

## **A Circular Economy Approach Towards a Zero Waste Nation**

1. Mr Speaker Sir, I thank Members for their thoughtful comments, useful suggestions, at times impassioned pleas and above all, unanimous support of the Bill.

### **Future Economic Opportunities while Managing Regulatory Impact**

2. The questions posed by Members in many ways mirror the deliberations and considerations in our design of the regulatory framework. On one hand, doing more and moving faster will allow us to better care for the environment as the threat of climate change is ever growing. Members like Mr Louis Ng and Ms Anthea Ong have given various ideas that we can consider moving forward. On the other hand, we need to be mindful of costs to businesses and consumers. As highlighted by Members Er Dr Lee Bee Wah, Ms Joan Pereira, Mr Desmond Choo, Mr Douglas Foo, Mr Teo Ho Pin, Mr Henry Kwek and Mr Walter Theseira, operating and compliance costs are key concerns for businesses, more so as we enter a period of slowing economic growth. Hence, we have adopted a pragmatic approach to achieve our environmental goals, while managing the impact on businesses and consumers. Let me outline this approach.

3. First, in developing the regulatory framework, we have worked closely with economic agencies to consult over 250 companies and relevant stakeholders. Many gave us useful inputs which we have incorporated. For example, to minimise the reporting burden, NEA will centralise all reporting and submission of documents on one common online platform. NEA will also develop online reporting templates and audit procedures that will streamline processes and reduce manpower needed.

4. In response to industry feedback, we have built in greater flexibility in the implementation of these regulations. For example, producers of non-consumer Electrical and Electronic Equipment (EEE) can collect unwanted products from their customers within a reasonable amount of time after receiving their requests, instead of doing so immediately. The same flexibility is also given to retailers in providing the free 1-for-1 collection service when they deliver products to the customers.

5. Second, we have sought to minimise regulatory impact on smaller businesses. Government regulations often impact these businesses more, as they are less able to benefit from economies of scale. This is why, as asked by Mr Louis Ng, we have set thresholds to exclude smaller producers from joining a Producer Responsibility Scheme, or PRS, or reporting on their packaging use.

6. Third, we have sought to keep our regulatory framework consistent with other jurisdictions. For example, our e-waste EPR framework has incorporated best practices adapted from the systems in Sweden and South Korea and is customised to suit Singapore's context. Our economy is an open one. We import most of what we consume. Many of the companies which will be covered by this Bill also have global presence, including in countries where EPR is implemented. This will allow them to adjust more easily to our EPR system and minimise business costs.

7. Fourth, we will provide sufficient time and support for companies to adjust. As Mr Desmond Choo has suggested, we will stagger the timeline for the regulatory requirements to come into effect. For example, producers of EEE who have exceeded the threshold will have up to 6 months to join the PRS, after they register and report their put-to-market data to NEA. We are also working with industry associations to educate and assist companies with the mandatory reporting requirements for packaging waste and the implementation of their 3R plans. NEA also supports companies through grants. For example, NEA has co-funded 24 on-site food waste treatment systems at premises such as Parkway Parade, Resorts World Sentosa and InterContinental Singapore Robertson Quay under its 3R Fund.

8. Fifth, our regulatory framework must support the development of the Environmental Services Industry to take advantage of the circular economy. Besides ensuring environmental and resource sustainability, this will allow us to maximise economic benefits, by developing the local recycling industry and allowing our companies to export their solutions overseas. At the same time, greater economies of scale and the development of new solutions will help to bring down costs at the system level. According to a 2015 study by the Ellen MacArthur Foundation and McKinsey, adopting a circular economy approach could boost Europe's resource productivity by 3% by 2030 and generate cost savings of €600 billion a year. Another 2015 study by the United Kingdom's Waste and Resources Action Programme found that a circular economy has the

potential to create 1.2 to 3 million jobs in the continent by 2030. We believe that the Resource Sustainability Bill will open up new economic opportunities for Singapore companies and Singaporeans.

