



PUBLIC SURVEY

Title: The Impacts of Movement Control Order (MCO) Towards Waste Generation in Penang Island

Prepared by: Tan Thung, Siti Najihah Che Saad (Penang Green Council)
Date: 21st September 2020

Executive Summary

Ever since the Movement Control Order (MCO) was imposed to contain the spread of COVID-19, the generation of household wastes and the emergence of a new type of plastic pollution crisis arising from personal protective equipment (PPE) (e.g. face masks) have become great environmental and safety concerns to Penang. To gauge public purchasing behaviour and single-use plastic usage, Penang Green Council has carried out an online survey to record changes in waste generation and consumer purchasing behavior before and during MCO, thereby assisting policymakers in decision making. Data from 349 respondents have been used in this study.

Findings from the survey reveal a shift towards online shopping and food delivery services during the time of pandemic. For instance, during MCO, online shopping of 3 to 4 times a week have increased by 7%; food delivery of 1 to 2 times a week have increased by 6%. This ultimately contributed to the growing appetite for single-use plastics. The use of plastic bags, containers, cutleries and straws of more than 4 pieces per week have increased by 33%, 49%, 31% and 31%, respectively. As a matter of fact, 52% of respondents felt the increase of household waste during MCO. The mean weight of solid waste per week is estimated to be 5.66kg per household. However, it should be noted that this is based on rough estimates provided by respondents, and that lightweight plastic wastes hardly weigh much despite its amount. Furthermore, the wearing of face masks has become a new norm, with the majority of respondents using 1 to 2 pieces per week. 89% of respondents, in fact, see it as a threat to the environment and 91% look forward to solutions to address this issue, such as the PPE waste bins.

Given time and movement constraints, the survey is not without limitations. The sample size should be larger and data collection method, especially for lightweight plastics, should be improved.

PUBLIC SURVEY: THE IMPACTS OF MOVEMENT CONTROL ORDER (MCO) TOWARDS WASTE GENERATION IN PENANG ISLAND

1. INTRODUCTION

In 2020, a deadly infectious disease swept through nations and brought the world to a standstill. The COVID-19 pandemic was caused by the newly discovered strain of coronavirus.¹ After the outbreak in Wuhan, China in December 2019, Malaysia had its first case on 24 January 2020. In response, the Federal Government of Malaysia, with the advice from the Ministry of Health, implemented the Movement Control Order (MCO) in Malaysia from 18th March until 9th June 2020.

Amongst the COVID-19 crisis, another worrisome issue has emerged. Photos in social media have shown discarded personal protective equipment (e.g. masks, gloves, hand sanitiser bottles) and plastic packaging (e.g. disposable food packaging and plastic wraps) littering public areas such as streets, waterways, parks and so on. This could imply that the COVID-19 outbreak has fueled the use of single-use plastics and disrupted efforts in reducing its usage. Apart from exacerbating the scourge of plastic pollution, the irresponsibly disposed single-use plastics, namely face masks, put public health at risk. Ever since the implementation of the No Single-use Plastic Campaign by the Penang State Government in April 2019, the resurgence of single-use plastic during the pandemic has become a matter of great concern to the state.

In line with the No Single-use Plastic Campaign and to tackle the current waste issue arising from the COVID-19 pandemic, this public survey is conducted to understand public purchasing behaviour and single-use plastic practices before and during MCO in Penang Island.

The objectives of the survey are:

- i. To observe how the MCO has influenced waste generation in Penang Island.
- ii. To understand consumer purchasing behaviour before and during the movement control order (MCO) in Penang Island.
- iii. To provide data and insights in order to assist policymakers and other related agencies to better deal with similar crises in the future.

¹ World Health Organisation (WHO), viewed 13 August 2020,
[https://www.who.int/malaysia/emergencies/coronavirus-disease-\(covid-19\)-in-malaysia](https://www.who.int/malaysia/emergencies/coronavirus-disease-(covid-19)-in-malaysia)

2. METHODOLOGY

A survey designed by Penang Green Council was conducted from 4th June to 31st July 2020. Created on Google Form, the survey was distributed through online platforms such as Facebook, email blasting, WhatsApp and Instagram. Taking into consideration the current social condition and cost limitation, this has been the sole method to gather data from the general public. Participation is voluntary and all data is kept confidential.

This study focuses on the people living on Penang Island and employs non-probability sampling technique, where respondents are those who have access to the questionnaires. Divided into 3 parts, the survey aims to measure perception and behaviour of the population. These sections are 1) Demographic Data 2) Lifestyle and Purchasing Behaviour and 3) Protective Equipment Waste. Adopting qualitative and quantitative approaches, the survey uses a combination of multiple-choice and short answer questions. This survey consists of 15 questions, some of which are broken into 2 sub-questions (Refer to **Annex 1**).

3. ANALYSIS AND FINDINGS

3.1. Respondents Profile

This section provides an overview of the sample population under study. Penang Island has a population of 911,800 people.² Using a confidence level of 95% and confidence interval of 5.5, the sample size needed for this survey is 317 respondents. This study has managed to gather 349 responses, which fulfilled the required sample size.

As shown in Table 1, among the 349 respondents, 71% are female while 29% are male. Referring to the different age groups, the 25 to 34 years old age group makes up the largest proportion (37.8%), while the 60 years old and above age group is the smallest (6.6%). In terms of number of household members, a great proportion of respondents have 1 to 3 persons (46.7%) and 4 to 6 persons (47.9%) per household.

Penang Island, the fourth-largest island in Malaysia, is an urbanised region with a total area of 305km². 70% of the respondents live in the Northeast Penang Island District (i.e. Timur Laut) (70%), while the 30% are from the Southwest Penang Island District (i.e. Barat Daya).

² Rancangan Struktur Negeri Pulau Pinang 2030 (RSNPP 2030), viewed 18 August 2020, http://epublisiti.townplan.gov.my/turun/rsn_pulaupinang2030/rsnpp2030.pdf

Table 1. Respondents Profile

Respondents Profile		Total	Percentage (%)
Gender	Male	100	29
	Female	249	71
Age group	15 – 24 years old	31	9.4
	25 – 34 years old	132	37.8
	35 – 44 years old	104	29.8
	45 – 59 years old	59	16.9
	60 years old and above	23	6.6
Number of Household members	1 – 3 pax	163	46.7
	4 – 6 pax	167	47.9
	7 – 9 pax	17	4.9
	More than 9 pax	2	0.6

3.2. Lifestyle and Purchasing Behaviour

Packaging is undeniably an important component in the delivery of products. Should demand for such services increase, the use of packaging would undoubtedly soar. This section explores the influence of MCO on the lifestyle and purchasing behaviour of Penangites, and how that eventually contributed to the amount of waste packaging generated.

Results from the survey were analysed to determine how MCO affected the different modes of shopping in Penang Island. Figure 1 below provides a general overview of shopping frequency before and during MCO. The different modes of shopping, which are grocery shopping in person, online grocery shopping, online shopping, food takeout and food delivery services will be discussed in detail in subsequent figures.

