Ninth Regional 3R Forum in Asia and the Pacific
"*3R as a way for moving towards sufficiency economy – Implications for SDGs*"
4-6 March 2019, Bangkok, Thailand

Country Report

(Draft)

<Singapore>

This country report was prepared by the Government of Singapore as an input for the Ninth Regional 3R Forum in Asia and the Pacific. The views expressed herein do not necessarily reflect the views of the United Nations.

Country 3R Progress Report

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Singapore
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N.A.

Progress and achievements towards implementation of the Ha Noi 3R Declaration -Sustainable 3R Goals for Asia and the Pacific (2013-2023)

With the objective of demonstrating renewed interests and commitments of Asia-Pacific countries towards realizing a resource efficient society, the Fourth Regional 3R Forum in Asia-Pacific in 2013 adopted the good-will and legally non-binding "***Ha Noi 3R Declaration – Sustainable 3R Goals for Asia and the Pacific 2013-23.***" The objective of the Country Reporting is to share among international community with various initiatives launched and efforts made (such as new policy instruments, legislations, regulations, institutional arrangements, investments or financing, technological innovation or intervention, partnership mechanisms, such as PPPs, etc.) by the member countries of the Forum in addressing each of the underlined goals of the Ha Noi 3R Declaration. This would help the member countries to share various best practices in 3R and resource efficiency areas across the region. In addition, it would also help bi-lateral and multi-lateral development agencies, donors, development banks in assessing the sustainable needs and challenges of those countries to better plan their existing as well as future capacity building programmes and technical assistance in the areas of 3Rs and sustainable waste management.

With the cooperation of other related ministries, organization and agencies, we request you to kindly fill in the below table as much as possible with relevant data/information. If additional spaces are required, separate sheets could be attached.

Thank you very much for your kind cooperation.

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I. 3R Goals in Urban/Industrial Areas (3Rs in municipal solid waste)	
Goal 1	Significant **reduction** in the quantity of **municipal solid waste** generated, by instituting policies, programmes, and projects at national and local levels, encouraging both producers and consumers to reduce the waste through greening production, greening lifestyle, and sustainable consumption.

Q-1 What specific 3R policies, programmes and projects, are implemented to reduce the quantity of municipal solid waste?

The National Environment Agency (NEA) in Singapore has implemented various measures and initiatives to encourage businesses and consumers to reduce the amount of waste generated. Below are some examples:

National Recycling Programme

Singapore launched the National Recycling Programme (NRP) in 2001 to provide a convenient means for residents living in public high-rise apartments and private landed housing estates to recycle their paper, plastic, metal and glass waste streams. It started off with the provision of recycling bags to households, with fortnightly door-to-door collection. The recycling participation rate by households was 75% in 2018. To support residents' recycling efforts, a recycling bin was provided at every public housing apartment block and landed house from 2014 in place of the fortnightly door-to-door collection services. Residents find it more convenient to deposit recyclables into the bins at any time of the day and they need not set aside space at home to store recyclables. The NRP was enhanced with more frequent collection at landed houses and a dedicated collection of garden waste. In addition, incentive schemes such as "Cash-for-Trash" were implemented to further encourage recycling.

More information may be found here:
http://www.nea.gov.sg/energy-waste/3rs/national-recycling-programme

Singapore Packaging Agreement

The Singapore Packaging Agreement (SPA) is a joint initiative between the government, industry and non-government organisations (NGOs), to reduce packaging waste from consumer products and the supply chain. Since the launch of SPA in 2007, the SPA signatories have cumulatively reduced about 46,000 tonnes of packaging waste, with concomitant savings of over S$100 million in the material costs of locally consumed products.

More information on the SPA may be found here: *http://www.nea.gov.sg/SPA*

Mandatory Waste Reporting for Large Commercial Premises

In April 2014, the Environmental Public Health Act (EPHA) was amended to require operators of large commercial premises to report waste data and submit waste reduction plans (including setting of targets), starting with hotels with more than 200 rooms and shopping malls with net lettable areas of more than 4,600m^2. The reporting exercise is intended to help build greater awareness among these operators of the potential for improving waste management systems at their premises. Government assistance schemes / grants are available to support the operators in their recycling and waste reduction efforts.

More information may be found here:
https://www.nea.gov.sg/our-services/waste-management/mandatory-waste-reporting

I. 3R Goals in Urban/Industrial Areas (3Rs in municipal solid waste)	
Goal 1	Significant **reduction** in the quantity of **municipal solid waste** generated, by instituting policies, programmes, and projects at national and local levels, encouraging both producers and consumers to reduce the waste through greening production, greening lifestyle, and sustainable consumption.

Community Engagement

NEA engages the community to increase 3R awareness and participation in Singapore. 3R community events and initiatives organised by NEA carry a common tagline: "Reduce, Reuse, Recycle. Care for Our Environment."

Other examples of instilling a 3R culture through different media are:

i) 3R Pre-school awareness kit
NEA developed a 3R Pre-school awareness kit to help teachers plan activities to pique the pre-schoolers' interest in the 3Rs and to reinforce their 3R awareness.

ii) myENV mobile application
3R information and tips are available in myENV mobile application, to raise public awareness of the 3Rs. Members of the public can use the application to locate the nearest recyclables collection points and Cash for Trash stations.

iii) 3R video for households
To spread 3R message, a 3R video for households was published on NEA's Clean Green Singapore Youtube channel (*http://youtu.be/zp-Uw7L0sTw*). The video shows how 3Rs can be easily incorporated into our daily lives.

iv) 3R Guidebooks and Educational materials
NEA works with various stakeholders on 3R outreach and co-develops 3R Guidebooks. 3R Guidebooks for households, condominiums & private apartments, shopping malls, hotels, industrial developments and events may be found here: *https://www.nea.gov.sg/corporate-functions/resources/practices-and-guidelines/guidelines*.

Educational 3R pamphlet-cum-posters and What to Recycle fridge magnets were produced for distribution at community events.

v) Recycling boxes
Cardboard recycling boxes with information on recycling were produced for the community to help kick-start the recycling habit at home.

vi) 3R webpages
The recycling webpages on NEA's website were revamped to provide more content on each of the 3Rs and enhance usability, where users can access 3R information based on the type of premises relevant to them, i.e. whether at home, at work or at school.