9. With these measures, we expect that companies will be able to cope with the new regulations. Similarly, as Ms Joan Pereira and Ms Anthea Ong have asked, we do not expect the cost that may be passed down to customers to be significant. A study on EU's EPR on Waste Electrical and Electronic Equipment (WEEE) showed that the average increase in the prices of products was about 2% after the regulation was introduced – a small fraction of the cost of the product. Producers are unlikely to raise the retail prices of their products significantly, as this will affect their price competitiveness. Moreover, as we aggregate such waste streams and extract value from them, there is potential to bring down costs at the systems level.

#### **Addressing Points of Clarification on Regulatory Frameworks**

10. I will now address specific points of clarification raised by Members on the 3 waste streams.

#### ***EPR Framework for E-Waste***

11. Firstly, e-waste. Er Lee Bee Wah asked about the current e-waste collection and recycling landscape in Singapore. Based on NEA's 2016 study on e-waste disposal patterns, only 6% of our consumer e-waste is recycled. 35%, comprising bulky e-waste such as washing machines, is carted away by the deliverymen when new appliances are delivered. 24% is traded in or re-sold; another 9% is donated; and the remaining 26% is simply thrown away. This is why we are putting in place a formal EPR framework to ensure that e-waste is properly collected and recycled.

12. Mr Louis Ng and Mr Desmond Choo asked about the thresholds and coverage of producers. As I had explained earlier, we have sought to minimise regulatory impact on our SMEs. The threshold levels have been set to cover about 90% of regulated products that are put-to-market by weight. The remaining 10% of regulated products are sold by small producers with small individual market shares. We will monitor the implementation of the EPR framework, and ensure that these thresholds remain relevant.

13. Mr Teo Ho Pin, Mr Christopher de Souza, Mr Daniel Goh and Mr Henry Kwek asked how the regulatory measures will affect e-commerce in Singapore. The regulations will cover all Singapore-registered producers, regardless of the channels through which they conduct their business. For example, laptops which Apple sells in Singapore through its online store will count towards its put-to-market tonnage. Similarly, retailers are obligated to offer a free 1-for-1 takeback when they deliver a product of the same type, even if the product is sold online.

14. However, it is difficult to impose our regulations on overseas suppliers of EEE. This is a challenge faced around the world, including established EPR systems in the European Union (EU). We will closely monitor developments in this area, and consult the local industry further on ways to bring overseas suppliers on board.

15. Nonetheless, Members may be reassured that all consumers will have access to proper e-waste collection and recycling channels, regardless of where they buy their electronic products from. This includes the network of collection points set up by the PRS operator, and contacting the PRS operator directly for takeback. We welcome companies not covered by the regulatory framework to partner with the appointed PRS operator to conduct e-waste collection programmes.

#### ***Collection Targets***

16. Mr Louis Ng asked how the e-waste collection targets are set. The collection targets set by NEA are based on percentage of consumer products put-to-market by weight. In the first three years, the collection targets will be 60% of Large Household Appliances and 20% of the other consumer products put-to-market by weight. These targets were determined based on consumer e-waste disposal patterns in Singapore and referenced targets set by the EU in the early stages of their EPR implementation.

17. NEA will monitor the amount of e-waste collected and adjust the collection targets accordingly. As the EPR system is new, we will start off with lower targets, and scale them up as the system matures. Over time, we will aspire towards the 65% e-waste collection targets set by the EU for all product categories.

18. As a transitional measure, penalties for missing collection targets will not be imposed on the PRS operator in the first three years. This is because the PRS operator will need time to build up their infrastructure and collection network to optimise collection, as well as raise awareness of the producers and consumers. Even in the EU, which Mr Louis Ng has cited, member states were given a few years to meet their targets.

#### *Informal Sector / Management of Personal Mobility Devices (PMDs)*

19. Er Dr Lee Bee Wah asked about the role that the informal sector will play to support the regulatory framework. As individuals are not regulated under the Resource Sustainability Bill, the rag-and-bone men, or *karang guni men*, will be allowed to continue in their trade and collect unwanted EEE.

