and respect for the services rendered. The recyclers are concerned about the government-imposed costs, as it leads to difficulties in acquiring resources/feedstock to keep their factories running sustainably. The downside of imposition of strict inspections and arduous approval processes by the authorities add on to the burden, and also part and parcel has resulted in the illegal recycling facilities competing with those who have been registered. Dato’ Johnson further stressed that the current costs of PE resin’s price hovering at about USD500 per tonne will set off a negative chain reaction and influence across industries and society, and alongside with it, the prospects of curbing plastic waste. The recyclers have also agreed to the ban of plastic straws, but suggested that recyclables like PP caps should be given higher value.

### 3. **Professor Sudesh - School of Biological Sciences, USM**

A new perspective arises as Professor Sudesh’s shared his views on plastics. Plastic is malleable & inseparable from our daily lives. It is one of the most ubiquitous products in the global economy and a multi-million dollar industry for Malaysia. It boils down on how we deal with plastic at its end-of-life phase (habits and behaviours of users). For the

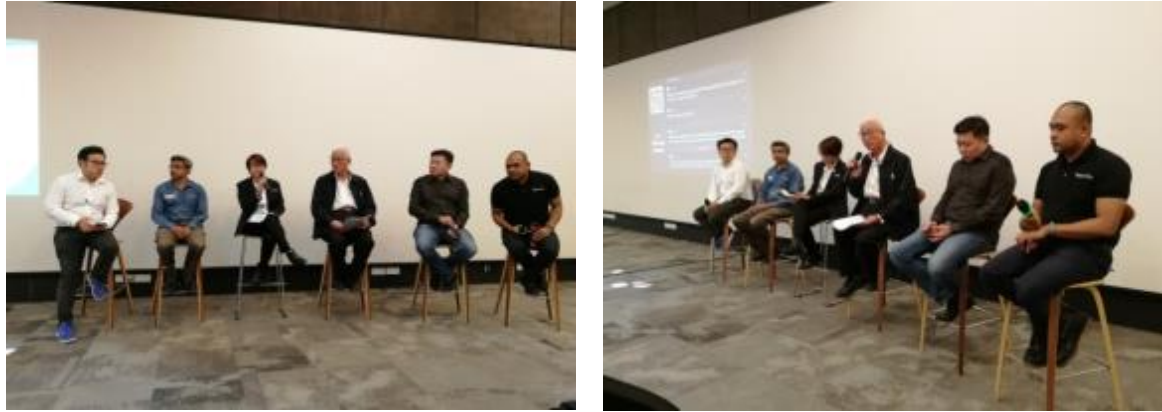
developed nations such as France, the plastic packaging tax has been part of the government plan to ensure that products that do not use recycled plastic will cost 10 per cent more in the future are one of the many ways to discourage petroleum-based plastics to curb global warming, and though plastic is widely used in France, the absence of litter is still less profound compared to Malaysia. With the hype for bioplastics these days, Professor Sudesh again emphasized the need for our society to have a clear understanding about the different types of bioplastics. Hence, it was suggested that the government should provide a clear guideline about the types of bioplastics allowed to be traded and used in Malaysia which not only reduces the carbon footprint but also in relation to tonnage of waste where it biodegrades safely back to the environment. The problem that remains in Malaysia is that the cost of bioplastic production is preventing it from penetrating the market as of now and the petroleum-based plastics is still so much more affordable for the consumer.

#### **4. Dr. Woo Sau Pinn - Centre for Marine and Coastal Studies (CEMACS)**

Instead of the narrow focus on single-use plastic products becoming ocean debris, Dr. Woo cautioned the need to think about the future and not just the present. He raised the alarming issue impacting the marine environment that many have failed to take into account, namely the miniscule scale plastics (in particular nano plastics, microbeads and microexfoliates) originating from a variety of man-made products. As these plastics enter the diet of edible marine organisms, it eventually becomes part of the human food chain. Another fundamental issue to address is that Malaysia severely lacks data relating to marine debris, including plastic pollution. Since data is king, there is a need to initiate monitoring and assessment on the types, source and distribution of marine debris.

#### **5. Mr. Faisal - Impact Revolution Enterprise**

Mr. Faisal said that the blame game has to stop and people need to start taking actions. He strongly believes that human behaviour is key to making a change. Instead of waiting for the government, industry and other sectors to find solutions to plastic pollution, individuals should start taking initiatives. Taking ownership is essential for projects or practices to be maintained in the long run. In the case of tackling waste packaging from food delivery services, Mr. Faisal encouraged people to bring their own takeaway containers by themselves, which only require the sacrifice of little time and convenience.



**Figure 11 Panel Discussion Session**



## Part 3: Site Visit

For the afternoon session, a small team comprising of MESTECC and Penang Green Council personnel visited the Taman Sri Nibong Recycling Education Centre and Olive Tree Hotel. The purpose of this site visit is to learn and understand more about the initiatives by these organizations in supporting Penang's state vision and protecting the environment.

### 1. Taman Sri Nibong Recycling Education Centre



Figure 12 The Recycling Education Centre

The Buddhist Tzu Chi Merits Society Malaysia is a volunteer-based humanitarian organization established in Malaysia since 1991. The organization has been actively involved in environmental activities by collecting and turning waste materials into useful products, while sharing the spirit of love.

To facilitate recycling, Tzu Chi volunteers set up recycling stations in their respective residential localities. This enables instillation of recycling culture within the communities in the long term. The center at Taman Sri Nibong is one of the largest and comprehensive recycling stations in Penang. There are in total three recycling education centres (REC) in Penang, namely Butterworth REC, Lumba Kuda REC and Taman Sri Nibong REC. The recycling centre collects more than 37 categories of items that could be classified into Recycle, Repair, Reuse. Items accepted and facilities available include:

- For Repair/Reuse: PC, Fans, Old Newspapers to be sold for wrappings
- Glass Bottles, Batteries (Rechargeable, Button batteries)
- Aquaponics (Demonstrating the Law of Nature)
- Book Adoption Centre (Putting old and unwanted books up for adoption)

For plastic waste, Tzu Chi has established precise and detailed categories. Plastics are

separated into plastic bags, PET bottles and materials, non-PET bottles and materials as well as Vitagen Plastic bottles.



Figure 13 Separation of plastic waste by category

Volunteers sort plastic bottles by colour, labels and caps before the bottles are bundled up. These plastic bottles will be crushed into plastic flakes to produce plastic chips. Under high temperature in the production machine, thin threads of polyester fibers are produced. This material can be then used to make garments and blankets. Around 8 to 12 of 1.5 litre bottles are required to make a T-shirt, and 64 bottles of the same capacity can make a standard-sized blanket. The blanket is thick and warm, and usually distributed to disaster victims.



Figure 14 Process Flow in Making a Garment by using PET Bottles



Figure 15 Plastic Bottles Reborn as Green Blanket



Figure 16 Processed plastics to be used in making new products



Figure 17 A printed PET Bottle Recycling Process for educational purposes



Figure 18 Banner & Materials made of using excessive plastic bags for education purposes

Apart from plastics, other recyclable materials include papers, iron, copper, aluminium, steel, aluminium cans, beverage cartons and glass bottles. As for e-waste, the centre also provides an e-waste corner for discarded electronics.



Figure 19 Electrical devices repair corner

The centre also has “Stop Ocean Plastic Pollution” and “Say No to Single Use Plastic” educational posters.



Figure 20 Book Adoption Centre (BAC) - a community project based on the idea that good books should have second lives.