Q-2 What is the level of participation of households in "source" segregation of municipal waste streams? (Please check the appropriate box)

☐ Very High (> 90%)

☒ High (>70%) (commingled recycling collection system is adopted)

I. 3R Goals in Urban/Industrial Areas (3Rs in municipal solid waste)	
Goal 1	Significant **reduction** in the quantity of **municipal solid waste** generated, by instituting policies, programmes, and projects at national and local levels, encouraging both producers and consumers to reduce the waste through greening production, greening lifestyle, and sustainable consumption.

☐ Average (50-~70%)
☐ Low or not satisfactory (< 50%)
☐ Does not exist

***Q-3 Total annual governmen*t expenditure per capita (US$ per capita) in municipal solid waste management in 2014-2015**

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Challenges (policy/ institutional/ technological/ financial) faced in implementation:

One of the challenges faced in implementing waste reduction initiatives is the difficulty in measuring and tracking the amount of waste generated and recycled, unlike energy or water consumption, which can be easily measured using meters.

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

Master Plan

The Sustainable Singapore Blueprint 2015 (SSB 2015) maps out strategies for Singapore's sustainable development, and sets out a collective vision for a Liveable and Endearing Home, a Vibrant and Sustainable City and an Active and Gracious Community. To build a Vibrant and Sustainable City, one of the outcomes is to work towards becoming a 'Zero Waste Nation' by reducing consumption, reusing and recycling all materials to conserve precious resources and free up land for more meaningful uses. The Government, community and businesses will come together to put in infrastructure and programmes to make this our way of life. New initiatives will also be rolled out progressively to reduce waste and achieve a higher overall recycling rate from the current 61% to 70% in 2030. More information on the SSB 2015 may be found here: *www.mewr.gov.sg/ssb/home*.

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

Packaging Waste Management

NEA will introduce mandatory requirements for more sustainable packaging waste management in 2020, starting with mandatory packaging reporting. Under the mandatory reporting framework, companies that place packaging on the market will be required to report information on the types and amounts of packaging they are placing on the market annually, and develop plans to reduce, reuse and/or recycle packaging waste. This aims to bring greater awareness to companies on the potential for waste reduction within their business operations, and spur them to take action to reduce the amount of packaging used and packaging waste disposed of.

Is this Goal relevant for your country? ☒Highly ☐ Partially ☐ Not at all

I. 3R Goals in Urban/Industrial Areas (3Rs in municipal solid waste)	
Goal 2	Full-scale utilization of the organic component of municipal waste, including food waste, as a valuable resource, thereby achieving multiple benefits such as the reduction of waste flows to final disposal sites, reduction of GHG emission, improvement in resource efficiency, energy recovery, and employment creation.

Q-1 Does the central government have policies or support to utilize or reduce the organic waste such as composting, energy recovery and improving efficiency in food processing?

Wood & Horticultural waste

Waste collectors transporting wood waste are not allowed to dispose of such waste at the incineration plants. Such waste is sent to wood waste recycling plants or to biomass plants for conversion into energy.

Horticultural waste from landed houses and public landscaping is recycled.

Food waste

A Food Waste Reduction Outreach Programme was launched in 2015 to encourage the adoption of smart food purchase, storage and preparation habits that help consumers save money while reducing food wastage at source. Other than spreading food waste reduction messages on mass and digital media channels, NEA also collaborates with organisations including supermarkets, food retail establishments, schools and other private organisations to further our outreach, through displaying educational materials at their premises to reach out to consumers and conducting outreach sessions.

To address food waste from the supply chain, food waste minimisation guidebooks have been developed for food manufacturing establishments, food retail establishments and supermarkets. The guidebooks aim to help businesses develop their own food waste minimisation plan by outlining steps that can be taken to minimise food waste from businesses' operations. The guidebooks also feature case studies of food waste minimisation efforts by industry players to encourage other companies to adopt similar initiatives, and incorporate guidelines on the proper handling and re-distribution of unsold and excess food to address food safety concerns on the donation of unsold and excess food to food distribution organisations. The guidebooks may be found here:
https://www.nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/food-waste-management/food-waste-management-strategies.

Energy recovery from organic waste

Organic waste disposed of is not landfilled; instead it is treated at waste-to-energy (WtE) plants. The WtE plants generate enough electricity to meet about 3% of Singapore's needs. Alternative treatment solutions for food waste such as onsite food waste digesters/composters and co-digestion of food waste with used water sludge are being piloted.

Q-2 What is happening to country's organic waste? (Please check the appropriate box)

☐ mostly landfilled
☒ mostly incinerated
☐ both landfilled and incinerated
☐ mostly open dumped or open burned

I. 3R Goals in Urban/Industrial Areas (3Rs in municipal solid waste)	
Goal 2	Full-scale utilization of the organic component of municipal waste, including food waste, as a valuable resource, thereby achieving multiple benefits such as the reduction of waste flows to final disposal sites, reduction of GHG emission, improvement in resource efficiency, energy recovery, and employment creation.

In 2017, 72% of wood and horticultural wastes were either recycled or converted into energy at the biomass plants, while 16% of food waste was recycled. The food waste recycled was mainly homogeneous food waste from food manufacturers (e.g. spent yeast/grains from beer brewing, soya bean and bread waste) and were segregated at source for conversion into animal feed. Operators of some hotels, supermarkets, schools and food centres have also installed on-site food waste treatment machines. All remaining organic waste was sent to WtE plants for energy recovery, and no organic waste was landfilled.

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

It is challenging to get consumers and owners/operators of premises to segregate their food waste for treatment/recycling. Another challenge is the limited demand for end product from food waste treatment/recycling.

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

NEA conducted two pilots to evaluate cost-effective methods to treat food waste:

(i) In January 2016, NEA conducted a two-year on-site food waste treatment pilot at two hawker centres to test the economic viability and operational feasibility of food waste segregation and treatment in hawker centres. More information may be found here: *https://www.nea.gov.sg/media/news/advisories/index/tender-for-on-site-food-waste-management-pilot-at-hawker-centres-called*

(ii) The second pilot, which commenced in December 2016, examines the economic viability of collecting and transporting source-segregated food waste from various premises to an off-site demonstration facility for co-digestion with used water sludge. The combined treatment of used water sludge and food waste has the potential to generate more biogas as compared to the treatment of used water sludge alone, thereby enhancing energy recovery. The co-digestion approach will be implemented at the future Tuas Nexus, where NEA's future Integrated Waste Management Facility (IWMF) and Public Utilities Board (PUB)'s Tuas Water Reclamation Plant (TWRP) will be co-located. More information may be found here: *https://www.nea.gov.sg/media/news/news/index/co-digestion-of-food-waste-and-used-water-sludge-enhances-biogas-production-for-greater-energy-generation*

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

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Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

I. 3R Goals in Urban/Industrial Areas (3Rs in municipal solid waste)

Goal 3	Achieve significant **increase in recycling rate** of recyclables (e.g., plastic, paper, metal, etc.), by introducing policies and measures, and by setting up financial mechanisms and institutional frameworks involving relevant stakeholders (e.g., producers, consumers, recycling industry, users of recycled materials, etc.) and development of modern recycling industry.