20. In fact, NEA is seeking to integrate the informal sector into the e-waste collection network that will be established by the PRS operator. This is important given that waste, particularly e-waste, contains hazardous substances and needs to be disposed in a proper manner. The tender documents for the PRS operator will specify that applicants must demonstrate an understanding of how the informal sector currently operates, and develop a plan to integrate them into the collection network. For example, the PRS operator could conduct training for the *karang guni men*, or engage them as logistics provider in the collection network. The appointed PRS operator must follow through with their plans as part of their licence conditions.

21. Er Dr Lee also asked about the management of unwanted Personal Mobility Devices (PMDs) in view of the policy to disallow the use of non-UL2272 certified PMDs on public paths from July 2020. NEA is supporting LTA to develop solutions to allow the public to dispose of unwanted PMDs safely and conveniently, and to ensure the collected PMDs are properly recycled. NEA is assisting LTA with the set-up of designated PMD collection points. When the Bill comes into effect, we will require all producers of PMDs to join the PRS.

#### *Developing the Local Recycling Industry for E-waste*

22. Er Dr Lee also rightly highlighted the importance of growing our local e-waste recycling capabilities. Currently, while there is sufficient recycling capacity for ICT equipment and televisions, Singapore faces limitations in recycling large appliances such as refrigerators and washing machines. The EPR framework will play a pivotal role in developing the recycling industry, by financing and driving the demand for recycling services, and by aggregating e-waste into more viable volumes. This will encourage entrepreneurs to enter the market and set up recycling plants and facilities in Singapore. In fact, we are already seeing interest. Several recyclers, both local and overseas, have indicated interest to expand or set-up facilities to recycle large household appliances, batteries and lamps. NEA has been working with relevant agencies to support these interested companies.

#### *Economic Opportunities and Good Jobs for Singaporeans*

23. The development of our local recycling industry will not just allow Singapore to meet our recycling needs. As Mr Desmond Choo has pointed out, it has the potential to create economic opportunities and good jobs for Singaporeans. Take TES Singapore, a local e-waste recycler which has expanded to more than 30 locations worldwide, as an example. TES Singapore is currently building a new facility to treat lithium-ion batteries from Electric Vehicles, which is a covered product subjected to EPR under the Bill. As the treatment process involves chemical extraction, new jobs for engineers with specialised skills in this field will be created.

24. Mr Deputy Speaker, the EPR framework for e-waste will indeed bring many benefits to Singapore. More importantly, it will drive resource sustainability by incentivising producers to redesign their products to last longer and for easier recycling. This helps shift mind-sets towards the circular economy approach and sustainable consumption, which Ms Anthea Ong and Mr Christopher de Souza have both emphasised the importance of.

### *Mandatory Packaging Reporting Framework*

25. Mr Deputy Speaker, Sir, I will now cover the mandatory reporting framework for packaging, including plastics.

### *Obligated Producers and Packaging Coverage*

26. Under this framework, companies that import packaged products or use packaging in the course of their business, will be required to submit their packaging data and their plans to reduce, reuse, or recycle to NEA. This covers all packaging introduced along the supply chain, from manufacturing to repackaging, to door-to-door delivery and the point of sale. Packaging introduced by Singapore-registered companies through online platforms to the consumer market will also be captured. For a start, these requirements will apply to brand owners, manufacturers and importers of packaged goods, as well as supermarkets with an annual turnover of more than \$10 million.

### *Threshold for Mandatory Reporting of Packaging*

27. Mr Louis Ng and Mr Dennis Tan asked how this threshold was determined. As explained in my opening speech, the threshold has been set at more than \$10 million in annual turnover for a start, to minimise the impact on micro and small enterprises. The reporting requirements will cover about 4,500 medium and large enterprises in Singapore who put packaging on the market. As we gain experience, we will review and adjust the exemption thresholds to ensure that these are meaningful and effective, when we implement the EPR framework for packaging including plastics, which we will put in place no later than 2025.