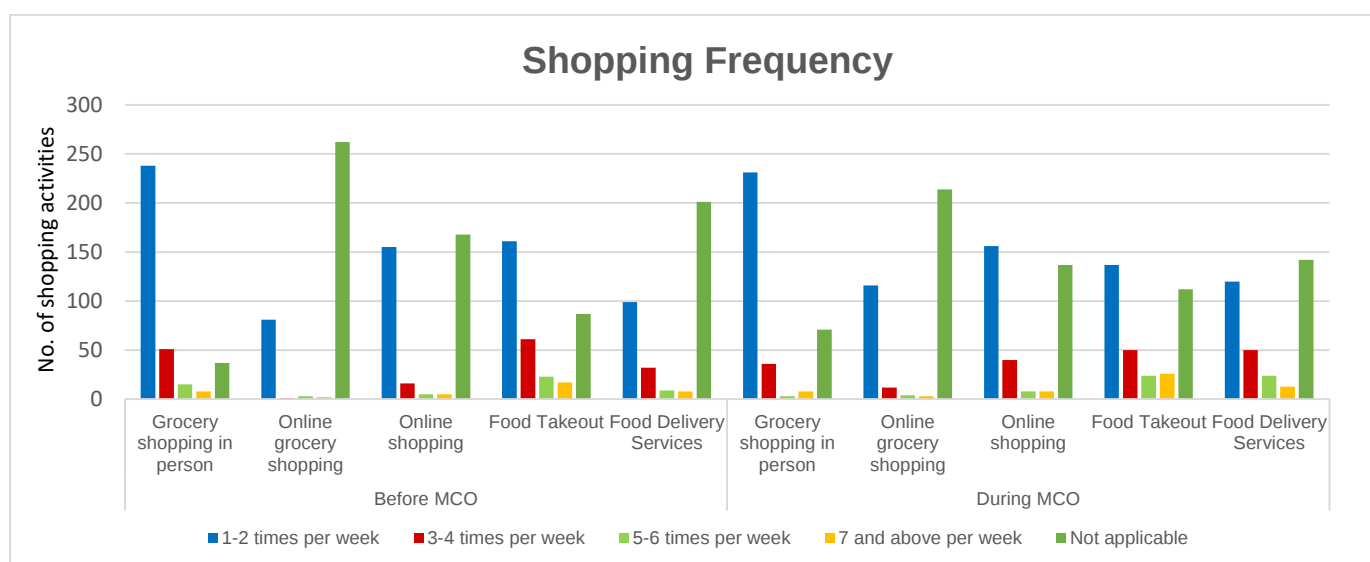


Figure 1. Shopping frequency before and during MCO for different modes of shopping.

3.2.1. Grocery Shopping

Figure 2 below shows that the majority of respondents preferred to do grocery shopping in person '1-2 times per week', irrespective of before MCO or during MCO. This group makes up 68% and 66%, respectively. That aside, shopping frequency of more than 2 times a week has seen a decrease during MCO. For instance, respondents that shop '3-4 times per week' and '5-6 times per week' before MCO accounts for 15% and 4%, respectively; and during MCO, 10% and 1% respectively. This might simply be the effect of lockdown, which compelled people to only shop when needed. It is also important to take note of the increase of 'Not applicable' as this could indicate that respondents only shop on monthly basis or might not have done any grocery shopping in person at all during MCO.

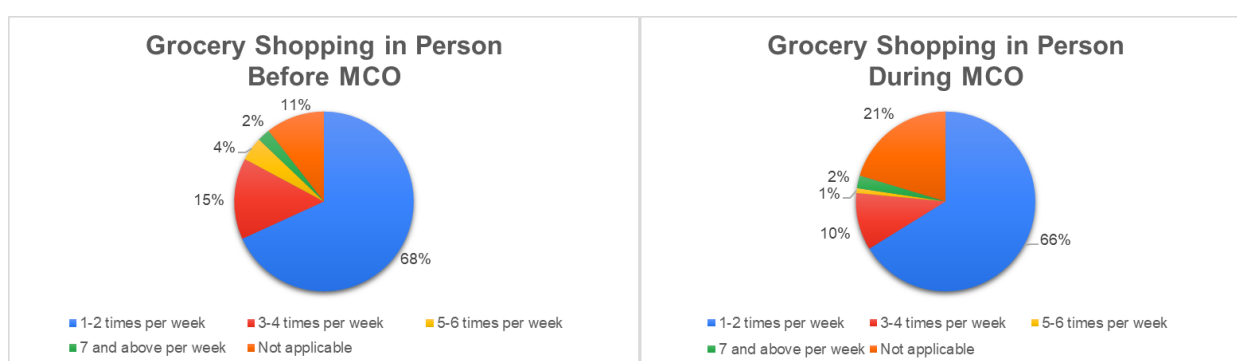


Figure 2. Grocery shopping in person before and during MCO.

3.2.2. Online Grocery Shopping

Online grocery shopping is another mode of shopping. Apart from well-known online services like Tesco, there has been an emergence of a "new business model" among local businesses to deliver groceries such as fresh produce to the doorsteps of stuck at home customers. In Figure 3 below, it is observed that a great majority of respondents chose 'Not Applicable' for online grocery shopping, which are 75% and 61% respectively for before and during MCO. Considering this scenario, it can be deduced that most people are more inclined to shop at grocery stores in person, rather than having their fresh produce delivered. Nonetheless, online grocery shopping has shown slight growth during MCO, indicating that more people have adopted this mode of shopping. Respondents that shop '1-2 times per week' have increased from 23% to 33%; and from an insignificant percentage to 4% for '3-4 times per week'.

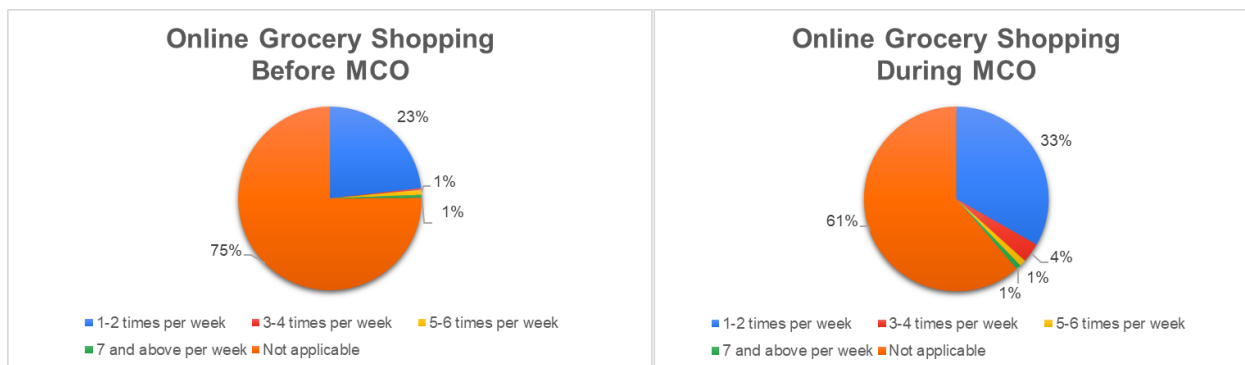


Figure 3. Online grocery shopping before and during MCO.

3.2.3. Online Shopping

Shop-deprived consumers have been making online purchases more than ever before. Online marketplaces that are renowned among Malaysians include Lazada and Shopee. In Figure 4 below, although the number of respondents that chose 'Not applicable' makes up the largest proportion, nonetheless it shows a decrease during MCO. Before MCO, 48% of respondents preferred not to purchase through online platforms, but this has decreased to 39% during MCO. This indicates that the general public has turned to online shopping during the pandemic. Whilst the percentage of respondents that shop '1-2 times per week', '5-6 times per week' and '7 and above per week' do not make much difference before and during MCO, those that shop '3-4 times per week' has increased significantly from 5% to 12%.