Q-1 What is the recycling rate of various recyclables? (Please check the appropriate cell & add more waste streams as relevant for the country)

Rate / Type	Very High (>90%)	High (>70%)	Average (50-~60%)	Poor (<50%)	Recycling does not exist	Definition of recycling rate*
Paper/ Cardboard			✓			1
Plastics				✓		1
Ferrous Metal	✓					1
Non-ferrous Metals		✓				1
Construction Waste	✓					1
Used Slag	✓					1
Scrap Tyres		✓				1
Wood		✓				1
Horticultural Waste			✓			1
Glass				✓		1
Ash & Sludge				✓		1
Food				✓		1
Textile/Leather				✓		1
E-waste ***subsumed under Others**	-	-	-	-	-	-
Others (stones, ceramic, rubber, etc.)				✓		1

**Note: Please specify in the cell which of the following definitions (ie., 1 or 2 or 3) is followed for recycling rate*
Definition 1: (collected recyclable waste)/(estimated generation of waste)
Definition 2: (volume of utilized recyclable waste)/(volume of raw material)
Definition 3: (volume of utilized recyclable waste)/(volume of collected waste for recycling)

More information may be found here:
http://www.nea.gov.sg/our-services/waste-management/waste-statistics-and-overall-recycling

Q-2 What specific policies are introduced at local and national level for prevention or reduction of waste streams – paper, plastic, metal, construction waste, e-waste?

The NRP provides a convenient means for residents living in public high-rise apartments and private landed housing estates to recycle their paper, plastic, metal and glass waste streams. More information may be found here:
http://www.nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/national-recycling-programme

All new public and private high-rise residential developments taller than 4 storeys are fitted with Centralised Chutes for Recyclables (CCR), providing parity of convenience for recycling and waste disposal, from 2014 and 2018 respectively. More information may be found here:

https://www.channelnewsasia.com/news/singapore/new-non-landed-private-homes-will-have-to-install-recycling-chut-8769008

Other initiatives such as the SPA (mentioned in Goal 1, Q-1) targets to reduce/recycle packaging waste (e.g. paper, plastic, metal, glass etc.), while Mandatory Waste Reporting (also mentioned in Goal 1, Q-1) aims to build greater awareness among managers of large commercial premises on the potential for improving their waste management systems.

The metal recovery facility in Singapore uses magnetic and eddy current separators to recover ferrous and non-ferrous metals from the incineration bottom ash (IBA) generated by the WtE plants. More information may be found here: *http://eresources.nlb.gov.sg/webarchives/wayback/20160125072014/http://www.nea.gov.sg/corporate-functions/newsroom/news-releases/singapore-s-first-metal-recovery-facility-reduces-weight-of-incineration-bottom-ash-by-10-per-cent); https://www.mewr.gov.sg/news/speech-by-mr-masagos-zulkifli--minister-for-the-environment-and-water-resources--at-the-inauguration-ceremony-of-remex-minerals-singapore-pte-ltds-metal-recovery-facility-on-1-december-2015-at-genting-hotel-jurong*

NEA formed a national voluntary partnership for electrical and electronic waste (e-waste) recycling to build public awareness of e-waste recycling and to consult stakeholders in the formulation of an e-waste management framework. Interested stakeholders (e.g. producers, retailers, collectors and recycling service providers, etc.) from the entire e-waste value chain can become members of this voluntary partnership. To encourage partners to implement or expand on their programmes to increase e-waste recycling awareness and provide convenient recycling services for the public, a fund has been established to support the voluntary partnership. This fund is available only to the members of the partnership. More information may be found here: *https://www.nea.gov.sg/programmes-grants/schemes/national-voluntary-partnership-for-e-waste-recycling*

Moving forward, NEA will introduce regulatory measures to ensure that e-waste is managed effectively and efficiently in Singapore. Building on the existing voluntary e-waste recycling initiatives, the e-waste management system will be established by 2021. This will entail the assignment of responsibilities to key stakeholders in the e-waste value chain through Extended Producer Responsibility (EPR).

The system will cover end-of-life information and communications technology (ICT) equipment, solar photovoltaic panels, batteries and lamps, and certain household appliances. Under the EPR framework, producers of covered electrical and electronic equipment will be required to take on responsibility for the collection and proper treatment of e-waste. These producers are companies that manufacture or import covered electrical and electronic equipment for supply on the local market. More information may be found here: *https://www.nea.gov.sg/media/news/news/index/nea-to-implement-e-waste-management-system-for-singapore-by-2021*

Under the Public Sector Taking the Lead in Environmental Sustainability (PSTLES) programme, all public sector agencies are required to implement recycling programmes at their premises. Large public sector buildings with a gross floor area greater than 10,000 m^2 are required to report the weight of waste and recyclables generated at their premises from fiscal year (FY) 2015 onwards. More information may be found here:

Q-3 What is the rate of resource recovery from various waste streams?

Please refer to Q-1 (resource recovery rate is taken to be the same as the recycling rate).

Rate / Type	Very High (>90%)	High (>70%)	Average (50-~60%)	Poor (<50%)	Recycling does not exist
Paper					
Plastic					
Metal					
Construction waste					
e-waste					

(Please check the appropriate cell & add more waste streams as relevant for the country)

Q-4 What is the level of existence of resource recovery facilities/ infrastructures in cities?

Level / Type	Every Major City	Few Major Cities only	Does not exist	Supportive policy or programmes exists	No supportive policy or programmes
Paper	✓				
Plastic	✓				
Metal	✓				
Construction waste	✓				
e-waste	✓				

I. 3R Goals in Urban/Industrial Areas (3Rs in municipal solid waste)

Goal 3 Achieve significant **increase in recycling rate** of recyclables (e.g., plastic, paper, metal, etc.), by introducing policies and measures, and by setting up financial mechanisms and institutional frameworks involving relevant stakeholders (e.g., producers, consumers, recycling industry, users of recycled materials, etc.) and development of modern recycling industry.