28. Er Dr Lee, Mr Louis Ng and Mr Ong Teng Koon asked if we should introduce reduction targets for packaging waste, including penalties for non-compliance. Our approach is to allow companies the flexibility to set their own targets for their 3R plans. We cannot take a one-size-fits-all approach, as the use of packaging is dynamic and varies across sectors and companies, which Mr Henry Kwek has also highlighted. Companies may have different approaches in implementing 3R initiatives which can help them save on costs. They also need time to build up their capability. This is also why we will not penalise companies for failure to fulfil their plans, but instead recognise those who do well and share best practices to level up all companies.

29. NEA will support companies in developing their 3R plans to reduce, reuse and recycle packaging. NEA is working with companies who have successfully implemented 3R initiatives under the Singapore Packaging Agreement to come up with best practices, potential initiatives and key performance indicators, or KPIs to aid companies in developing their 3R plans. NEA is also working with the industry to develop a capability-building programme for companies that will include the sharing of best practices and recognition for companies' zero waste efforts, which were also suggested by Mr Kwek and Professor Lim.

## ***Developing our Local Plastics Recycling Capabilities*** of Singapore

30. We are also building up our local plastics recycling capability to better extract resources from plastic waste. Our vision is to close the plastic waste loop locally where feasible, especially given the tightening restrictions on the transboundary movement of recyclables which various Members have highlighted. NEA is currently studying recycling solutions and technologies, and assessing their suitability for adoption in Singapore. For example, this includes mechanical recycling to turn waste plastics into plastic pellets for manufacturing new products, or chemical recycling to turn plastic waste into chemical feedstock or fuel. This will go hand in hand with the EPR framework for packaging waste that we will establish no later than 2025. The recycling facilities will allow Singapore to turn our plastic waste into higher value products locally, while the EPR will consolidate and ensure sufficient feedstock for the plants to operate in an economically viable manner.

### ***Mandatory Segregation and Treatment of Food Waste***

31. I will now address the points raised by Members on the mandatory segregation and treatment of food waste.

### *Thresholds to Determine Buildings Required to Segregate and Treat Food Waste*

32. Er Dr Lee and Mr de Souza asked about the type of buildings that will be covered under this framework. For a start, the requirement to segregate and treat food waste will apply to certain hotels, malls and industrial developments that are large generators of food waste. NEA is currently conducting food waste audits at commercial and industrial premises with food establishments. The information gathered from these audits will help determine the thresholds for large food waste generators.

### *Benefits of Food Waste Segregation and Treatment*

33. Mr Liang Eng Hwa asked about the benefits of on-site segregation and treatment of food waste. While there are costs associated with the installation of on-site food waste treatment systems, businesses are able to reap cost savings from reduced waste disposal costs. Typically, the payback period of a 1-tonne per day on-site food waste treatment system is 5 years. In addition, there are other benefits, such as a cleaner environment, increased value of dry recyclables due to less contamination by food waste, and potential resources generated through the treatment process. Grand Hyatt, for example, saves around \$100,000 a year by treating its food waste into organic fertilisers for the hotel's landscaping purposes.

34. Mr Daniel Goh asked about the options to treat food waste. Food waste can be converted into biogas and compost. Both are useful products and the choice would depend on factors such as the availability of off-takers and economies of scale.

35. Er Dr Lee and Mr Liang have asked if the mandatory segregation and treatment of food waste will be onerous for building managers to implement. We have worked closely with relevant stakeholders in developing the food waste measures and will continue to support them in the implementation. To help the industry better understand and comply with the requirements, NEA has published on its website a list of possible on-site food waste treatment systems that companies can consider using. Building managers of existing premises also have the flexibility to choose the treatment solution that best suits their operations, including off-site treatment at the upcoming Tuas Nexus.