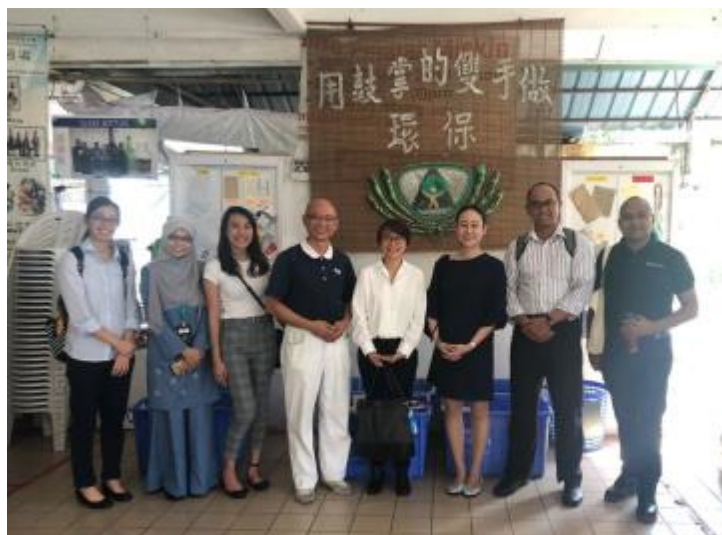


Figure 21 Group photo of the delegates

## 2. Olive Tree Hotel

Olive Tree Hotel is the first hotel in Penang to be certified as a Green Building. This GBI compliant building represents sustainable business in the hospitality industry and sets a good example to hotels in Penang aspiring to be green.

Olive Tree Hotel places great emphasis on educating its guests. The most striking aspect one would come across in the hotel is the wall art installation and sculptures made of recycled plastics and other materials, in particular the sculpture of a sea turtle made up of common household items, and two whales entangled in plastic materials left behind by guest. This artwork serves to deliver powerful messages about marine environmental woes that exist today. At some parts of the common area, the ceiling incorporates designs made up of discarded door frames that were recycled. Without the description next to it, such innovative use of materials would have gone unnoticed. To improve guest awareness, TVs and digital signages constantly flash the factsheets about environmental issues and initiatives.



Figure 22 Art made from recycled materials

The hotel rooms are furnished in a way to minimize waste and cultivate green behaviours. A drinking water dispenser is provided in each room, hence forgoing the use of single-use plastic water bottles. Spotted in the room is a paper cube with tips to go green printed on all sides, such as saving electricity, the correct use of segregation bins in the hotel rooms provided (encouraging the segregation of waste), keeping the linens and so on. The cube has another role to play, and that is for guests to place on the bed when they want their linens changed by housekeeping.



Figure 23 Guest room amenities

Another interesting project undertaken by the hotel is the Ecobricks Project. Ecobricks, building blocks made from water bottles stuffed densely with plastics are collected at a drop off point that is conveniently situated next to the main entrance. Located nearby is the hotel’s very own vegetable and fruit garden, and also a recycling point that accepts paper and plastic.



Figure 24 Eco-brick Project from Olive Tree Hotel



Figure 25 Urban Farming



Figure 26 Recycling Bin

Action and education go hand in hand in addressing marine plastic pollution issues. Olive Tree Hotel is a success story to demonstrate that hotels in Penang can indeed move towards sustainability.



Figure 27 Group photo of the delegates

## Part 4: Single-use Plastic Campaign

According to United Nation's "Single-Use Plastic: A Roadmap for Sustainability", single-use plastics, also often referred as disposable plastics, are commonly used for plastic packaging and include items intended to be used only once before they are thrown away or recycled. Due to plastic's convenient use in our daily lives, our landfills and oceans have become open dumping grounds, resulting in destruction of marine lives and clogged waterways and drains, which causes flooding and creates breeding ground for vector-borne diseases.

The Chief Minister of Penang, Chow Kon Yeow in his message during the World Environment Day 2018 dated on 5 June 2018 said that we have become over reliant on single-use plastics that generate a vast amount of waste which eventually contributes to marine litter. The problem does not lay on India alone but it is a problem for all of us, everywhere<sup>2</sup>.

To continue the success of "Penang No Free Plastic Bag" campaign and in line with the "Malaysia's Roadmap towards Zero Single-use Plastics 2018-2030" released by former Minister of Energy, Science, Technology, Environment and Climate Change (MESTECC), YB Yeo Bee Yin, Penang State Government has introduced the "No Single-use Plastic Campaign" in 2019. The campaign is done in stages starting from phasing out of the plastic straws at all food and beverage premises.

### 1. No Single-use Plastic Public Survey

In line with the implementation of the campaign in January 2019, Penang Green Council has conducted a survey from August to September 2018 to understand the public's perception on the implementation of the "No Single-use Plastic Campaign" in Penang. This public survey was divided into two categories, which is consumer and food & beverage operator. The survey was done using convenient sampling method that is through online platform and on-site survey.

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<sup>2</sup> The Star 2018, CM hopes Penang will lead the way in sustainable policies, viewed 20 March 2020, <  
<https://www.thestar.com.my/metro/metro-news/2018/06/06/big-vision-for-a-green-state-cm-hopes-penang-will-lead-the-way-in-sustainable-policies/>





Figure 28 Web banner of Public Survey to Consumers



Figure 29 Web banner of Public Survey to Business Operator



Figure 30 Public participation in the survey during roadshow at Auto-city Juru, Penang



Figure 31 A group of staff from Keysight Technologies Sdn Bhd, Penang answering the survey form

The objectives of this public survey are:

- i. To understand how the public perceives usage of single-use plastic items at food eateries in Penang.
- ii. To provide policymakers a better understanding of the public views prior to the formulation of state policy for single-use plastic item ban in Penang.

In order to address the objectives above, an analysis was performed and some of the results obtained are described as follows. The full reports are available at Penang Green Council's website<sup>3</sup>.

### Category 1: Summary of Public Survey for Consumers

From the survey, out of 1,948 respondents, more than half (76%) supported to ban the use of single-use plastic items. Only a few of them (less than 15%) did not agree to implement the policy, especially the hotels, restaurants, café, and food outlets. In the survey, we also asked why customers use the single-use plastic. We found out that plastics were given by default to

<sup>3</sup> Penang Green Council, viewed 20 March 2020, <<http://www.pgc.com.my/index.php/no-single-use-plastic-items-at-food-eateries-in-penang>>

consumers during their purchases as it is convenient, easily disposed and affordable to business operators. In terms of the support shown, this indicates that majority of the respondents agreed that plastic straws should be banned, followed by plastic bowls and plates, plastic cutlery, and plastic cups.

The survey reveals that if charges are to be imposed on the usage of single-use plastic items, respondents are in favour of seeing the funds used on environmental education programmes, followed by recycling services, and public cleaning services. The survey results also show that respondents mostly support the prohibition on single-use plastic items distribution, unless required by the customers.

### Category 2: Summary of Public Survey for Business/ Food Operators

A public survey for business operator conducted from 1<sup>st</sup> August until 15<sup>th</sup> September 2018 has involved 231 respondents. From the survey, it was learned that single-use plastic items are still preferred due to its cost, disposability, and convenience. On the contrary, most of the respondents supported the ban of single-use plastic items, while only a few of them are strongly against it.

In terms of the method to reduce single-use plastic items, the survey reveals that majority of the respondents agreed to provide single-use items to customers upon request. Some business operators shared that they could reduce the use of single-use items by charging customers or giving discounts provided they use their own utensils. In addition, respondents also support water refilling stations for customers who brought their own water bottles. The survey results also show that plastic bags and straw are the two main types of single-use plastic items that are provided by business operators to customers.

## **2. Penang Dialogue towards No Single-use Plastic: No Plastic Straw Approach**

Different approaches were used in order to collect feedback and inputs from stakeholders before implementing the campaign through roadshows, educational talk, and a series of dialogues. PGC is worked together with Solid Waste Management Unit and Penang Economic Planning Unit to conduct twelve dialogues with the stakeholders (see **Annex 4 - No Single-use Plastic Campaign in Penang**).