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

It is a challenge to get consumers and producers to embark on waste recycling initiatives especially when additional effort, manpower and/or costs are involved. Generally, consumers and producers are more willing to undertake 3R initiatives when there is substantial net financial benefit. Other challenges faced by corporates in implementing the 3Rs include space constraints for installation of on-site treatment/recycling systems.

Other challenges include technological limitations on recycling of certain waste streams such as composite plastic, packaging with multiple layers of materials.

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

NEA is studying the commercial and financial viability of proven recycling solutions and technologies in other countries that can be applied in Singapore. Waste streams to be studied include e-waste and plastic waste. Specifically, the study will look into how a synergistic recycling eco-system with increased productivity for recycling processes would potentially improve the

economic viability of recycling locally.

NEA will also introduce EPR concept in the management of e-waste by 2021, and mandatory reporting requirements for packaging data and 3R plans for packaging in 2020.

Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

I. 3R Goals in Urban/Industrial Areas (3Rs in municipal solid waste)	
Goal 4	Build **sustainable cities /green cities** by encouraging "**zero waste**" through sound policies, strategies, institutional mechanisms, and multi‐stakeholder partnerships (giving specific importance to private sector involvement) with a primary goal of **waste minimization**

Q-1 What specific waste management policies and programmes are introduced to encourage private sector participation in municipal waste management?

Some of the policies and voluntary initiatives to encourage private sector participation include:

- The SPA, which encourages companies to review their packaging designs and processes, and effect changes to reduce packaging waste from consumer products and the supply chain. More information may be found here: *http://www.nea.gov.sg/SPA*

- Mandatory waste reporting for large commercial premises. More information may be found here: *https://www.nea.gov.sg/our-services/waste-management/mandatory-waste-reporting*

- National voluntary partnership for e-waste recycling, where funding scheme is available to encourage partners to implement or expand on their programmes to increase e-waste recycling awareness and provide convenient recycling services for the public. More information may be found here: *https://www.nea.gov.sg/programmes-grants/schemes/national-voluntary-partnership-for-e-waste-recycling*

Q-2 What are the major waste management areas that have strong involvement of private and business sector? (Please check appropriate boxes and add other areas if not listed below)

☒ waste collection
☒ resource recovery
☒ waste recycling
☒ waste to energy, composting, etc.
☒ PPP projects in waste sector

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

NEA will also introduce EPR concept in the management of e-waste by 2021, and mandatory reporting requirements for packaging data and 3R plans for packaging in 2020.

Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

I. 3R Goals in Urban/Industrial Areas (3Rs in Industrial waste)	
Goal 5	Encourage the **private sector**, including small-and medium-sized enterprises (SMEs) to implement measures to increase **resource efficiency and productivity**, creation of decent work and to improve environmentally-friendly practices through applying environmental standards, clean technologies, and cleaner production.

Q-1 What are the major clean technology related policies aiming to increase energy and resource efficiency of SMEs?

Industrial / manufacturing SMEs can tap on the following resources:

Incentives

- Energy Efficiency Fund (E2F)
- Singapore Certified Energy Manager (SCEM) Training Grant
- Energy Efficiency Financing Scheme

More information may be found here: *https://www.nea.gov.sg/our-services/climate-change-energy-efficiency/energy-efficiency/industrial-sector*

Programmes

- Energy Efficiency National Partnership to support companies in their energy efficiency efforts through learning network activities, provision of energy efficiency-related resources, incentives and recognition. More information may be found here: *https://www.e2singapore.gov.sg/programmes/energy-efficiency-national-partnership*

- Energy Services Companies (ESCO) Accreditation Scheme to enhance the professionalism and quality of services offered by energy services companies (ESCOs), which provide energy efficient technology and services including financing, design, implementation and management of projects. More information may be found here: *https://www.e2singapore.gov.sg/programmes/esco-accreditation-scheme*

NEA also administers the 3R Fund, a co-funding scheme to encourage organisations to undertake waste minimisation and recycling projects. Under this scheme, funding is provided up to 80% of the qualifying costs, subject to a cap of $1 million per project. More information may be found here: *http://www.nea.gov.sg/grants-awards/3r-fund.*

Q-2 What are the capacity building programmes currently in place to build the technical capacity of SMEs in 3R areas?

Enterprise Singapore is an agency under the Ministry of Trade and Industry (MTI) and is responsible for championing enterprise development. It works with Singapore enterprises to build capabilities, innovate and internationalise. It provides financial assistance in the form of grants, loans, insurance, tax incentives and investments, as well as non-financial assistance such as business toolkits, talent attraction and development, networking opportunities, export guides, free trade agreements and new market entry support. More information may be found here: *https://www.enterprisesg.gov.sg/financial-assistance;https://www.enterprisesg.gov.sg/non-financial-assistance*.

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

I. 3R Goals in Urban/Industrial Areas (3Rs in Industrial waste)	
Goal 5	Encourage the **private sector**, including small-and medium-sized enterprises (SMEs) to implement measures to increase **resource efficiency and productivity**, creation of decent work and to improve environmentally-friendly practices through applying environmental standards, clean technologies, and cleaner production.
-	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant -	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021) -	
Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all	

I. 3R Goals in Urban/Industrial Areas (3Rs in Industrial waste)	
Goal 6	Promote the **greening of the value chain** by encouraging industries and associated suppliers and vendors in socially responsible and inclusive ways.

Q-1 What percent of companies and industries have introduced green accounting and voluntary environmental performance evaluation (Ref: ISO 14000)?

☐ Very High (> 90%)
☐ High (>70%)
☐ Average (50-~70%)
☐ Low or not satisfactory (< 50%)
☐ None

No data available

Q-2 What percent of companies and industries have introduced social accounting (Ref: SA 8000) in consultation with their workers?

☐ Very High (> 90%)
☐ High (>70%)
☐ Average (50-~70%)
☐ Low or not satisfactory (< 50%)
☐ None

No data available

Q 3 Does government have a programme for promoting greening of the value chain? What specific policies, programmes and incentives are introduced to promote greening of value chain?