36. We will continue to adopt relevant learning points from successful food waste segregation policies in overseas jurisdictions such as EU Member States, Japan and Taiwan that focus on requiring businesses to segregate food waste for separate collection.

37. Mr Liang, Mr Goh and Mr de Souza also asked if we intend to extend mandatory food waste segregation and treatment to residential areas. We have no plans to do so and we will focus our regulatory measures on facilities that are large generators of food waste. This is consistent with the practices in most other jurisdictions, such as the EU and Japan, where food waste segregation and treatment measures are targeted primarily at commercial and industrial premises. Nonetheless, we will continue to work with the community to identify suitable opportunities to reduce and recycle food waste.

## *National Archives of Singapore*

*Reducing Food Waste at Source by Businesses and Community*

38. As mentioned by Mr Liang Eng Hwa and Ms Cheng Li Hui, NEA has been actively promoting the reduction of food waste generation at source through campaigns and engagements in the communities. Everyone should do our part. As NEA's campaign tagline says: Let's buy, order or cook just enough! Mr Douglas Foo highlighted NEA's series of food waste minimisation guidebooks for food retail establishments, supermarkets and food manufacturing establishments. Similarly, we have also developed a "Guide to Implementing Environmentally-Friendly Best Practices for Events" for the public sector to reduce food waste, as suggested by Mr Dennis Tan. This guide has been shared with public agencies. We will continue to work with them to encourage adoption of the best practices when organising events. The guidebooks share best practices and highlight technologies such as smart bins that can measure, identify and track food waste through sensors and image recognition technology. One such system was developed by a Singapore start-up Good for Food, which Mr Louis Ng and Mr Walter Theseira mentioned.

39. Ms Anthea Ong and Mr Daniel Goh advocated having a Good Samaritan Law, which could encourage the donation of excess food to charities. This is a useful idea and I have asked the SFA and NEA to conduct industry and public consultations to study this further. We should also learn from countries such as the US, Canada and Italy which have implemented such laws. Our approach will have to strike a balance between

managing food waste and ensuring that any food donated is safe for consumption, particularly in our tropical climate.

### **Everyone Has a Part to Play**

40. The Resource Sustainability Bill is a big stride that the Government has taken to catalyse the transition to a circular economy and enhance our Climate, Resource and Economic Resilience. Tackling climate change in a resource-constrained future is such a massive challenge that our fight needs bigger weapons. The shift from a voluntary to mandatory approach in ensuring resource sustainability is not something the Government takes lightly, but only after careful consideration and consultation. The Government cannot do this alone. We need businesses, organisations and individuals to come on board with innovative and effective solutions.

#### *Businesses have been taking the lead*

41. We are therefore heartened that many businesses here have taken the lead to implement circular solutions in their value chain. Fuji Xerox, for example, has adopted a closed-loop system where parts and materials are recovered and reused. This has allowed Fuji Xerox to save around 30% of new materials used in manufacturing their products. Nestlé Singapore has saved 2000 tonnes of packaging used for its MILO® products by changing the packaging design and optimising production practices. Not only is this good for the environment, it has also helped Nestlé Singapore to reduce business costs.

42. We are also seeing more packaging-free grocery stores, such as UnPackt. These stores encourage customers to bring their own containers, and allow them to buy what they need instead of a pre-packaged amount. They also offer more competitive prices as going without packaging has reduced the cost of products by some 10%. FairPrice has also started adopting similar practices. FairPrice Vivocity, the largest FairPrice in Singapore, now offers packaging-free grains, nuts, spices and pasta for shoppers to buy loose quantities of these products. This is probably the “nude” zone that Mr Louis Ng is recommending supermarkets to have. We are encouraged by these efforts and welcome more businesses to embrace such practices and go “nude”.