**Figure 32 A series of dialogue sessions with stakeholders**



**Figure 33 Presentation by Penang Green Council and Penang Economic Planning Unit (BPEN)**



**Figure 34 Question and Answer session**

Besides that, PGC also invited Malaysia Plastic Manufacturer Associations (MPMA) and Malaysia Plastic Recyclers Associations (MPRA) on board. A simple survey aimed at plastic manufactures was carried out to get some feedback and response regarding No Single-use Plastic Campaign. In short, though plastic manufacturers are concerned about marine plastic pollution, they are, however, against the ban of single use plastics. They strongly urge more education for the general public and suggest that improvements should be made to the recycling process.

The country is aware about the importance of data collection and sharing. Therefore, it is of utmost importance that data is made transparent and easy to access. Recognition should also be given to those private sectors and non-government organization that have taken great steps in managing plastic waste even though it is not incentivized.

## Part 5: Follow-up Meeting for the Case Study

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The follow-up meeting focuses on developing a work plan for the case study and discerning ways for Penang stakeholders collaboration to address the issues below:

### Key Takeaways and Issues:

- i. As an urbanised state that has a population of 1.77 million and a total area of 1049 km<sup>2</sup> including island and mainland, Penang's waste management faces a huge problem due to limited land availability.
- ii. Compared to other states in Malaysia, Penang has only one landfill located at Pulau Burung, Nibong Tebal, South Seberang Perai District (SPS) of Penang. Waste generated by the residents will be sent to the Batu Maung Solid Waste Transfer Station and Ampang Jajar Transfer Station, which are transit points before waste is taken to the landfill in Pulau Burung.
- iii. The Solid Waste Management Unit has implemented a Waste Segregation at Source (WSAS) Policy in 2016 for Village Premise; Landed Residential; Low Cost High-rise; Residential High-rise; Factories; Shopping Malls; Government & Institutions; and Hotels & Restaurants in order to reduce the number of waste bound for the landfill.
- iv. Besides WSAS policy, Penang state also implemented the total ban on polystyrene packaging, No Plastic Day Campaign, and No Single-use Plastic Campaign in order to divert and reduce the number of waste.
- v. There is lack of awareness and knowledge among the community about the impacts of marine plastics towards the environment and the effects of microplastics on marine animals and human health.
- vi. Research has been done but transparency of data is still an issue. This inaccessibility poses great challenges for education and awareness initiatives.
- vii. There is lack of awareness, monitoring, and inspection of waste segregation at source. As a result, unsegregated wastes are still being dumped into the same bin and trucks.

### Future Steps:

- i. A case study for long-term community behavioural change requires the involvement of various stakeholders. This will be conducted to reduce the usage of single-use plastic, promote waste segregation at source, and increase the recovery of plastic by introducing colour schemes for differentiating types of plastics.
- ii. Penang Green Council recommends that the Polluter Pays Principle and Waste Directory should be adopted in the Waste Segregation at Source Policy. The Polluters Pay

Principle has to be enacted so that parties polluting the environment would be responsible for paying the damage done to the natural environment. The Waste Directory is a collective database for industrial players to manage specific waste and source certain material, which is practically similar to the concept of “Your Trash is My Treasure”. Circular Economy solutions could also be introduced via this model.

- iii. Provide instruments, technical support and mechanisms so that communities are involved and long-term sustainability of the project can be attained.
- iv. Identify and engage stakeholders. The local councils would be the key stakeholders for the case studies.
- v. Target areas of case studies are housing areas, thereby requiring the cooperation of Penang Island City Council (Island side) and Seberang Perai City Council (mainland).
- vi. Penang Green Council will develop the framework and criteria for the case study. Each local council is to come up with a proposal, and the best will be selected.

### 3.0 Contact Us

PGC is established by the Penang State Government in 2011. It is a governmental organisation with the objectives to nurture, facilitate and coordinate environmental projects and causes in Penang.

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Facebook & IG : [pggreencouncil](https://www.facebook.com/pggreencouncil)

LinkedIn : [Penang Green Council](https://www.linkedin.com/company/penang-green-council)

Annex 1: List of Participants

No	Name	Position	Organisation/ Company
<b>Government</b>			
1	Shahril Zamani Bin Md Zain	Senior Assistant Secretary	Economic Planning Unit (BPEN)
2	Mohd Haikal Bin Ghazali	Administrative Assistant M9	Economic Planning Unit (BPEN)
3	Pravin Segaran A/L Segaran	Assistant Director	Department of Environment Pulau Pinang
4	Zulfatah Bin Yaacob	Senior Assistant Pollution Officer	Department of Environment Pulau Pinang
5	Najihah Binti Mohamad	Research Officer P41	Fisheries Research Institute (FRI)
6	Ahmad Zabri Bin Mohamed Sarajudin	Assistant Director	Seberang Perai City Council (MBSP)
7	Norhayati Binti Sulainan	Community Director	Seberang Perai City Council (MBSP)
8	Chew Eng Seng	Veterinary Assistant Officer	Seberang Perai City Council (MBSP)
9	Siti Rahmah Binti MD Yusoff	Assistant Director - Legal	Seberang Perai City Council (MBSP)
10	Amira Binti Ahmad	Assistant Director (Administration)	Seberang Perai City Council (MBSP)
11	Mohd Fidaie Bin Mohamad	Environmental Health Officer	Seberang Perai City Council (MBSP)
12	Goh Teng Huat	Assistant Officer for Health and Environment	Seberang Perai City Council (MBSP)
13	Marni Binti Noor Alwi	Assistant Officer - Legal	Seberang Perai City Council (MBSP)
14	Fatin Habsah Binti Ahmad	Assistant Director for Env. Health	Seberang Perai City Council (MBSP)
15	Fatin Thaniah Binti Ramli	Assistant Officer, Environment Cases	Seberang Perai City Council (MBSP)
16	Banugaa A/P Thurai Raj	Assistant Environmental Health Officer	Seberang Perai City Council (MBSP)
17	Amphai A/L Ee Bau	Senior Assistant Director	JPS
18	Xavier Sebastian	Deputy Director of Urban Services Department	Penang Island City Council (MBPP)
19	Bawani A/P Murugasan	Health Environment Officer	Penang Island City Council (MBPP)
20	Mohd Zamzuri Bin Hussain	Senior Assistant Officer for Health	Penang Island City Council (MBPP)
21	Dr Khoo Siew Farn	Medical Officer	Penang Island City Council (MBPP)
22	Mohd Faiz Bin Abd Halim	Administrative Assistant	Penang Island City Council (MBPP)
23	Oon Lai Kuan	Head of Unit	UPSP, Local Authorities Department
24	Melissa Nabila Bt Abdul Rahman	Health Environment Officer	UPSP, Local Authorities Department
25	Soresh	ADUN Officer for Seri Delima	ADUN Seri Delima
26	Jacqueline Chang	National Consultant, SEAcircular	MESTECC
27	Mohd Husaini Bin Saidi	Senior Assistant Secretary	MESTECC
28	Josephine Tan Mei Ling	General Manager	Penang Green Council
29	Siti Najihah Binti Che Saad	Senior Officer	Penang Green Council
30	Tan Thung	Research Assistant	Penang Green Council

31	Wong Carmen	Senior Officer	Penang Green Council
32	Wong Fen Fen	Senior Officer	Penang Green Council
33	Wong Jin Li	Programme & Project Executive	Penang Green Council
34	Kee Shin Ai	Communication Officer	Penang Green Council
35	Nur Atiqah Binti Dalbadalsa Merican	Communication Executive	Penang Green Council
36	Melawani Binti Othman	Researcher	Penang Green Council
37	Naventhan a/l Ahrasan	Research Assistant	Penang Green Council