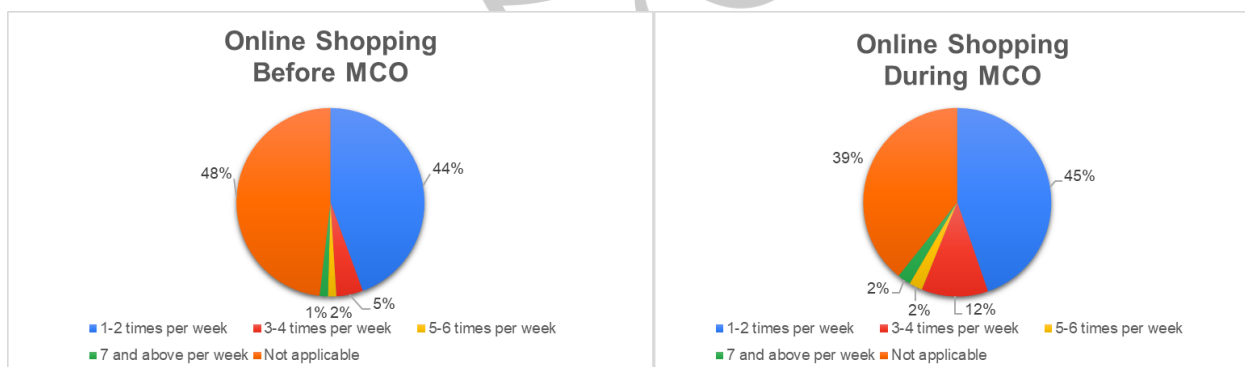


Figure 4. Online shopping before and during MCO.

3.2.4. Food Takeout

Food takeout activities have generally experienced a decrease during MCO. Figure 5 shows that food takeout activities have dropped from 46% to 39% for '1-2 times per week'; and 17% to 14% for '3-4 times per week'. Doubtless, this is simply the effect of the lockdown. At the same time, no changes occurred for food takeout of '5-6 times per week', and only a small increase of 5% to 8% happened for '7 and above per week'. It can be surmised that despite the restriction on public movements, a handful of people are still dependent on food takeaway

since eating out is not allowed. The increase of 'Not applicable' during MCO, which is from 25% to 32%, might indicate that people opted not to do food takeaway during MCO.

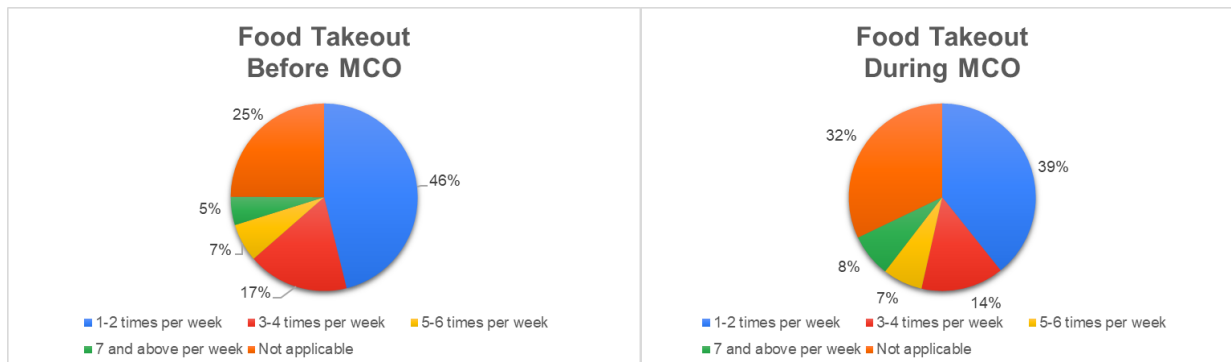


Figure 5. Food takeout before and during MCO.

3.2.5. Food Delivery Services

Food delivery businesses have risen in this challenging time and inadvertently become an asset to present-day society. Some notable companies include FoodPanda, GrabFood and DeliverEat. Regardless of before or during MCO, the majority of respondents are infrequent or even not consumers of food delivery services. Figure 6 below shows that this group of people account for 58% before MCO and 41% during MCO. However, the demand for food delivery services has seen an overall growth during MCO. This is particularly distinct for respondents that ordered food delivery '1-2 times per week', which increased from 28% to 34%; and 9% to 14% for '3-4 times per week'.

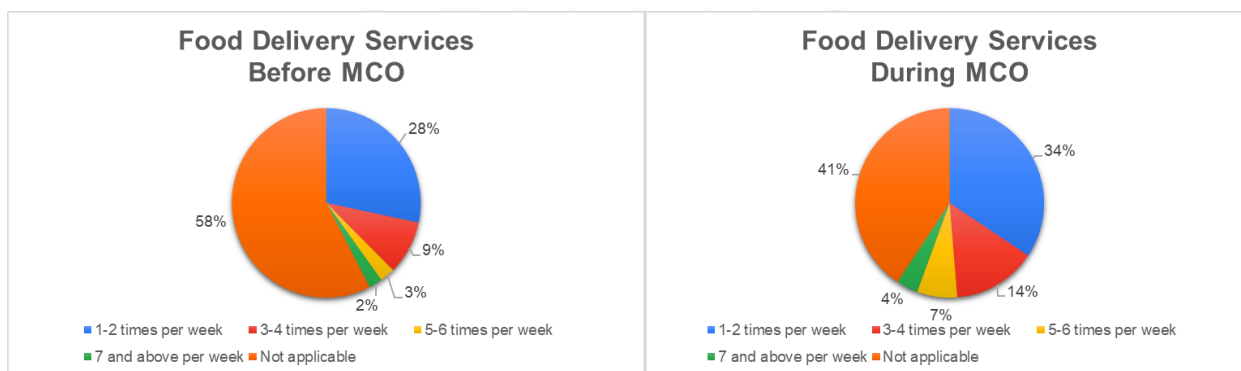


Figure 6. Food delivery services before and during MCO.

3.3. Single-use Plastics

Penang has implemented the No Free Plastic Bag Day in 2009 and No Plastic Straw Campaign in 2019 to protect the environment. However, efforts to phase out of single-use plastics could be in disarray following the COVID-19 outbreak. This section aims to find out if MCO has affected the use of single use plastic items.

3.3.1. Use of Reusable Products

The first part sets out to learn whether the general public has been swayed away from using reusable products such as reusable bags (Figure 7) and containers (Figure 8). As a matter of fact, a great number of respondents have already begun using reusable bags long before the commencement of MCO. This is demonstrated by the huge difference between respondents who use reusable bags and those who sometimes or never use. The same holds true during MCO. The percentage of respondents who said 'Yes' to the use of reusable bags before and during MCO makes up 79% and 81%; and 17% and 11% for 'Sometimes', respectively. This largely reflects the successful implementation of state policies in curbing plastic bag use. Interestingly, there has been a reduction in the number of respondents who 'sometimes' use reusable bags during MCO, while respondents who claimed 'Yes' and 'No' show small increase.

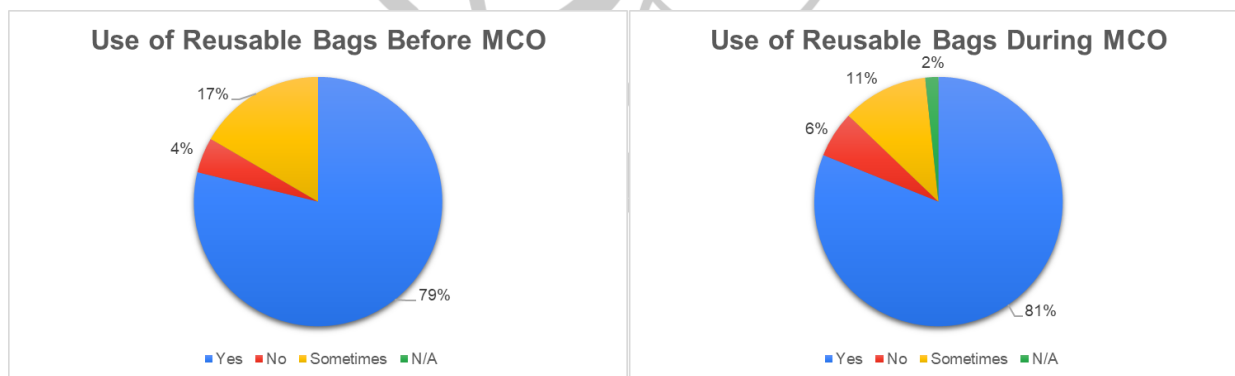


Figure 7. Use of reusable bags before and during MCO.