Singapore Packaging Agreement

SPA is a joint initiative between the government, industry and NGOs, to reduce packaging waste from consumer products and the supply chain. SPA provides opportunities for networking and exchange of information on packaging waste reduction best practices through meetings, events and sharing sessions. More information on the SPA may be found here: *http://www.nea.gov.sg/SPA*

SGX Sustainability Reporting

The Singapore Exchange introduced mandatory sustainability reporting in 2016. Singapore-listed companies are required to publish a sustainability report yearly, covering five primary components: material ESG (environmental, social, governance) factors; policies, practices and performance; targets; sustainability reporting framework; and their Board statement.

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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I. 3R Goals in Urban/Industrial Areas (3Rs in Industrial waste)	
Goal 6	Promote the **greening of the value chain** by encouraging industries and associated suppliers and vendors in socially responsible and inclusive ways.
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021) -	
Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all	

I. 3R Goals in Urban/Industrial Areas (3Rs in Industrial waste)	
Goal 7	Promote **industrial symbiosis** (i.e., recycling of waste from one industry as a resource for another), by providing relevant incentives and support.

Q-1 Does your government have policies and programmes promoting industrial symbiosis in industrial parks or zones? What specific policies, programmes and incentives are introduced to promote industrial symbiosis?

Jurong Town Corporation (JTC) is the lead agency in Singapore to spearhead the planning, promotion and development of a dynamic industrial landscape. It adopts environmentally sustainable practices in the planning, design, construction and management of industry spaces and innovation districts, and has developed an Environmental Sustainability Framework that is applied across all its properties to further reduce energy and water usage, shrink its emissions footprint, and increase its use of clean energy. More information may be found here: *https://www.jtc.gov.sg/our-sustainability-journey/Pages/default.aspx;* *https://www.jtc.gov.sg/news-and-publications/speeches/Pages/20180601(SP).aspx*

Q-2 How many eco-industrial parks or zones or the like, which is supported by the government, are there in the country?

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Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

Integrated Waste Management Facility

As part of NEA's long-term plan to meet Singapore's future waste disposal needs, the IWMF will be developed to achieve greater environmental sustainability and provide Singapore with an affordable waste management system once it is completed tentatively by 2027. Coupled with the latest technologies and innovations, the IWMF will incorporate several key solid waste treatment processes to effectively handle multiple waste streams such as municipal solid waste, household recyclables, source-segregated food waste and treated used water sludge. The IWMF will also be co-located with PUB's TWRP to form the Tuas Nexus. The main objective of Tuas Nexus is to derive optimal engineering synergies to reap benefits of a water-energy-waste nexus, while keeping its land use footprint and environmental impact to a minimum.

Some key synergies derived through the co-location of the TWRP and IWMF include:

- Co-digestion of treated food waste from IWMF with used water sludge at TWRP to increase biogas yield. Biogas will be utilised at IWMF to increase overall plant thermal efficiency and electricity production.
- Incineration of dewatered sludge from TWRP at IWMF's sludge incineration facility to produce steam for TWRP's thermal hydrolysis and greasy waste treatment; and
- Utilisation of treated water from for IWMF's processes

I. 3R Goals in Urban/Industrial Areas (3Rs in Industrial waste)	
Goal 7	Promote **industrial symbiosis** (i.e., recycling of waste from one industry as a resource for another), by providing relevant incentives and support.

More information may be found here:
http://www.straitstimes.com/singapore/environment/2-green-plants-to-improve-waste-treatment-efficiency

Multi-Storey Recycling Facility

NEA, together with JTC and the Urban Redevelopment Authority (URA), carried out a study to develop a broad design concept and determine the project feasibility of a multi-tenanted, Multi-Storey Recycling Facility (MSRF). The 1-year technical study was completed in October 2015.

The feasibility study is one of the key resources to co-develop solutions for higher land-use efficiency and land-optimal typologies collectively among the agencies and the waste management sector, to better manage the rising amount of waste amidst growing land scarcity in Singapore.

The development of the project will support industry transformation to increase competitiveness in the waste management sector. The construction of the MSRF is expected to complete in 2021.

Is this Goal relevant for your country? ☐ Highly ☒ Partially ☐ Not at all

I. 3R Goals in Urban/Industrial Areas (3Rs in Industrial waste)	
Goal 8	Build **local capacity** of both current and future practitioners, to enable the private sector (including SMEs) to obtain the necessary knowledge and technical skills to foster green industry and create decent, productive work.

Q-1 How many dedicated training facilities or centers are there to cater the needs of SMEs and practitioners in the areas of cleaner production, resource efficiency and environment-friendly technologies, etc.?

Singapore Environment Institute

The Singapore Environment Institute (SEI) is the training and knowledge division of the NEA. Besides organising training programmes for the transfer of knowledge within NEA, SEI also develops and up-skills the local industry's manpower capabilities, thereby adding value to Singapore's environmental arena. Some examples of professional programmes available on Environmental Protection are the "Management of Hazardous Substances" and "Introduction of Waste Management in Singapore". More information may be found here: *https://www.nea.gov.sg/programmes-grants/courses/sei/programmes*

Sustainable Manufacturing Centre

The Sustainable Manufacturing Centre (SMC) was set up under the Singapore Institute of Manufacturing Technology (SIMTech) to develop and implement sustainable manufacturing technologies that minimise emissions, wastes and toxicity, promote the recycling and reuse of resources and strengthen the global competitiveness of Singapore's manufacturing industry. The SMC also develops and conducts training courses on technical capabilities for sustainability improvement. More information may be found here: *https://www.a-star.edu.sg/simtech-smc;*

Singapore Sustainability Academy

The Singapore Sustainability Academy (SSA) was launched in August 2016 to promote a low-carbon economy, resource efficiency and sustainability practices among businesses and the community. The SSA offers training programmes, and promotes collaboration between businesses, academics and young people in the area of improving sustainability efforts and standards in Singapore. More information may be found here:
http://www.straitstimes.com/singapore/new-academy-to-drive-sustainability-in-singapore-launched;
http://www.eco-business.com/press-releases/cdl-and-seas-launch-singapore-sustainability-academy/.

Q-2 Please provide an indicative figure on annual government (US $) expenditure on building technical capacity of SMEs and practitioners in the areas of cleaner production, resource efficiency and environment-friendly technologies, etc.?

-

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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I. 3R Goals in Urban/Industrial Areas (3Rs in Industrial waste)	
Goal 8	Build **local capacity** of both current and future practitioners, to enable the private sector (including SMEs) to obtain the necessary knowledge and technical skills to foster green industry and create decent, productive work.