#### *Harnessing the Strength of the Youth and 3P Partners*

43. Another key stakeholder is our community. We are harnessing the strength of our youth and our community partners to co-create solutions. Since March this year, MEWR, together with the National Youth Council, has been engaging youth leaders on our environmental policies and programmes. Through their lens, we hope to better understand youth perspectives on climate change, environment and sustainability issues, and empower them to lead ground-up initiatives. For example, the Climate SG Alliance, formed by 18 corporates, educational and civil society leaders, has been promoting education in schools on waste minimisation and educating the community on recycling right. MEWR will also convene a Citizens' Workgroup comprising Singaporeans from diverse backgrounds to co-create solutions that will improve the way we recycle at home. The #RecycleRight Workgroup will kick off its first session on 21<sup>st</sup> September, and we are looking forward to the ideas from the Workgroup.

#### *Workgroup to Tackle Excessive Consumption of Single-use Plastics*

44. We are also keen to co-create solutions to tackle the excessive consumption of single-use plastics. I believe this is an issue that has seized the hearts and minds of many Singaporeans, including of course Members of this House. My Ministry and the NEA are equally concerned. We have been monitoring how other countries manage their single-use plastics. Many have adopted regulatory measures to curb the generation of plastic waste. Plastic bag charges in jurisdictions such as Hong Kong, Ireland, the UK, and the Netherlands, have indeed shown a reduction in consumption of plastic bags.

45. Singapore's approach to addressing excessive consumption of single-use plastics such as plastic bags needs to take into account our unique urbanised, high-rise living context. Most of the plastic bags that Singaporeans bring home from the shops and supermarkets are not “single-use”. We reuse them for other purposes, such as carrying wet items, before eventually using them to bag waste for disposal. This has become a way of life for Singaporeans and ensured that our waste disposal is clean and hygienic. All our waste, including plastics, are safely incinerated. They do not cause the landfill problems that many other

countries that rely on landfills suffer from. A single-use plastic bag may be used for 30 minutes but will be left in the landfill for more than 30 years. We remove any litter that enters our waterways with litter traps and flotsam removal craft and conduct beach and underwater clean-ups. All these measures prevent any litter, including plastics, from ending up in the sea.

46. We all share the goal of tackling climate change and protecting our environment. Nevertheless, Singaporeans have expressed differing views on how to deal with single-use plastics. A recent REACH survey on public sentiment towards disposable plastic bags showed that 9% preferred a ban, 21% a charge and 69% preferred greater public education to reduce usage. For now, the majority of Singaporeans seem to prefer an educational approach to encourage people to consume less.

47. The Government will continue to engage the community and businesses, and listen to their views and feedback. We should take a pragmatic approach and find an inclusive solution that works for Singapore and Singaporeans. This is why we have decided to set up a Citizens' Workgroup for Singaporeans from diverse backgrounds to come together to discuss and identify the way forward for us to collectively tackle the issue of excessive consumption of single-use plastics in Singapore. I note that NTUC FairPrice will run a one-month pilot to charge for plastic bags at seven of its outlets as well as undertake a consumer sentiment survey to gain insights on consumer behaviour. The announcement has elicited strong reactions on social media. We urge Members of this House and the public to support NTUC FairPrice and the trial. I encourage other major supermarket chains like Dairy Farm, Sheng Siong and Prime to do their part too. The insights gained could also help inform recommendations made by the proposed workgroup. We will consider all options and I welcome Members to share their views and ideas too.

### **Conclusion**

48. Mr Deputy Speaker, let me conclude. The Resource Sustainability Bill is a major milestone in Singapore's sustainability journey and a pivotal framework for climate and environmental protection. It will allow us to use our resources and grow our economy sustainably. It will also catalyse innovative circular business models and position our companies to seize opportunities in the region and beyond for waste treatment, recycling or remanufacturing. While change can be catalysed strategically at the level of businesses, community and civic organisations, our individual efforts are important too. We can all make small changes in our daily lives and contribute to protecting our environment. So let us all be part of the solution to secure our collective future.

49. Mr Deputy Speaker, I beg to move.

National Archives of Singapore