On the other hand, the use of food containers, in comparison with reusable bags, is not as widespread. Nevertheless, Figure 8 shows that the number of respondents that use food containers before and during MCO exceeds those that do not, accounting for 36% and 42% for those who said 'Yes', respectively; 33% and 16% for 'Sometimes', respectively. Similar to the use of reusable bags, respondents who stated 'Yes' and 'No' towards the use of food containers show a small increase during MCO. For respondents who 'sometimes' used food containers, there has been a great reduction.

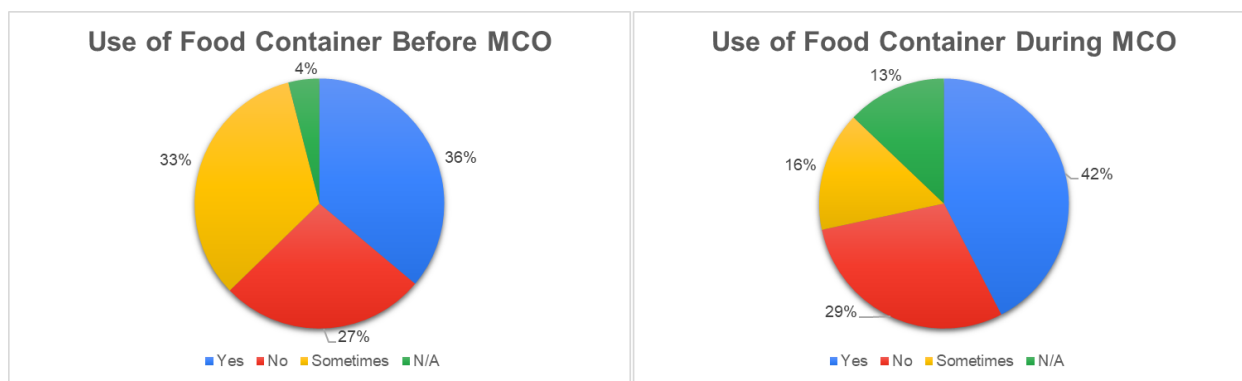


Figure 8. Use of food containers before and during MCO.

MCO or not, forgetfulness tends to be one of the main reasons for respondents to skip the use of reusable products. Other reasons include ad hoc purchases, lack of habit, and also the purchase of pre-packed food. This issue somehow applies more to food containers as they are deemed more inconvenient to carry about than reusable bags. During MCO, respondents claimed not to use reusables for fear of cross contamination. Safety and convenience are highly prioritised by both vendors and customers. Moreover, pre-ordered food and certain takeaways already come in packaging.

3.3.2. Use of Single-use Plastic Items

The top four single-use plastic items of concern are plastic bag, plastic container, plastic cutlery and plastic straw. In this part, results from the survey provide indication on whether MCO has promoted the use of food and grocery packaging.

For one reason or another, respondents are unable to provide an estimation of the number of single-use plastic items they acquired in a week from grocery shopping or food purchases, hence the great number of 'Not applicable'. Nonetheless, Figure 9 reveals that there is a trend towards respondents acquiring more pieces of plastics on a weekly basis during MCO.

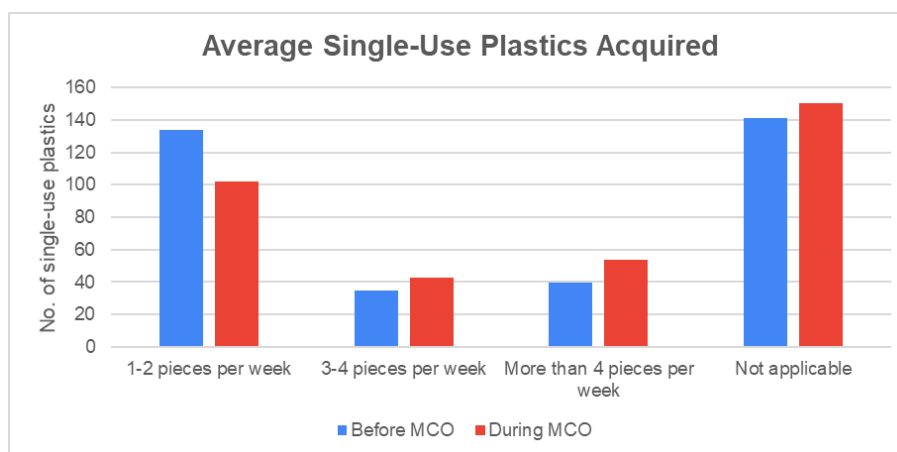


Figure 9. The average number of single-use plastics items acquired before and during MCO.

Figure 10 shows the percentage change of single-use plastic items before and during MCO. Upon closer look, usage of all single-use plastic items experienced an increase for 'more than 4 pieces per week'. Plastic bag, plastic container, plastic cutlery and plastic straw experienced a percentage increase by 33%, 49%, 31% and 31%, respectively. The single-use plastic items also show an increase for '3-4 pieces per week' with the exception of plastic straw. Plastic containers increased by 66%, along with plastic cutlery at 32% and plastic bags at 11%. At the same time, the percentage decrease of all single-use plastic items for '1-2 pieces per week' may be associated with the shift in tide towards more pieces of single-use plastic items used in a week, or simply less food takeout happening. Considering the changes in purchasing behaviour as discussed earlier, it should come to no surprise that more single-use plastics are making their way to households during the course of MCO.

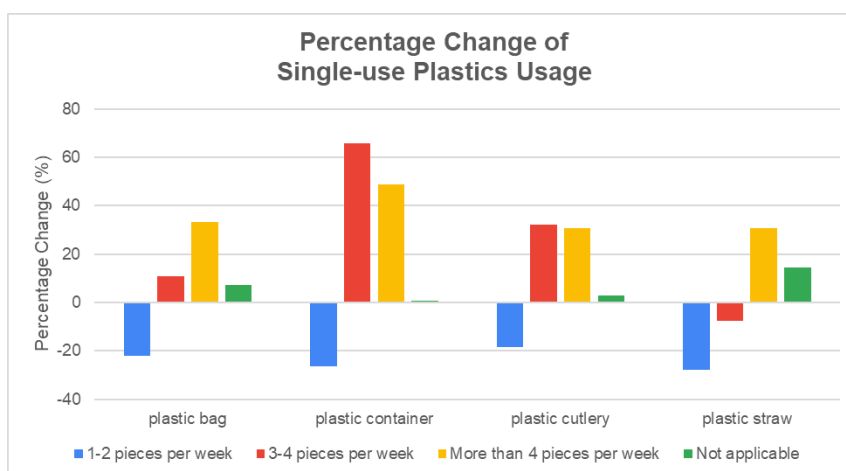


Figure 10. Percentage change of the four main types of single-use plastics before and during MCO.

3.4. Waste Generation during MCO

3.4.1. Amount of Household Waste

This section aims to determine if there are changes in the amount of waste generated in households during MCO. Figure 11 below depicts 52% of respondents, which is more than half of the sample size, have noticed that waste generated at home has increased during the MCO as compared to before MCO. This is followed by 22% who sensed no changes and 13% that felt that waste generated is decreasing. The remaining 13% is unsure or unaware of any changes.