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

NEA is leading the Closing the Waste Loop (CTWL) research funding initiative to encourage collaborations with institutes of higher learning, research institutes and private sector partners, to develop technologies and solutions to tackle challenges posed by increasing waste generation, scarcity of resources and land constraints for waste management. The initiative will boost Singapore's research and development (R&D) capabilities in developing solutions to extract value and resources from key waste streams including plastics, food, and electrical and electronic products.

As part of the SSB 2015, Singapore is working towards becoming a Zero Waste Nation by reducing consumption, reusing and recycling all materials to conserve precious resources and free up land for more meaningful uses. The Government, community and businesses will come together to put in infrastructure and programmes to make this our way of life.

More information may be found here: *https://www.nea.gov.sg/programmes-grants/grants-and-awards/closing-the-waste-loop-initiative*

Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

I. 3R Goals in Urban/Industrial Areas (3Rs in Industrial waste)	
Goal 9	Develop proper **classification and inventory of hazardous waste** as a prerequisite towards sound management of such waste.

Q-1 Is there a systematic classification of hazardous waste? If so, please attach.

☒ Yes ☐ No

The controlled toxic industrial wastes are listed in the Schedule of the Environmental Public Health (Toxic Industrial Waste) Regulations 1988 and the list may be found here: *https://sso.agc.gov.sg/SL/EPHA1987-RG11*

Q-2 What specific rules and regulations are introduced to separate, store, treat, transportation and disposal of hazardous waste?

The handling, transportation, treatment and disposal of toxic industrial waste in Singapore are controlled under the Environmental Public Health (Toxic Industrial Waste) Regulations 1988.

Hazardous chemicals are controlled under The Environmental Protection and Management Act (EPMA), The Environmental Protection and Management (Hazardous Substances) Regulations and the Environmental Protection and Management (Ozone Depleting Substances) Regulations.

More information may be found here:
https://www.nea.gov.sg/docs/default-source/our-services/management-of-hazardous-waste.pdf

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

-

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

In August 2016, Singapore's Ministry of the Environment and Water Resources (MEWR) published a Restriction of Hazardous Substances (RoHS) -like regulation which prohibits the use of six hazardous substances in electrical and electronic products. It took effect on 1 June 2017.

The Environmental Protection and Management Act (amendment of second schedule) Order 2016 was adapted from the EU's RoHS Directive. The substances it restricts are:

- cadmium and its compounds;
- hexavalent chromium;
- lead and its compounds;
- mercury and its compounds;
- polybrominated biphenyls; and
- polybrominated diphenyl ethers.

More information may be found here:
https://sso.agc.gov.sg/SL-Supp/S263-2016/Published/20160601?DocDate=20160601

I. 3R Goals in Urban/Industrial Areas (3Rs in Industrial waste)	
Goal 9	Develop proper **classification and inventory of hazardous waste** as a prerequisite towards sound management of such waste.
Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all	

II. 3R Goals in Rural Areas

Goal 10	**Reduce losses in the overall a** (production, post harvesting and storage, processing and packaging, distribution), leading to reduction of waste while increasing the quantity and improving the quality of products reaching consumers.

Q-1 What specific policies, rules and regulations, including awareness programmes, are introduced to minimize food or crop waste?

The Food Wastage Reduction Working Group was formed in 2012 by the Inter-Ministry Committee on Food Security to look into food wastage reduction as a means to enhance food security. It is co-chaired by the Agri-Food & Veterinary Authority (AVA) and the NEA, and includes participants from relevant government agencies. More information may be found here: *https://www.ava.gov.sg/docs/default-source/default-document-library/media-release-on-food-wastage-reduction-programme7e327b1875296bf09fdaff00009b1e7c.pdf*

The food waste minimisation guidebooks for food manufacturing establishments, food retail establishments and supermarkets (mentioned in Goal 2, Q-1) provide guidance to these businesses on reducing food waste in their business operations, as well as promote food donation and redistribution.

To raise awareness to consumers, collaterals such as posters, magnets and wobblers, and a TV commercial were produced. A Love Your Food guidebook was also developed to give tips on how to reduce food wastage at home and when dining out.

Another initiative under the working group was to promote test-bedding and adoption of innovative technology for food waste reduction/recycling. On-going projects include test-bedding of novel food packaging and advanced freezing and thawing technology for food product shelf-life extension, and conversion of food waste into edible products.

Q-2 Is there any continuing education services or awareness programmes for the farmers or agricultural marketing associations on reduction of crop wastes for increased food security?

-

Q-3 What is the average wastage of crops or agricultural produce between farms to consumers, if there is a study in your country?

☐ Very High (> 20~ 30%)
☐ High (10~20%)
☐ Medium (5~10%)
☐ Low (< 5%)
☐ Negligible (<1%)

No data available

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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II. 3R Goals in Rural Areas	
Goal 10	**Reduce losses in the overall a** (production, post harvesting and storage, processing and packaging, distribution), leading to reduction of waste while increasing the quantity and improving the quality of products reaching consumers.
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021) -	
Is this Goal relevant for your country? ☐ Highly ☒ Partially ☐ Not at all	

II. 3R Goals in Rural Areas	
Goal 11	Promote full scale **use of agricultural biomass waste and livestock waste** through reuse and/or recycle measures as appropriate, to achieve a number of co‐benefits including GHG emission reduction, energy security, sustainable livelihoods in rural areas and poverty reduction, among others.

Q-1 How much amount of – (a) agricultural biomass waste and (b) livestock waste are grossly generated per annum?

No data available. Singapore is not a significant agricultural producer.

Q-2 How are most of the agricultural biomass wastes utilized or treated? (Please check all appropriate boxes)

☐ as secondary raw material input (for paper, bioplastic, furniture, etc.)
☒ biogas/electricity generation
☐ composts/fertilizers
☐ mostly left unutilized or open dumped
☐ mostly open burned

Q-3 What specific policies, guidelines, and technologies are introduced for efficient utilization of agricultural biomass waste and livestock waste as a secondary material inputs towards full scale economic benefits? Relevant websites could be shared for additional information.

-

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

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Is this Goal relevant for your country? ☐ Highly ☐ Partially ☒ Not at all

III. 3R Goals for New and Emerging Wastes	
Goal 12	Strengthen regional, national, and local efforts to address the issue of **waste, in particular plastics** in the marine and coastal environment.

Q-1 What specific policies and regulations are in place to address the issue of plastic wastes in coastal and marine environment?