No	Name	Position	Organisation/ Company
<b>Private Sectors, Recyclers, Associations</b>			
1	Alice Lim Ai Hun	General Manager	ESH Resource Management Sdn Bhd
2	Mevin Tan EL	Group General Manager	ESH Resource Management Sdn Bhd
3	Wong Can Nee	Marketing Assistant	ESH Resource Management Sdn Bhd
4	Soong Guaik Hua	Director	Vs Outlet Sdn Bhd
5	Cheah Siang Kie	Marketing Manager	Vs Outlet Sdn Bhd
6	CHEW CHIN HUAT	FOUNDER	RIICYCLE TECH
7	Carlos Steenland	Director	Sea Monkey Project
8	Dr Tan Ching Seong	CEO & Co-Founder TerraPhoenix® - iCYCLE®	TerraPhoenix® - iCYCLE®
9	Angela Yaw Wane Teng	Sales Director	Icycle Malaysia
10	Noridayu Binti Che Ani	Marketing Manager	Icycle Malaysia Sdn Bhd
11	Lim Tau Kai	Country Manager	Icycle Malaysia Sdn Bhd
12	Mohd Faisal Abdur Rani	Programme Director	Impactlution
13	Nazzia Bt Abu Hassan Shaari	Assistant Business Development Manager	PLB Eco Solutions Sdn. Bhd.
14	Cyndy Yeap	Director	PLB Eco Solutions Sdn. Bhd.
15	Cheok Swee Yong	Volunteer	Tzu Chi
16	Siow Eik Kwang	Tzu Chi Env Protection Coordinator	Tzu Chi
17	Mageswari Sangaralingam	Hon Secretary	Sahabat Alam Malaysia
18	Prema Darmalinggam	Research officer	Consumer Association of Penang
19	Tan Lii Inn	Analyst	Penang institute
20	Pan Yi Chieh	Analyst	Penang institute
21	Mageswari Sangaralingam	Hon Secretary	Sahabat Alam Malaysia (SAM)
22	Prema Darmalinggam	Research Officer	Consumers Association of Penang (CAP)
23	Nicole Thum	Senior Programme Executive	Think City
24	Liyana Che Ismail	Programme Executive	Think City
25	Henry Beh Tsz Sham	Space & Community	Paper + Toast
26	Michelle Lee Tzer Ping	Business Development	Paper + Toast
27	Teoh ZhiXuan	Project Leader	Toling Corporation
28	Abby Teoh	Director	Toling Corporation
29	Adam Lam	IT Manager	Olive Tree Hotel
30	Gillbert Khoo	PA & Executive Director	Lean Giap Group Sdn Bhd
31	Jian Ming	Founder	Aimpact2
32	IH Tan	CEO	Zero Waste Asia
33	Dato' Johnson Yoon	Secretary General	Malaysia Plastic Recyclers Association (MPRA)
34	Faisal Abdur Rani	Programme Director	Impact Revolution Enterprise

No	Name	Position	Organisation/ Company
<b>Researcher and Academia</b>			
1	Prof Sudesh Kumar	Professor	School of Biological Science, Universiti Sains Malaysia
2	Dr Woo Sau Pinn	Lecturer	Centre for Marine and Coastal Studies (CEMACS)
3	Norlaila Mohd Zanuri	Lecturer	Centre for Marine and Coastal Studies (CEMACS)
4	Annette Jaya Ram	Lecturer	Centre for Marine and Coastal Studies (CEMACS)
5	Norfaizatul Amira Binti Darmin	Student	University Putra Malaysia (UPM)
6	Fatin Farhana Binti Jafri	Student	Universiti Putra Malaysia (UPM)
7	Nurwindah Binti Rahman	Student	Universiti Putra Malaysia (UPM)

Annex 2: Itinerary Programme

27 February 2020 - Thursday	
Time	Itinerary
08.30	Registration and arrival of participants
09:00	Arrival of VVIP
09:10 – 09:20	<b>Welcome Address</b> by YB Phee Boon Poh, Penang State Exco for Environment, Welfare and Caring Society cum Vice Chairman of Penang Green Council
09:20 – 9:45	<b>Group photo session and light refreshment</b>
9:45- 10:00	<b>Overview of the SEA Circular Project</b> Presenter: Jacqueline Chang, National Consultant, SEA Circular Project: Solving Plastic Pollution at Source, UN Environment Programme at MESTECC
10:00-10:15	<b>Updates on Waste Segregation at Source (WSAS) Policy and Future Plans</b> Presenter: Solid Waste Management Unit, Local Government Division
10:15-10:30	<b>Penang Plastic Journey</b> Presenter: Ms Siti Najihah Che Saad (Penang Green Council)
10:30 – 10:45	<b>Bioplastic</b> Presenter: Prof K. Sudesh Kumar FASc (School of Biological Sciences, USM)
10:45 – 11:00	<b>Single-use Plastic and the Marine Environment (TBC)</b> Presenter: Prof. Dr Zulfigar Yasin, Centre for Marine and Coastal Studies (CEMACS)
11:00 – 11:15	<b>Malaysia Plastics Recyclers Association (MPRA)</b> Presenter: Dato' Johnson Yoon, Secretary General, Malaysia Plastics Recyclers Association (MPRA)
11:15 – 11:30	<b>Eco-bricks Programme</b> Presenter: Mr Faisal Abdur Rani, Programme Director, Impact Revolution Enterprise
11:30 – 12:30	<b>Introduction to Green Initiatives in Penang to Demonstrate Best Waste Management Practices and Implementation of Circular Economy Solutions: Case Studies and Videos</b> Presenter: 1. Mr Xavier Sebastian, Penang Island City Council (MBPP) – 20 mins 2. Ybhg. Dato' Sr Hj Rozali Bin Hj Mohamud, Mayor of Seberang Perai City Council (MBSP) – 20 mins

<p>12:30 – 13:30</p>	<p><b>Stakeholders to deliberate on the terms of reference, provide inputs and way forward on collaboration</b></p> <p><u>Objective:</u> Experts will share how they conducted inclusive stakeholder consultations, field visits, and interviews to gather information on challenges, activities, success factors and lessons learned in pilot locations. Experts will also disclose how they have documented cases of plastic re-use, recycle, reduction and elimination of single-use plastics and hard-to-recycle plastic packaging in pilot locations.</p> <p><u>Timelines &amp; Budget:</u> Provide inputs on timeframe and deliverables</p> <p><u>Conclusion:</u> Final location to document as case study selected and finalised</p> <p><b>Moderator: Penang Green Council</b></p> <p><b>Panel:</b></p> <ol style="list-style-type: none"> <li>1. YB Phee Boon Poh (Penang State Exco for Environment, Welfare and Caring Society)</li> <li>2. Dato' Johnson Yoon, Secretary General, Malaysia Plastics Recyclers Association (MPRA)</li> <li>3. Prof K. Sudesh Kumar FASc (School of Biological Sciences, USM)</li> <li>4. Prof. Dr Zulfigar Yasin, Centre for Marine and Coastal Studies (CEMACS)</li> <li>5. Mr Faisal Abdur Rani, Programme Director (Impact Revolution Enterprise)</li> </ol>
<p>13:30 – 13:40</p>	<p><b>Certificate of Appreciation to panel speakers</b></p>
<p>13:40 – 14:30</p>	<p><b>Appreciation Lunch &amp; Networking</b></p>
<p>14:30</p>	<p><b>Stakeholder Consultations End</b></p>