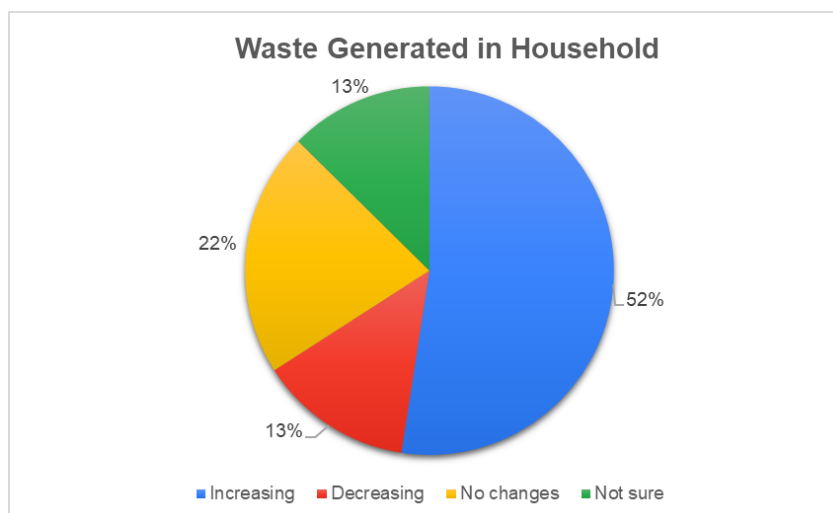


Figure 11. Status of generated waste in households.

To explain the situation above, it should be considered that human activities and movements are greatly halted during MCO. The absence of people in offices, schools, shops and other public places have devoured these places of waste. As people are cooped up at home most of the time, waste enters the waste stream from a single point that is from home. In addition, several respondents have specifically commented on the increase of both plastic bags and parcel boxes among household waste.

Penang's domestic waste is at 0.8 kg per capita per day in 2017.³ From January to April 2020, the local council reveals that the Pulau Burung Landfill has recorded a reduction of domestic waste.⁴ To determine the amount of waste generated by households during MCO, the survey requested respondents to provide a weight estimate of their waste. Using data provided by the respondents, the amount of household waste generated during MCO has been evaluated.

Table 2 below shows the statistical analysis of the sample under study. In this particular part, only 233 of 349 respondents were included since some of the answers received are not in numerical form. It is found that the mean weight of solid waste generated in a week is 5.66 kg per household with standard deviation of 7.8 kg. The median weight of the sample is 3 kg and the mode is 2 kg per household. The minimum amount of waste recorded from the sample was 0.1 kg and maximum weight was 60 kg per household.

³ Penang Economic and Development Report, viewed 18 August 2020, <https://www.penang.gov.my/images/2019/Penang%20Economic%20&%20Development%20Report%20PEDR%202017-2018.pdf>

⁴ Unit Pengurusan Sisa Pepejal Kerajaan Tempatan 2020.

Table 2. Estimated amount of waste generated during MCO.

<i>Waste Generated per Household DURING MCO within a week.</i>	
Mean	5.663948
Standard Error	0.514296
Median	3
Mode	2
Standard Deviation	7.850389
Sample Variance	61.62861
Kurtosis	19.45816
Skewness	3.940491
Range	59.9
Minimum	0.1
Maximum	60
Sum	1319.7
Count	233
Confidence Level (95.0%)	1.013288

When broken down by household size ranges (Table 3), the average waste generated are 4.6 kg/week for 1-3 persons per household; 6.8 kg/week for 4-6 persons per household; and 4.8 kg/week for 7-9 persons per household. The average of these values is 5.33 kg.

Table 3. Average amount of waste generated based on household members.

<i>Household Members</i>	<i>Median (kg/ week)</i>	<i>Average (kg/week)</i>
1-3 pax	2	4.6
4-6 pax	4	6.8
7-9 pax	4	4.8
More than 9 pax	N/A	N/A

3.4.2. Waste Segregation Practice

The survey helps identify the prevalence of waste segregation practice and if that changes during MCO. As shown in Figure 12, the practice of waste segregation at source does not seem to differ before and during MCO. This could indicate that MCO has not spurred lifestyle changes that either encourage or discourage waste segregation. It is assumed that people who routinely practise waste segregation would continue to do so regardless of the circumstances. As for those who have never practised waste segregation, it would be unlikely for them to start during the period of MCO.

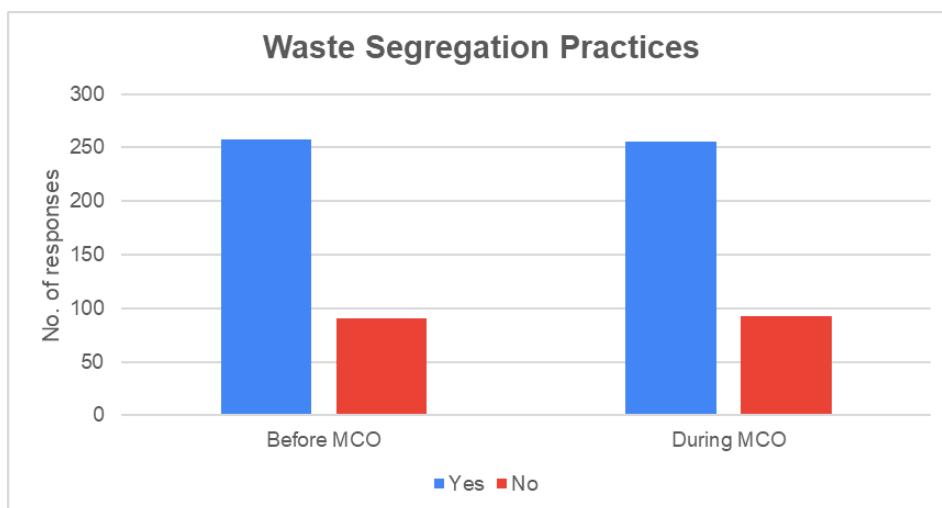


Figure 12. The practice of waste segregation before and during MCO.

3.4.3. Perception Towards Waste Generation

A question in the survey sets out to understand the views of the general public on whether the increase of single-use plastics is linked to MCO.

As shown in Figure 13, there is general agreement about MCO causing the increase of single use plastics. Respondents that 'strongly agree' make-up 51% and those who 'agree' are 34%. Meanwhile, 10% of the respondents are impartial towards the subject. Contrarily, only a small number of respondents disagree with the fact that MCO caused the increase of single-use plastics. There are 4% who 'oppose' and 1% that 'strongly oppose'.