The Prevention of Pollution of the Sea Act and its subsidiary legislation aim to prevent sea pollution, whether originating from land or from ships. In particular, the Prevention of Pollution of the Sea (Garbage) Regulations prohibit the discharge into the sea of all plastics, including but not limited to synthetic ropes, synthetic fishing nets, plastic garbage bags and incinerator ashes from plastic products. More information may be found here: *http://www.mpa.gov.sg/web/portal/home/port-of-singapore/maritime-legislation-of-singapore/prevention-of-pollution-of%20the-sea-act*

The EPHA and its subsidiary legislation aim to deter littering in public places. Our integrated solid waste management and collection system also minimises waste at the source and ensure proper waste recycling and disposal which helps prevent waste from being washed into waterways and oceans. More information may be found here: *https://sso.agc.gov.sg/Act/EPHA1987#pr5-*

Q-2 What extent issue of plastic waste is considered in integrated coastal zone management (ICZM)? *(Please check the appropriate box)*

☐ Very much ☒ Somehow ☐ Not at all

Q-3 Please provide a list of centre of excellences or dedicated scientific and research programmes established to address the impacts of micro-plastic participles (<5 mm) on coastal and marine species? If yes, please provide relevant websites.

-

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

-

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

-

Is this Goal relevant for your country? ☐ Highly ☒ Partially ☐ Not at all

III. 3R Goals for New and Emerging Wastes

Goal 13 Ensure **environmentally-sound management of e-waste** at all stages, including collection, storage, transportation, recovery, recycling, treatment, and disposal with appropriate consideration for working conditions, including **health and safety aspects** of those involved.

Q-1 How do people usually recycle their e-waste (waste electrical and electronic equipment)?
(Please check the appropriate box in order of priority by filling in numbers like 1, 2, 3, 4 etc., for example 1 => Highest priority)

Check if applicable	Number in priority order	
✓	4	Take to recycling center / resource recovery facilities
		Take to landfill
✓	3	Take to the retailer
✓	2	Take to local charity for re-use
✓	1	Take to second-hand shop for re-use
		Ship back to the manufacturer
		Ship back to the manufacturer
		Recycle in another country
		Do not know how people dispose

Q-2 What specific policies and regulations are in place to ensure health and safety aspects of those involved in e-waste management (handling/sorting/resource recovery/recycling)?

NEA adopts an integrated approach in the planning and control of new developments, including e-waste facilities. This is to ensure that environmental considerations and factors are incorporated into land use planning, development control and building control, so as to minimise pollution and mitigate its impact on surrounding land use to achieve a quality environment. A proposed factory will only be allowed to be set up if it is sited in an appropriate industrial estate, compatible with the surrounding land uses and can comply with the pollution control requirements. More information may be found here:
https://www.nea.gov.sg/our-services/building-planning/overview

All factories including recycling facilities located in Singapore are required to comply with the Ministry of Manpower's Workplace Safety and Health Act and its regulations. More information may be found here: *http://www.mom.gov.sg/workplace-safety-and-health; http://www.mom.gov.sg/workplace-safety-and-health/workplace-safety-and-health-act*

Q-3 How much amount of e-waste is generated and recycled per year?

An estimated 60,000 tonnes of e-waste is generated per year. Most industrial e-waste is recycled at Singapore's e-waste recycling plants, while unwanted electronic equipment from consumers is commonly sold to second-hand dealers, traded in when new products are purchased or donated to charities for reuse. Unwanted bulky e-waste (e.g. white goods) are usually disassembled and sold as scrap metal or disposed of as general waste. A consumer survey showed that 6% (by weight) of e-waste from consumers are deposited into e-waste recycling bins. More information may be found here:
https://www.nea.gov.sg/media/news/news/index/stakeholders-sharing-responsibility-is-key-to-building-a-sustainable-e-waste-management-system-nea-study

III. 3R Goals for New and Emerging Wastes

Goal 13 Ensure **environmentally-sound management of e-waste** at all stages, including collection, storage, transportation, recovery, recycling, treatment, and disposal with appropriate consideration for working conditions, including **health and safety aspects** of those involved.

Type of e-waste	Estimated total volume generated (ton/year)	% of collected by permitted recycler	% of volume recycled in collected
Television			
Computer			
Mobile phone			
Refrigerators			
Washing machines			
Air conditioners			
Others…			

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

Sustainability of voluntary efforts

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

NEA has been working closely with industry partners & communities to encourage e-waste recycling through voluntary programmes led by industry partners. NEA has also launched the national voluntary partnership for e-waste recycling with interested stakeholders to bring together and enhance the various programmes under one umbrella. More information may be found here: *https://www.nea.gov.sg/programmes-grants/schemes/national-voluntary-partnership-for-e-waste-recycling*; *https://www.nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/e-waste-management/where-to-recycle-e-waste*

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

Moving forward, NEA will introduce regulatory measures to ensure that e-waste is managed effectively and efficiently in Singapore through EPR (mentioned in Goal 3, Q-2). More information may be found here: *https://www.nea.gov.sg/media/news/news/index/nea-to-implement-e-waste-management-system-for-singapore-by-2021*

Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

III. 3R Goals for New and Emerging Wastes	
Goal 14	Effective enforcement of established mechanisms for preventing illegal and inappropriate export and import of waste, including transit trade, especially of hazardous waste and e-waste.

Q-1 What specific policies and regulations are introduced to prevent illegal import and export of e-waste?

Singapore accedes to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal (Basel Convention) in the control of export, import and transit of hazardous wastes on 2 January 1996. On 16 March 1998, Singapore enacted The Hazardous Waste (Control of Export, Import and Transit) Act and its Regulations to regulate the control of export, import and transit of hazardous wastes in accordance with the principles and provisions of the Basel Convention.

Under the Hazardous Waste (Control of Export, Import and Transit) Act and its Regulations, any person who wishes to export, import or transit hazardous wastes shall obtain a permit from the NEA. The NEA adopts the Prior Informed Consent (PIC) procedure of the Basel Convention in granting any permit for the export, import or transit of hazardous wastes. More information may be found here:
https://www.nea.gov.sg/our-services/pollution-control/chemical-safety/multilateral-environmental-agreements/basel-convention

Q-2 Do you have required number of well-trained custom or other officials (for airport. sea-port, land border control, etc.) to track illegal export and import of e-waste?