Annex 3 – Back End Analytics of Slido and No Single-use Plastic Survey

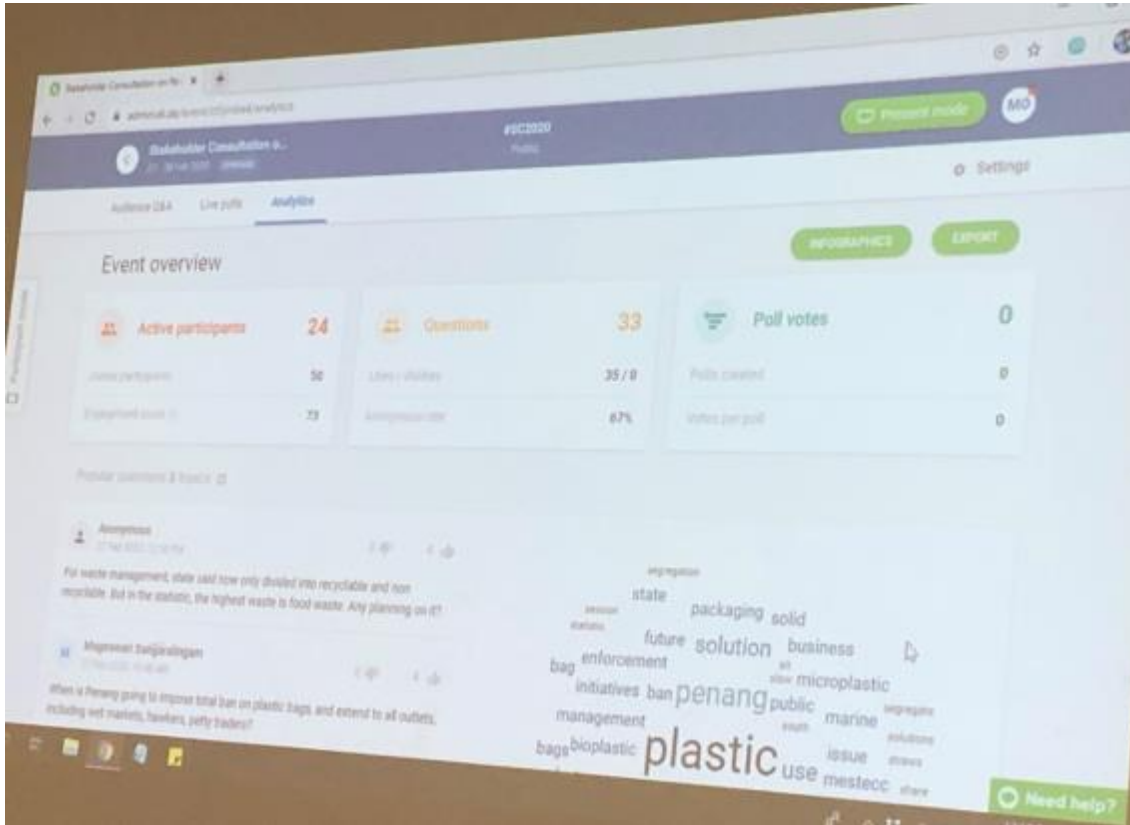


Figure 35 Number of Questions at the Beginning of Interactive Discussion

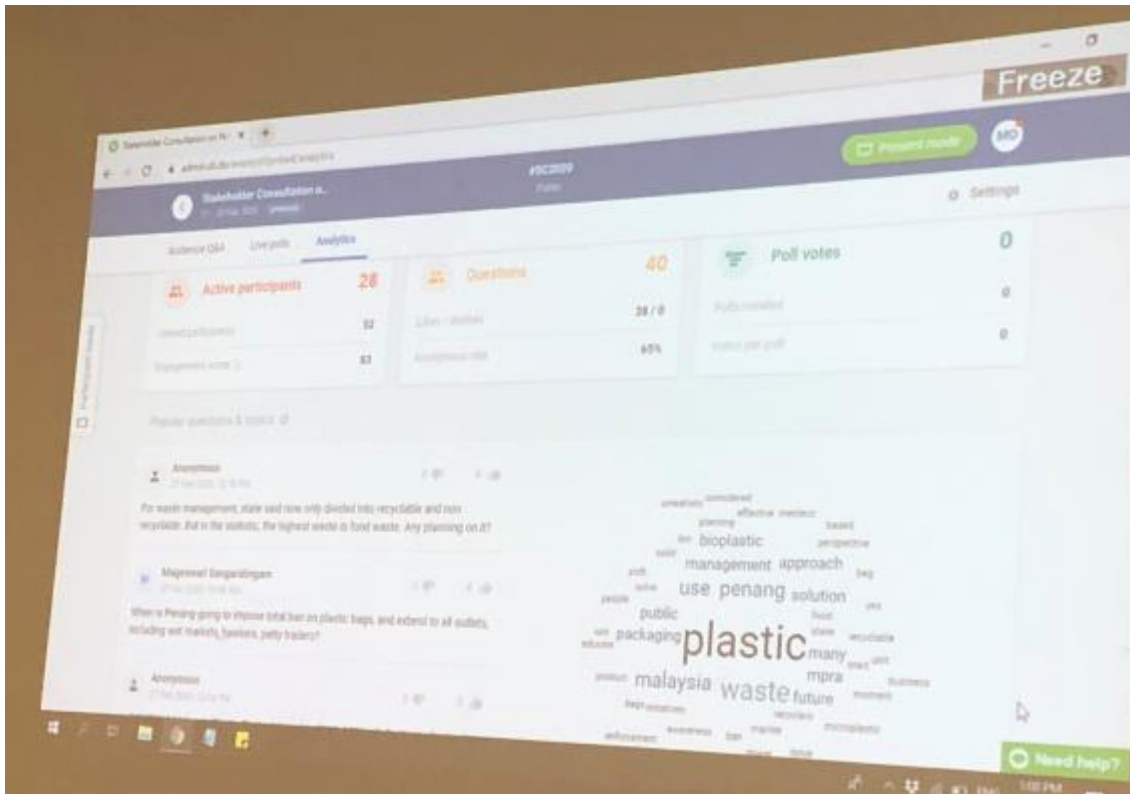


Figure 36 Engagement Score and Total Questions Answered at the End of Interactive Discussion



Figure 37 Single-Use Plastic Survey

## A. Survey Instrument



### Single-Use Plastic Survey for Stakeholders

Greetings from Penang Green Council!

PGC would like to cordially invite you to take part in our survey. Your response is very important to our study as we would like:

**OBJECTIVE**

1. To gather information from a representative sample of stakeholders.
2. To better understand stakeholders' concern for environmental health and the strength of their support towards policy and regulatory measures to reduce single-use plastic pollution.

The survey should take about 10-15 minutes to complete. Should you have any questions, please do not hesitate to contact Ms Siti Najihah ([najihah@pgc.com.my](mailto:najihah@pgc.com.my)) or Ms Tan Thung ([tanthungpgc@gmail.com](mailto:tanthungpgc@gmail.com)).

Thank you very much for your time and participation.

Disclaimer: Participation in this survey is completely voluntary. The information collected is for internal research purposes only and will not be publicly associated with the participant.

[Next](#)

## Single-Use Plastic Survey for Stakeholders

### Survey

1. What age group are you in?

- 18-30
- 31-40
- 41-50
- 51-60
- >60

2. How concerned are you about each of the following issues with single-use plastics?

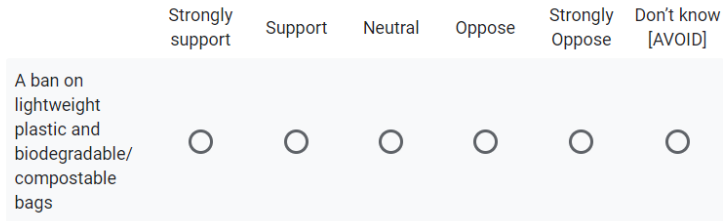
	Very concerned	Somewhat concerned	Not very concerned	Not at all concerned	Can't say/ don't know
Plastics end up polluting our waterways and ocean	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plastic litter is harming our wildlife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Many plastics cannot be recycled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plastics don't compost or breakdown in landfill	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plastics use oil resources and contribute to global warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Many plastics are harmful to human health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. How strongly do you support or oppose each of the following methods to reduce single-use plastic pollution?