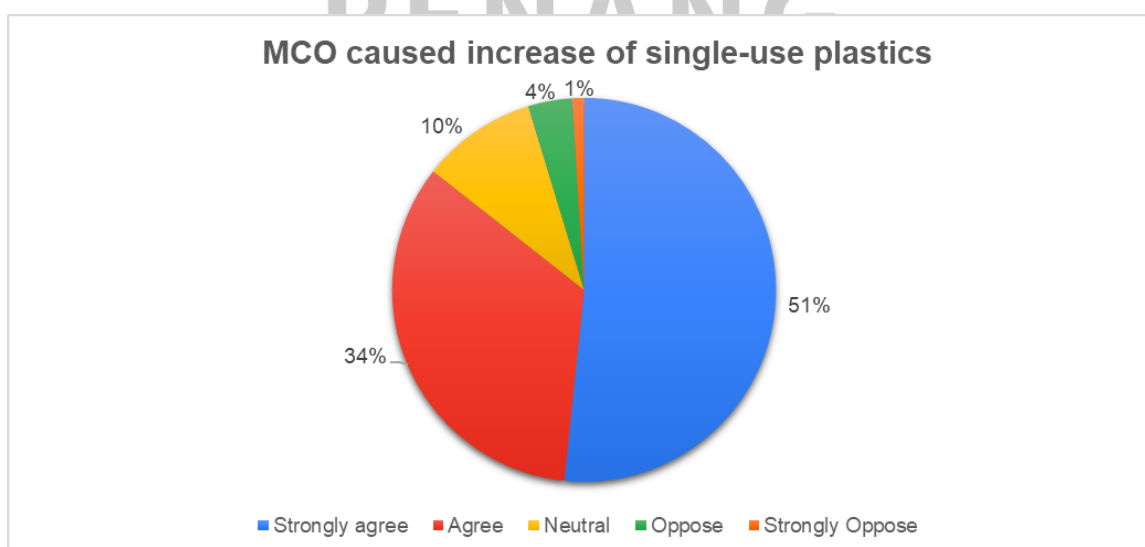


Figure 13. Public opinion towards the amount of single-use plastics during MCO.

3.5. Personal Protective Equipment (PPE) Waste

With the rapid spread of COVID-19, the use of personal protective equipment (PPE) such as disposable face masks, gloves, and hand sanitiser bottles have significantly increased. In order to curb the spread of COVID-19, the government has urged frequent hand washing, enforced strict social distancing and the wearing of face masks. Although PPE has become an essential commodity at this crucial time, it has nevertheless created another environmental problem.

3.5.1. Use of Face Masks

The Ministry of Health has encouraged the public to wear face masks as a protective measure against the disease. Hence, the use of face masks has become a norm. This section reports on the amount of face masks used by respondents per week. Figure 14 below shows that the majority of respondents (44%) used an average of 1-2 pieces of face masks per week during MCO. This is followed by 26% of respondents that used 3-4 pieces per week and 14% that used 5-6 pieces per week. The number of respondents who used more than 6 pieces per week is also considerably high, which is 16%.

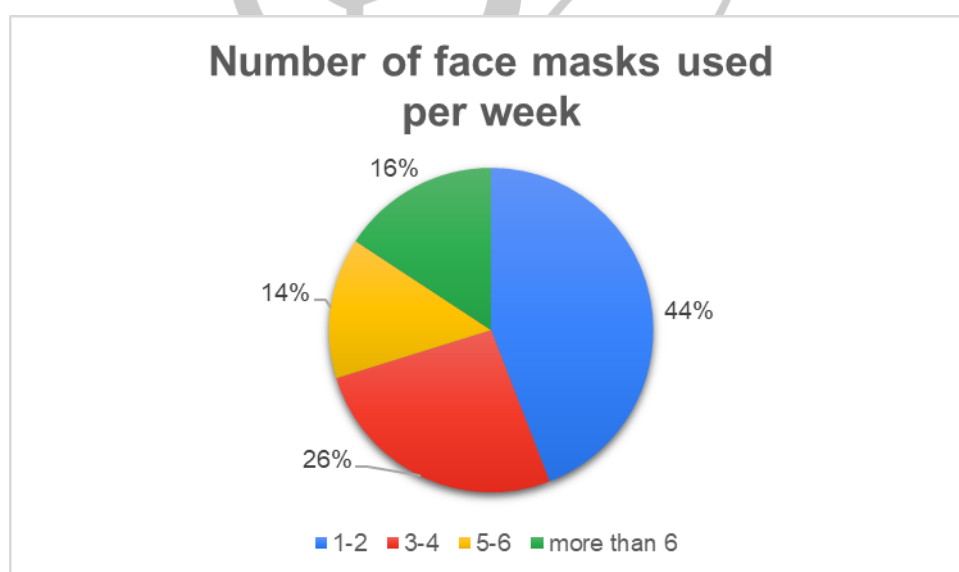


Figure 14. Average number of face masks used per week.

3.5.2. Public Opinion Towards PPE

Although the use of PPE has become part of people's everyday life, the littering of face masks and gloves at public spaces such as streets, parks, drains, waterways and so on has raised environmental concerns. Improperly discarded face masks could be easily swept into

waterways and the ocean by rainfall-runoff. Similar to other marine debris, these face masks are harmful marine life as they are mistaken for food. Face masks are also washing up on beaches worldwide, damaging aesthetic value of tourist destinations. Made from plastics, these disposable face masks are considered single-use plastic. Unfortunately, face masks, potentially contaminated, could not be recycled as they pose great risk to human health.

The survey also collected public opinions to find out if PPE has become a new environmental threat. In Figure 15 below, the majority of the respondents (89%) agreed that PPE has contributed to negative environmental impacts. Only 5% of the respondents think that PPE do not pose environmental threats, and 6% is uncertain of its effect on the environment.

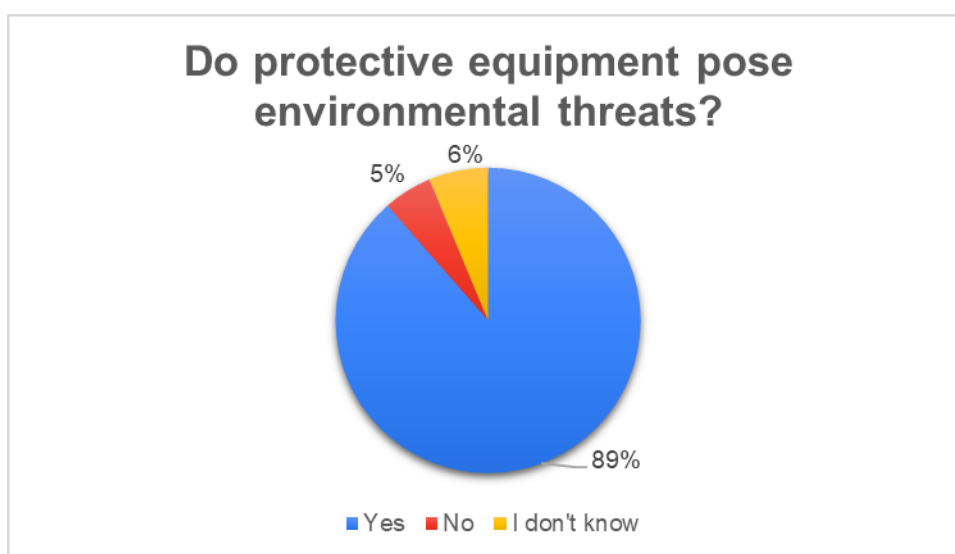


Figure 15. Public opinion towards the environmental threats of PPE.

In order to reduce the number of face masks, hand sanitiser bottles and gloves being disposed improperly, it has been suggested that a new dedicated waste bin should be prepared for the collection of PPE in public areas. From Figure 16 below, it can be learned that 91% of respondents supported the designation of PPE waste bins in public areas, whereas only 9% of respondents were not supportive of the initiative.

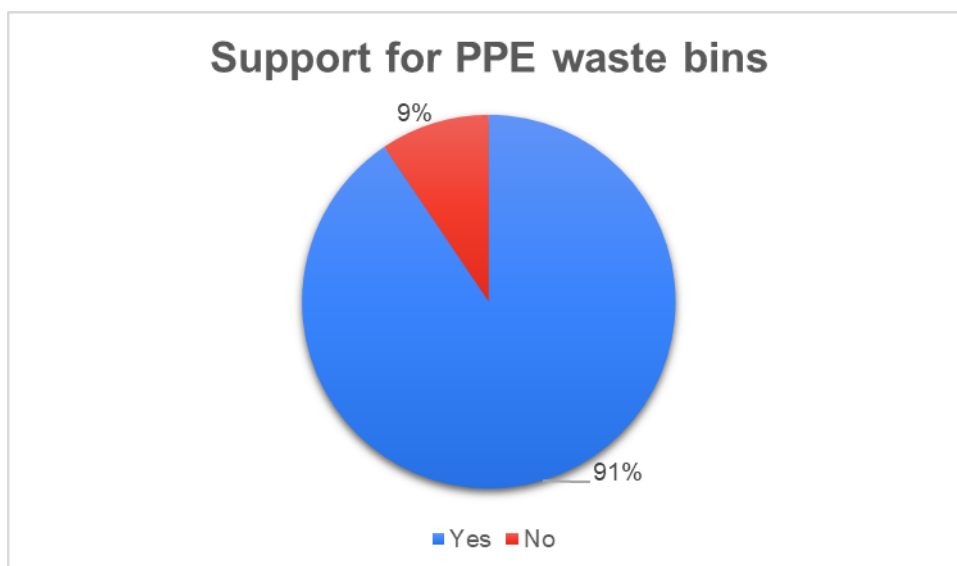


Figure 16. Public support towards designation of PPE waste bins.

3.5.3. Suggestions from General Public

Apart from the No Single-use Plastic Campaign, Penang has implemented the Waste Segregation at Source Policy in 2016. This policy requires residents to separate their solid waste at source into at least two streams, which are recyclable waste and general waste. For the final question of the survey, respondents are given the opportunity to provide suggestions and ideas to improve the current waste management system in Penang.

The majority of the respondents felt that attitude and public behaviour are the root of concerns. The ability to engage the public and also to get them to cooperate in waste management greatly depends on their degree of awareness and attitudes. Public awareness campaigns are important in educating the public on waste management and the environmental impacts of improper waste disposal. Although many individuals are familiar with the concept of 3R, it takes more than just public campaigns to break the deeply entrenched attitude of not bothering to segregate waste. In fact, environmental education should start during early childhood, and utilised as a tool in shifting public perception and behaviour over time. One way to do it is by introducing environmental education in the school education system.⁵ This shapes a new generation with high environmental consciousness that are capable of influencing their family, friends and the community.

⁵ Asmawati Desa, Nor Ba'yah Abd Kadir and Fatimah Yusoff (October 26th 2012). Environmental Awareness and Education: A Key Approach to Solid Waste Management (SWM) – A Case Study of a University in Malaysia, Waste Management - An Integrated Vision, Luis Fernando Marmolejo Rebellon, IntechOpen, DOI: 10.5772/48169. Available from: <https://www.intechopen.com/books/waste-management-an-integrated-vision/environmental-awareness-and-education-a-key-approach-to-solid-waste-management-swm-a-case-study-of-a>

There were also suggestions from respondents to increase the number of recycling bins at public areas such as parks, recreational areas, bus stations, and shopping malls. The lack of recycling bins seems to discourage recycling as some people would find it inconvenient to look for one, and would rather be rid of the waste at the nearest rubbish bin. In addition to education, the Penang state and local council should make improvements to current facilities. The public would be more likely to cooperate if bins are labelled correctly and attractive enough to capture their attention.

Due to the escalation of COVID-19 pandemic, a great many disposable face masks and gloves have been used. Used face masks and gloves, being contaminated wastes, should not simply be thrown into general waste bins or even the streets. Respondents have recommended that medical waste or hazardous waste bins should be set up in public areas. The respective officer or local council staff in charge should be educated on how to manage this type of waste properly and safely.

Incentives from government and businesses could help motivate the public to practise 3R. An exemplary incentive program is giving discounts to those who bring their own reusable bags, food and beverage containers during food takeaway. This would gradually ingrain the habit of using reusables into the people's lifestyle. Another known method to encourage recycling is the Deposit Refund Scheme. Consumers are required to pay a deposit when they purchase an item, and will only be refunded when the plastic item is returned.⁶ Moreover, business operators and plastic manufacturers should rethink and redesign plastics for a more sustainable future.

Stricter enforcement is also one of the important aspects to enable a more effective Waste Segregation at Source policy. Legal actions such as a compound on households who do not segregate waste would discourage the public from flouting the waste segregation rule. Combined with regular and continuous monitoring, this would ensure that the public maintains the practice.

4. CONCLUSION

The study aims to investigate the impacts of MCO towards waste generation in Penang Island. Though the state recorded a reduction in domestic waste since the start of MCO, the majority of people felt that waste at home has in fact increased. One probable explanation is that as people are stuck at home, waste produced enters the waste stream from a single

⁶ E. Watkins and S. Gionfra (2019) How to implement extended producer responsibility (EPR): A briefing for governments and businesses, https://www.feu.awsassets.panda.org/downloads/wwf_germany_epr_briefing___final_230819_2.pdf

point, instead of various points such as offices, eateries, stores and so on. On top of that, there has been a surge in online shopping and food delivery services. People have been acquiring more single use plastics by the week, and this has derailed the state's initiative in curbing single-use plastics. This includes the use of PPE such as face masks, which has also become a new form of pollution when irresponsibly discarded. On the bright side, many people have kept up with good practices such as bringing their own shopping bags and practising waste segregation. Overall, the findings from the survey demonstrated that the COVID-19 pandemic has remarkably changed consumer behaviour. It is important to take heed of public opinions as they allow identification of critical elements that form the foundation in developing effective strategies to tackle this problem.

Carried out during MCO, the study resorts to online survey platform and as a result, the process of data collection is not without challenges. Firstly, a larger sample size from the population is needed to have a more accurate and reliable data. Since on the ground data collection is forbidden, outreach had been ineffective as not all people are internet-savvy. This has in fact impede the inclusion of Seberang Perai in the study as the number of respondents are far too low. Another issue is related to weight estimates provided by respondents, which are incapable of fully showing the changes in the amount of waste, especially lightweight plastics. The actual amount of lightweight plastic waste such as plastic bags are not captured by weight, hence the difference in waste before and during MCO could not be discerned.

PENANG
GREEN COUNCIL

Annex 1: Public Survey Questionnaire

9/21/2020

The Impacts of Movement Control Order (MCO) Towards Waste Generation in Penang

The Impacts of Movement Control Order (MCO) Towards Waste Generation in Penang

Ever since the implementation of Movement Control Order (MCO) in Malaysia, a considerable amount of personal protective equipment (e.g. masks, gloves, hand sanitiser bottles) and plastic packaging (e.g. disposable food packaging and plastic wraps) littered the streets, drains and waterways. This indicates that amidst the Covid-19 outbreak, single-use plastic items are making a comeback.

In line with the implementation of No Single-use Plastic Campaign that started in April 2019, and to tackle the current waste issue arising from the Covid-19 pandemic, this public survey is conducted to understand public purchasing behaviour and single-use plastic practices before and during the MCO (18th March to 9th June 2020) in Penang. The survey also aims to determine the amount of waste generated and the effectiveness of waste management.

Objective:

- To provide data and insights in order to assist policymakers and other related agencies to better deal with similar crises in the future.
- To observe how the MCO has influenced waste generation in Penang
- To understand consumer purchasing behaviour before and during the movement control order (MCO) in Penang

* Required

https://docs.google.com/forms/d/1qEQwclOEFXS_VAk71ZC2d3U2l_170K_TQeXGF3qSElw/edit

1/10



Penang Green Council logo, Penang 2030 logo, and the title **MOVEMENT CONTROL ORDER - More Waste?? Less Waste??** are at the top. The main image shows a green trash bin overflowing with plastic waste, including a large red bag and a yellow bag. A QR code with the text "Scan This" is overlaid on the left. At the bottom, it says "Take the survey & share your thoughts now! EXTENDED till 31st July 2020" and provides contact information: +6 04 250 3322, info@pgc.com.my, +6 016 517 7382, and www.pgc.com.my. A small credit "Picture by Hari Anggara" is in the top right corner of the image.