	Strongly support	Support	Neutral	Oppose	Strongly oppose	Don't know [AVOID]
A ban on lightweight plastic bags	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A ban on lightweight plastics and biodegradable/compostable bags	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A ban on all plastic bags	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase thickness of plastic bags to 50 microns; Increase quality of plastics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A ban on personal care products that contain plastic microbeads (body wash, toothpaste etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Suppliers to be responsible for recycling packaging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Suppliers improve plastic waste collection and create markets for collected material	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A 10 cents refund on each plastic bottle returned for recycling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Redesigning products, packaging and delivery systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using education as the solution to plastic pollution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More studies to be done to improve recycling process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



4. Studies have shown that biodegradable and compostable bags don't break down properly in landfill or in waterways. Considering this finding, how strongly do you support or oppose?



5. What other suggestions do you have to reduce single-use plastic pollution?

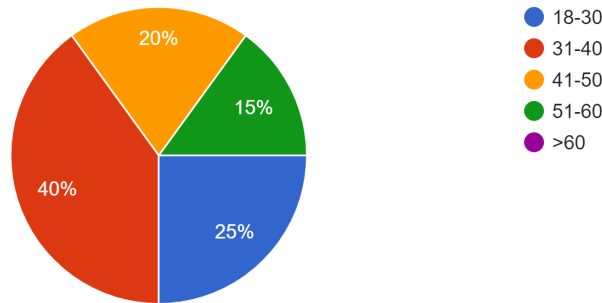
Your answer

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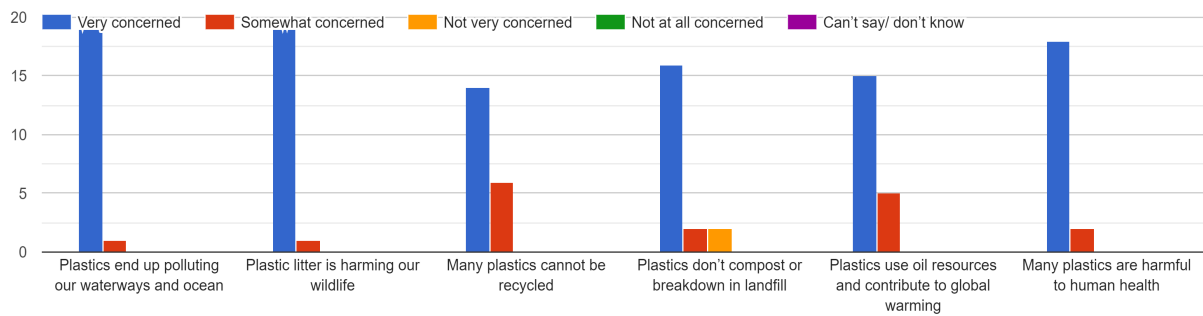
## B. Participant Response

1. What age group are you in?

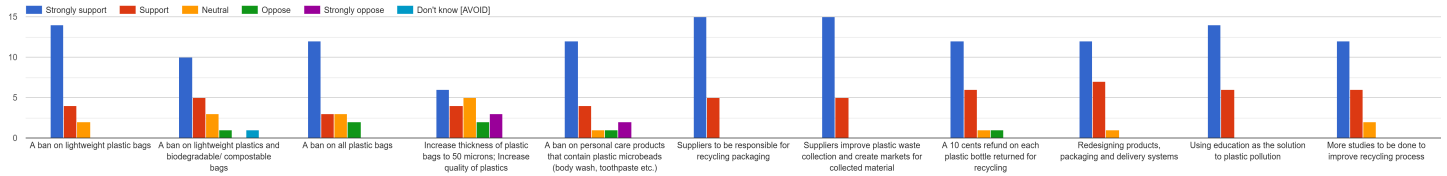
20 responses



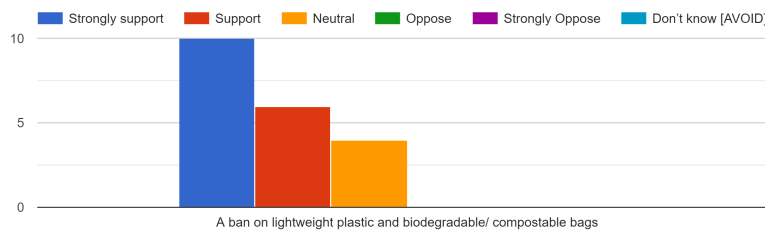
2. How concerned are you about each of the following issues with single-use plastics?



3. How strongly do you support or oppose each of the following methods to reduce single-use plastic pollution?



4. Studies have shown that biodegradable and compostable bags don't break down properly in landfill or in waterways. Considering this finding, how strongly do you support or oppose?



5. What other suggestions do you have to reduce single-use plastic pollution?

15 responses

- Encourage shops to reduce their plastic usage, such as beverage industry
- A ban or increase to RM1 per plastic bag
- Education and more awareness plus high end technology
- Reduce packaging
- Educational enforcement
- Stop producing 1 time use plastic
- A wholistic approach cradle to cradle
- Education- Ambassadors For The Planet
- nil
- Bring our own reusable bag and avoid buy things that is in packaging or in weighting.
- Using stainless steel straw
- Educating people in more effective way
- Expedite ban on single use plastic
- Top down law
- Ecobricks

Annex 4: No Single-use Plastic Campaign in Penang

The timetable for dialogues is shown as below:

<b>Dialogue</b>	<b>Date</b>	<b>Stakeholders</b>
1 <sup>st</sup> Dialogue	28 Jan 2019	- Both local councils (Penang Island City Council & Seberang perai City Council)
2 <sup>nd</sup> Dialogue	15 Feb 2019	- State and Federal Government offices
3 <sup>rd</sup> Dialogue	20 March 2019 (Mainland area)	- Hotel - Shopping Mall
4 <sup>th</sup> Dialogue	28 March 2019 (Penang island area)	
5 <sup>th</sup> Dialogue	4 April 2019	- Primary and Secondary Schools (whole Penang)
6 <sup>th</sup> Dialogue	10 April 2019	
7 <sup>th</sup> Dialogue	11 April 2019	
8 <sup>th</sup> Dialogue	16 April 2019	
9 <sup>th</sup> Dialogue	30 May 2019 (Mainland area)	- Industries
10 <sup>th</sup> Dialogue	1 July 2019 (Penang island area)	
11 <sup>th</sup> Dialogue	16 August 2019 (Mainland area)	- Restaurant and F&B outlet
12 <sup>th</sup> Dialogue	30 August 2019 (Mainland area)	

## SPECIFIC TERMS OF REFERENCE

### Pilot Project Case Study in Malaysia “Waste Segregation at Source: Solving Plastic Pollution in Penang”

#### 1. BACKGROUND

##### 1.1 Country Profile on Malaysia’s Marine Litter and Plastic Pollution

Malaysia is one of the open state oriented and industrialized, upper-middle income country in Southeast Asia. It has a population base of 32.60 million in 2019 (*Department of Statistics 2018/2019*) with a surface area of 330,290 sq.km and has a total coastline of 4,675 kilometres out of which Peninsular Malaysia has 2,068 kilometres (1,285 mi), while East Malaysia has 2,607 kilometres (1,620 mi) (*Trading Economics, 2016*). About 74% population live in urban areas. Average annual urban population growth rate (2.7%) is much higher than average annual rural population growth rate (-1.2%). As per 2018 estimates, country’s GDP is US\$ 354.35 billion and Malaysia’s economy grew 4.7 per cent at 2015 constant prices as compared to 5.7 per cent in 2017 (*Department of Statistics 2018/2019*). The government has promoted service sector e.g. tourism to Malaysia. As a result, tourism has become Malaysia’s third largest source of foreign exchange, although it is threatened by the air and water pollution along with deforestation affecting tourism. Further, its beaches are threatened by mismanaged solid waste including plastic waste. Malaysia has been ranked 8th in the world of worst polluters of mismanaged plastic waste (*Jambeck et al., 2015*). Analysis of major beach clean-up efforts in Malaysia is given in Table 1 below.

Table 1: Voluntary Beach Clean-up Efforts and Items Found in Malaysia in 2019

Country/Location						People	Kilograms	Kilometres of Coast	Total Items Collected (Numbers)
Malaysia						12,817	36,895.48	1463.15	546,614
Cigarette Butts (No.)	Plastic Beverage Bottles (No.)	Plastic Bottle Caps (No.)	Food Wrappers (Candy, etc) (No.)	Plastic Grocery Bags (No.)	Plastic Lids (No.)	Straws, Stirrers (No.)	Glass Beverage Bottles (No.)	Other Plastic Bags (No.)	Foam Take-Away Containers (No.)
148,691	139,958	21,715	81,841	47,004	9,132	12,111	2,759	15,915	6,836

Source: Reef Check Malaysia and Trash Hero Malaysia – Combined data for International Coastal Clean Up Day and World Clean Up Day 2019

In 2018, Malaysians generated a whopping 38,142 tonnes of waste per day, an increase from 19,000 tonnes of waste a day in 2005. An average waste generated per capita at the city level is about 1.5 kg/person/day (*The Star, July 2019*). The municipal solid waste (MSW) generated in the country is composed mainly organic waste, plastic, paper textile, leather, glass and metal. On average 43.5% of the MSW in the country is organic waste, followed by plastic (25.2%), paper (22.7%), glass (2.6%), and textile (0.9%) (*UNEP’s Project Report 2018*)

Malaysia has environmental regulatory framework to address future policy and regulatory requirements. The country has incentive based system and is transitioning towards greater private sector participation. It has commitment towards protecting its marine resources and meeting SDG 14, target 14.1. Major weakness includes absence of matured plastic waste management

infrastructure. Further, it lacks an integrated waste management plan to address plastic waste along with other waste streams. It has inadequate number of recycling centres and recovery facilities at local authority areas. Improper segregation (co-mingling of recyclables and residual waste) affects the quality of recyclables. Segregation at source is lacking and overall recycling rate is less than 50%. Therefore, the entire recycling infrastructure needs to be augmented in order to meet 22% household waste recycling target. The country lacks in high-end technology for 3R implementation and recycling infrastructure to cater to target based EPR regulations. At institutional level there is absence of plastic waste management. Informal sector participation continues for plastic waste collection and disposal. The unwanted plastic bags or residues are either disposed off at the disposal site, or illegally dumped. Malaysia lacks human and financial resources for waste management. There are many areas, where the country lacks awareness. Lack of enforcement of regulation and coordination between agencies exists in the country. The cost of managing solid waste is highly subsidized by the federal government. The country suffers from lack of programmes and project development in the absence of integrated strategy and plans and institutional and financial mechanism or institutional framework for developing recycling industry with private sector participation e.g. public-private partnerships (PPP) need to be evolved in the country. Waste management sector offers opportunities to develop plastic waste management and integrated waste management policy, programme, plan / strategy and projects. Opportunities also exist for high end and specific technology transfer and assimilation in plastic waste management. Opportunities are expected for pilot testing and scaling up of institutional mechanism at policy, programme, plan / strategy and projects especially for EPR and private sector participation considering transition policy and regulatory mechanism. Lack of interventions offers threat to accelerate deterioration of natural resource base and plastic pollution. Continued existence of informal sector especially for plastic waste will increase pollution load. Further, lack of HR and financial capacity at all levels with all stakeholders, offers threat to offset opportunities (UNEP's *Project Report 2018*).

## 1.2 Background of “Reducing Marine Litter by Addressing the Management of Plastic Value Chain in South East Asia – SEA circular” Project and MESTECC as country focal point

SEA circular is an initiative of the United Nations Environment Programme (UN Environment) and the Coordinating Body on the Seas of East Asia (COBSEA), supported by the Swedish Government. MESTECC is the country focal point for this project; which aims to reduce the adverse impact of plastic pollution on the marine environment, by transforming plastic management and preventing waste leakage with a focus on the value chain stages of (i) Production of plastic products, (ii) Plastic use, and (iii) Collection / sorting / recycling. Taking a people-centred value chain approach, activities engage national and local government partners; businesses, producers, retailers, and associations in the packaging, consumer and institutional products industry; international development partners and (sub) regional organizations; academia and research institutions; civil society, consumers, and disadvantaged groups impacted by plastic pollution such as informal waste workers and coastal communities.

Target countries include Malaysia, Thailand, Cambodia, Viet Nam, Indonesia, and the Philippines. Knowledge partners are Singapore, Republic of Korea and China.

The project has four components:

**Output 1:** Identify and develop market-based solutions to reduce single-use and hard-to-recycle plastics, promote recycling and increase recovery of plastic.

**Output 2:** Strengthen the evidence base for informed decision making to address marine litter by building national capacities to monitor plastic material flows and assess waste leakage hotspots in line with global best practice.

**Output 3:** Create widespread outreach to promote behavioural change among consumers

and the plastics industry and an enabling space for policy development, building on existing campaigns (e.g. #CleanSeas).

**Output 4:** Targeted technical support to develop regionally coherent national marine litter planning and promote harmonized methodologies, indicator frameworks and reporting processes/systems in line with the COBSEA Regional Action Plan on Marine Litter (RAP MALI) and Association of Southeast Asian Nations (ASEAN) efforts.

## 2. DESCRIPTION OF THE ASSIGNMENT

### 2.1 Global objective

Reduce the adverse impact of marine litter from plastic leakage by ensuring that less plastic is entering general solid waste streams where the coverage and effectiveness of the management systems are weak.

### 2.2 Specific objective(s)

To strengthen the capacities of national stakeholders in Malaysia to participate in the country's development process of reduce, reuse and recycle (3R) initiatives for both inland and island locations and to replicate effective methodologies, processes and lessons learned across the country.

### 2.3 Output and Results under the Malaysia Country Results Framework

This case study is a deliverable under Output 1 of the SEA circular project and contributes to Result 1.2 of the Malaysia Country Results Framework namely stakeholders in South East Asia demonstrate ability to manage the plastic value chain better.

### 2.4 Requested services, including suggested methodology<sup>4</sup>

The technical assistance will benefit national stakeholders at large in Malaysia including those who are implementing similar 3R pilot projects in their respective States/Cities/Islands etc. Other key actors/stakeholders who are interlocutors in promoting sustainable development such as government counterparts from both central and local levels and private sector can be included based on close consultation with the Ministry of Energy, Science, Technology, Environment & Climate Change (MESTECC)'s Project Management Unit (PMU).

**The three key results expected from the provision of the technical assistance while documenting the case study are:**

- i) increased capacity of national stakeholders in project cycle management (PCM), particularly on monitoring and evaluation, and project's management in general (e.g. activities, finance and communication) through training, coordination and information sharing meetings;
- ii) enhanced capacity of national stakeholders in strengthening partnership, consultation, communication, and learning among themselves and with MESTECC on areas/issues relevant

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<sup>4</sup> *The achievement of both global and specific objectives shall promote the cross-cutting objectives of the United Nations Environment Programme (UNEP) and Coordinating Body of the Seas of East Asia (COBSEA): environment and climate change, human rights based approach, persons with disability, indigenous peoples and gender equality. The National Stakeholders should describe how the action will contribute to all cross cutting issues mentioned above and notably to the gender equality and the empowerment of women. This will include the communication action messages, materials and management structures.*

to UNEP/COBSEA's funded programme via SEA circular project;

iii) strengthened capacity of national stakeholders in launching public awareness raising and communication to promote their profile for their contribution to Malaysia's development process and SDGs implementation in conducting impactful 3R projects across the country.