PART 1: DEMOGRAPHIC DATA

1. 1. Gender *

Mark only one oval.

- ☐ Male
- ☐ Female

https://docs.google.com/forms/d/1qEQwclOEFXS_VAk7tZC2d3U2l_t70K_TQeXGF3qSElw/edit

2/10

9/21/2020

The Impacts of Movement Control Order (MCO) Towards Waste Generation in Penang

2. 2. Age *

Mark only one oval.

- ☐ 15 - 24
- ☐ 25 - 34
- ☐ 35 - 44
- ☐ 45 - 59
- ☐ 60 and above

3. 3. Which district do you live in? *

Mark only one oval.

- ☐ Timur Laut
- ☐ Barat Daya
- ☐ Seberang Perai Selatan
- ☐ Seberang Perai Tengah
- ☐ Seberang Perai Utara

4. 4. Number of household members *

Mark only one oval.

- ☐ 1 - 3 pax
- ☐ 4 - 6 pax
- ☐ 7 - 9 pax
- ☐ More than 9 pax

PART 2: LIFESTYLE &
PURCHASING BEHAVIOUR

**Each question in this section will be assessed for
'before' and 'during' MCO.

https://docs.google.com/forms/d/1qEQwclOEFXS_VAk7lZC2d3U2l_170K_TQeXGF3qSElw/edit

3/10

9/21/2020

The Impacts of Movement Control Order (MCO) Towards Waste Generation in Penang

5. 5a. How often do you shop in a week BEFORE the MCO? (Please tick the relevant boxes) *for those who shops less than 1 time/week, you may choose "Not Applicable" *

Mark only one oval per row.

	1-2 times per week	3-4 times per week	5-6 times per week	7 and above per week	Not applicable
Grocery shopping in person	☐	☐	☐	☐	☐
Online grocery shopping (e.g. Tesco Online, fresh produce delivery)	☐	☐	☐	☐	☐
Online shopping (e.g. Lazada, Shopee)	☐	☐	☐	☐	☐
Food Takeout	☐	☐	☐	☐	☐
Food Delivery Services (e.g FoodPanda, Grab Food)	☐	☐	☐	☐	☐

9/21/2020

The Impacts of Movement Control Order (MCO) Towards Waste Generation in Penang

6. 5b. How often do you shop in a week DURING the MCO? (Please tick the relevant boxes) *for those who shops less than 1 time/week, you may choose "Not Applicable" *

Mark only one oval per row.

	1-2 times per week	3-4 times per week	5-6 times per week	7 and above per week	Not applicable
Grocery shopping in person	☐	☐	☐	☐	☐
Online grocery shopping (e.g. Tesco Online, fresh produce delivery)	☐	☐	☐	☐	☐
Online shopping (e.g. Lazada, Shopee)	☐	☐	☐	☐	☐
Food Takeout	☐	☐	☐	☐	☐
Food Delivery Services (e.g FoodPanda, Grab Food)	☐	☐	☐	☐	☐

7. 6a. Do you bring your own reusables while doing groceries or getting takeouts BEFORE the MCO? (Please tick the relevant boxes) *

Mark only one oval per row.

	Yes	No	Sometimes	Not Applicable
Reusable bag	☐	☐	☐	☐
Food container	☐	☐	☐	☐

https://docs.google.com/forms/d/1qEQwclOEFXS_VAk7tZC2d3U2l_t70K_TQeXGF3qSElw/edit

5/10

9/21/2020

The Impacts of Movement Control Order (MCO) Towards Waste Generation in Penang

8. 6b. If you ticked 'No' or 'Sometimes' in question 6a, could you explain your reasons for not bringing or using your own reusable bag or food container BEFORE MCO?

9. 7a. Do you bring your own reusables while doing groceries or getting takeouts DURING the MCO? (Please tick the relevant boxes) *

Mark only one oval per row.

	Yes	No	Sometimes	Not Applicable
Reusable bag	☐	☐	☐	☐
Food container	☐	☐	☐	☐

10. 7b. If you ticked 'No' or 'Sometimes' in question 7a, could you explain your reasons for not bringing or using your own reusable bag or food container DURING MCO?

9/21/2020

The Impacts of Movement Control Order (MCO) Towards Waste Generation in Penang

11. 8a. How often were you provided with food or grocery packaging BEFORE the MCO? (Please tick the relevant boxes) *

Mark only one oval per row.

	1-2 pieces per week	3-4 pieces per week	More than 4 pieces per week	Not applicable
Plastic Bag	☐	☐	☐	☐
Plastic Container (Incl. bowl, plate)	☐	☐	☐	☐
Plastic Cutlery	☐	☐	☐	☐
Plastic Straw	☐	☐	☐	☐

12. 8b. How often were you provided with food or grocery packaging DURING the MCO? (Please tick the relevant boxes) *

Mark only one oval per row.

	1-2 pieces per week	3-4 pieces per week	More than 4 pieces per week	Not applicable
Plastic Bag	☐	☐	☐	☐
Plastic Container (Incl. bowl, plate)	☐	☐	☐	☐
Plastic Cutlery	☐	☐	☐	☐
Plastic Straw	☐	☐	☐	☐

https://docs.google.com/forms/d/1qEQwclOEFXS_VA&712C2d3U2l_170K_TQeXGF3qSElw/edit

7/10

9/21/2020

The Impacts of Movement Control Order (MCO) Towards Waste Generation in Penang

13. 9a. Are there any changes in the amount of waste generated in your household during MCO, compared to before MCO? *

According to the Penang State Government in year 2019, an average Penangite produces about 1.1 kg of waste per day.

Mark only one oval.

- ☐ Decreasing
- ☐ Increasing
- ☐ No changes
- ☐ Not sure (please proceed to no.10)

14. 9b. What is the estimated amount of waste generated in your household DURING MCO within a week? Please provide in kg per week.

15. 10. Do you practice waste segregation at source? (Please tick the relevant boxes) *

Mark only one oval per row.

	Yes	No
Before MCO	☐	☐
During MCO	☐	☐

16. 11. Do you agree that MCO caused the increase of single-use plastic/ plastic packaging usage? *

Mark only one oval.

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Oppose
- ☐ Strongly oppose

https://docs.google.com/forms/d/1qEQwclOEFXS_VAk7tZC2d3U2t_t70K_TQeXGF3qSEIw/edit

8/10

PART 3: PROTECTIVE EQUIPMENT WASTE

17. 12. On average, how many face masks do you use per week during MCO? *

Mark only one oval.

- ☐ 1-2
☐ 3-4
☐ 5-6
☐ more than 6

18. 13. Do you think that protective equipment such as face masks, gloves, and hand sanitiser bottles pose environmental threats? *

Mark only one oval.

- ☐ Yes
☐ No
☐ Don't know

19. 14. It has been reported that face masks and gloves are discarded in public places, and many have ended up in the ocean after being washed into our drainage system. To tackle this issue, would you support the designation of new bins for the collection of protective equipment waste in public areas? *

Mark only one oval.

- ☐ Yes
☐ No

9/21/2020

The Impacts of Movement Control Order (MCO) Towards Waste Generation in Penang

20. 15. Please state any comments/ suggestions/ ideas on waste generation or waste management in Penang? (optional)

This content is neither created nor endorsed by Google.

Google Forms

https://docs.google.com/forms/d/1qEQwclOEFXS_VAk71ZC2d3U2l_170K_TQeXGF3qSElw/edit

10/10