Based on the established specific objectives and expected result framework, the Penang Green Council will provide technical assistance through the following main tasks.

***a) Development of work plan for the duration of documenting the case study***

A draft work plan has been prepared by MESTECC's PMU. This needs finalisation. Changes or adjustments of the work plan can be made in close consultation with the National Consultant and will be approved by MESTECC's PMU. Communication with MESTECC's PMU during the development and finalisation of work plan can be done via email and telephone.

***b) Activities/events aiming at increasing partnership and coordination among national stakeholders, interlocutors; and enhancing public awareness to raise national stakeholders' profile for their contribution to Malaysia's development and SDGs implementation in conducting impactful 3R projects across the country***

Technical assistance and supports to be provided by the Penang Green Council should include the following associated elements (non - exhaustive list)

- Promotion of networks and spaces of structured dialogues around the SEA circular project among national stakeholders, government counterparts, other CSOs and the informal sector
- Enhancement of multi-stakeholder initiatives especially the interaction between government and Civil Society actors with the informal sector
- Development of entry points for CSOs to deepen the discussion about solving plastic pollution at source with other stakeholders
- Organisation of events/meetings with MESTECC and other relevant stakeholders to promote partnership and sharing lessons and information
- Inclusion where possible, the activities promoting transfer of best practices carried out during the 3R pilot project
- Enhancing public awareness to promote national stakeholders' contribution in implementing and advancing 3R solutions in the country both for the SEA circular project and on the plastic pollution agenda as a whole through awareness raising events and production of information, communication and media materials to increase national stakeholders' profile of their contribution to its implementation and monitoring.

***2.5 Required outputs***

- Submission of 1 work plan by end March 2020
- Execution of 2 stakeholder consultations: 1 Report in March and 1 Report in August 2020
- Submission of case study on September 2020 for feedback and finalisation by October 2020 together with checklist

***2.6 Language of the Case Study***

**English** is the language of the case study and of the reports.

**3. LOCATION AND DURATION**

**3.1 Foreseen starting period:** February 2020 (kick-off meeting with MESTECC with a

stakeholder consultation involving two local governments)

**3.2 Foreseen finishing period or duration:** October 2020

**3.3 Location(s) of assignment:** Target areas are residential area, working closely with Penang Island City Council (Island side) and Seberang Perai City Council (mainland)

## 4. REPORTING

### 4.1 Content

The Penang Green Council will work closely with the National Consultant in finalising the report's content and format. Changes in reports' outlines and timeframe can be done in consultation with the National Consultant with approval from MESTECC's PMU. Attached in Annex A is the Checklist that needs to be submitted together with the case study.

Reports*	Content	Foreseen time for Submission (depending on Covid-19 situation)
<b>1 Annual Work</b>	The work plans should include activities to be implemented in the year (concise description, budget, objective)	March/April 2020
<b>2 Stakeholder Consultation Reports</b>	Key facts of each activity (e.g.: objective, timing, participation, and results)	First Stakeholder Consultation Report dated 27 February to be ready in March  Final Stakeholder Consultation in August 2020 where key findings and framework of case study is deliberated
<b>Draft Case Study</b>	According to Guidance Notes and Checklist	Early September 2020
<b>Review and Feedback</b>	MESTECC's PMU together with UNEP and COBSEA	End September 2020
<b>Final Case Study</b>	To implement feedback and inputs	End of October 2020

*\* Templates of the work plans and reports shall be discussed and agreed with MESTECC's PMU.*

### 4.2 Submission/comments timing

Foreseen timeframe for the submission is described in the above table. The insert shall revise and adjust the draft case study, following the comments received from MESTECC to finalise the case study.



#### 4.3 Number of case study(ies) copies

One hardcopy and one electronic version of the case study referred to above must be submitted to the National Consultant in charge.

### 5. BUDGET

#### 5.1 Identified reimbursable costs, with their details

This is a **fee-based** assignment and the below is the Umoja Budget Classes that must be adhered to in managing the budget

S. No.	Commitment Class Code [U30 - General TF]	Commitment Class Name	Explanation
1	FT30_Class_010	Staff and Other Personnel Costs	(i) Includes all costs and entitlements of personnel including staff/consultants/admin staff / UN volunteers/interns. (ii) Meeting facilitators, interpreters, evaluation consultants all to be budgeted under this Class.
2	FT30_Class_160	Travel	i) Includes staff/consultant/meeting participant travel [domestic subsistence allowance/tickets/terminals as applicable] (ii) Road / train /fuel and vehicle/boat rental costs for staff, consultants and other project personnel
3	FT30_Class_120	Contractual Services	(i) Works and services of a commercial nature contracted following procurement procedures. This could include contracts given to NGOs if they are more similar to procurement of services than a grant transfer. (ii) Where meetings/workshops require venue to be hired e.g Hotel, then relevant costs to be budgeted under this Class. (iii) Commercial printing/publication contracts to be budgeted here (iv) In IPSAS (International Public Sector Accounting Standarads) terms, its similar to exchange transaction
4	FT30_Class_125	Operating and Other Direct Costs	i) Rental of premises/equipment; utilities; cleaning; vehicle maintenance; communication costs; Bank fee;

- The indicative amount for the above budget classes for this assignment has been determined. The amount must be included in the Budget Breakdown.

### 6. MONITORING AND EVALUATION

The day-to-day technical and financial monitoring will be a continuous process, which is part of the Penang Green Council's responsibility.

The Penang Green Council has to ensure the collection of feedback from beneficiaries and

participants, the follow up and monitoring dimension of all activities of the technical assistance when documenting the case study.

Objectives and results of activities as well as the indicators will be defined and developed by the Penang Green Council and described in the annual work plan.

Besides the submission of the work plan and above-identified case study, the Penang Green Council will regularly inform the MESTECC's PMU on the implementation throughout the assignment period.

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## ANNEX A – CHECKLIST & GUIDE FOR DOCUMENTING CASE STUDY

No.	Details	Completed Indicate with (✓)
1	List of Authors and Contributors	
2	Preface	
3	Key Message from Chief Minister/Mayor (optional)	
4	Executive Summary	
5	Key Findings and Lessons Learned	
6	Introduction	
7	Acronyms	
8	Approaches for solving plastic pollution at source <ul style="list-style-type: none"> <li>- Integrated sustainable waste management with 3R (reduce, reuse and recycle) (are you following JPSPN Guidelines or have you taken further innovative steps?)</li> <li>- Circular economy models</li> <li>- Circular economy community solutions</li> <li>- Cross-sectoral cooperation within a source-to-sea approach</li> <li>- Investment Landscape</li> <li>- Investment Routes / Approaches</li> <li>- Governance on plastic pollution and marine litter prevention (Waste Segregation at Source Policy)</li> </ul>	
9	Methodologies applied for plastic reduction, re-use, recycle, elimination of single-use plastics and hard-to-recycle plastic packaging <ul style="list-style-type: none"> <li>- Inclusive stakeholder consultations</li> <li>- Field visits &amp; data gathering</li> <li>- Interviews to gather information on challenges</li> <li>- Activities conducted</li> <li>- Promotion of eco-friendly alternatives</li> <li>- Social awareness and public participation</li> </ul>	
10	Potential Impact of Existing Scenarios  Note: The National Stakeholders should describe how the action and impact will contribute to all the cross cutting issues such as environment and climate change, human rights based approach, persons with disability, indigenous peoples and notably to the gender equality and the empowerment of women. This will include the communication action messages, materials and management structures.	
11	How can this be replicated in other islands?	
12	Conclusions & Recommendations	
13	Appendices/Annexes	
14	Acknowledgments	
15	Endnotes	

Note: Kindly substantiate with quantitative and qualitative data, photos, news clippings etc. where possible.

Signed by:

Approved by:

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 Name:  
 Date:  
 Stamp:

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 Date:  
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