☒ Yes ☐ No

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

-

Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

III. 3R Goals for New and Emerging Wastes

Goal 15 Progressive implementation of "**extended producer responsibility (EPR)**" by encouraging producers, importers, and retailers and other relevant stakeholders to fulfill their responsibilities for collecting, recycling, and disposal of new and emerging waste streams, in particular e-waste.

Q-1 What specific Extended Product Responsibility (EPR) policies are enacted or introduced? (If there is none, then skip Q-2 below)

NEA will introduce EPR concept in the management of e-waste by 2021.

Q-2 Please provide a list of products and product groups targeted by EPR nationally?

Product Category	Product Type
ICT equipment	Printers
	Personal computers / Laptops
	Mobile phones / Tablets
	Routers / Modems / Set-top boxes
Large household appliances	Refrigerators
	Air-conditioners
	Washing machines
	Dryers
	Televisions
Batteries	All types (except batteries classified as Toxic Industrial Waste, e.g. lead-acid batteries)
Lamps	All types
Solar Photovoltaic (PV) panels	All types

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

NEA will introduce regulatory measures to ensure that e-waste is managed effectively and efficiently in Singapore. This will entail the assignment of responsibilities to key stakeholders in the e-waste value chain through EPR (mentioned in Goal 3, Q-2). More information may be found

III. 3R Goals for New and Emerging Wastes	
Goal 15	Progressive implementation of "**extended producer responsibility (EPR)**" by encouraging producers, importers, and retailers and other relevant stakeholders to fulfill their responsibilities for collecting, recycling, and disposal of new and emerging waste streams, in particular e-waste.
here: *https://www.nea.gov.sg/media/news/news/index/nea-to-implement-e-waste-management-system-for-singapore-by-2021*	
Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all	

III. 3R Goals for New and Emerging Wastes

Goal 16 **Promote the 3R concept** in health-care waste management.

Q-1 What specific policies and regulations are in place for healthcare waste management?

Biohazardous wastes from hospitals, polyclinics and healthcare institutions are classified as Toxic Industrial Waste under the Environmental Public Health (Toxic Industrial Waste) Regulations. Biohazardous wastes are required by the regulations to be collected and disposed of by licensed biohazardous waste collectors.

More information may be found here:
https://www.nea.gov.sg/our-services/pollution-control/hazardous-waste/toxic-waste-control

Q-2 What is the total annual government expenditure towards healthcare waste management (US$ per year)?

-

Q-3 List the agencies or authorities responsible for healthcare waste management.

Ministry of Health (MOH) and NEA

Q-4 What is the common practice for disposal of healthcare wastes?

(Please check the appropriate box and add if any other practice followed)

☐ open dumping (untreated)
☐ open burning (untreated)
☐ ordinary landfilling (untreated)
☐ sanitary landfilling (treated)
☐ Low cost small scale incineration (do not meet air emission standards)
☒ Highly controlled air incineration (dedicated/modern medical waste incinerators)
☐ Other methods (please specify names:)

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

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Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

IV. 3R Goals for Cross-cutting Issues

Goal 17 Improve **resource efficiency and resource productivity** by greening jobs nation - wide in all economic and development sectors.

Q-1 What specific policies and guidelines are introduced for product standard (towards quality/durability, environment/eco-friendliness, labour standard)?

NEA introduced the Mandatory Energy Labelling Scheme (MELS), starting with household air-conditioners and refrigerators in 2008. Energy labelling helps households to compare the energy efficiency of energy consuming products, thereby empowering them to make more informed purchasing decisions. The scheme has since been extended to clothes dryers, televisions and lamps. Household refrigerators, air conditioners, clothes dryers, and lamps supplied in Singapore must also meet the Minimum Energy Performance Standards (MEPS). Under the regulations, only appliances that meet the minimum energy efficiency standards are allowed for sale in Singapore. This helps to protect consumers from being locked into the high energy costs of operating inefficient appliances. More information may be found here: *www.nea.gov.sg/els*

The Singapore Green Building Council (SGBC) launched the Singapore Green Building Product (SGBP) certification scheme in 2010 to raise the environmental standards of building products. More information may be found here: *http://www.sgbc.sg/sgbc-certifications*

The Singapore Green Labelling Scheme (SGLS), administered by the Singapore Environment Council (SEC), was launched to endorse industrial and consumer products that have less undesirable effects on the environment. More information may be found here: *http://www.sgls.sec.org.sg*

Q-2 What specific energy efficiency schemes are introduced for production, manufacturing and service sector?

The Energy Efficiency Promotion Centre (EEPC) serves as a convenient one-stop centre for providing industrial energy efficiency related resources, such as assistance on the mandatory energy management requirements under the Energy Conservation Act, and incentives and programmes to support companies in their energy efficiency efforts. More information may be found here:
https://www.nea.gov.sg/our-services/climate-change-energy-efficiency/energy-efficiency/industrial-sector

Q-3 What specific policies are introduced to create green jobs in product and waste sector?

-

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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Important policies/programmes/projects/master plans the government plans to undertake

IV. 3R Goals for Cross-cutting Issues	
Goal 17	Improve **resource efficiency and resource productivity** by greening jobs nation - wide in all economic and development sectors.
within next five years (2016~2021)	
-	
Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all	

IV. 3R Goals for Cross-cutting Issues	
Goal 18	Maximize co-benefits from waste management technologies for local air, water, oceans, and soil pollution and global climate change.

Q-1 Please share how climate mitigation is addressed in waste management policies and programmes for co-benefits?

Singapore ratified the United Nations Framework on Climate Change (UNFCCC) in 1997, acceded to the Kyoto Protocol in 2006, and ratified the Paris Agreement on climate change on 21 Sep 2016. We therefore have to take into consideration our commitments to climate change mitigation in our waste management policies. Singapore's solid waste management strategies aim to reduce greenhouse gas (GHG) emissions from waste disposal through the 3Rs. In land-scarce Singapore, WtE plants offer the best technical waste disposal solution through the reduction of waste volume by 90%, thereby conserving landfill space. At the same time, incineration offers the following climate change mitigation benefits over landfilling:

i) Singapore's WtE plants generate electricity, reducing the amount of fossil fuel used to generate electricity in power plants;
ii) Incineration of waste results in the release of lower amount of methane, which has higher global warming potential than carbon dioxide.

More information may be found here:
https://www.nccs.gov.sg/docs/default-source/default-document-library/singapore's-fourth-national-communication-and-third-biennial-update-repo.pdf;
https://www.nccs.gov.sg/climate-change-and-singapore/reducing-emissions/waste-and-water.;
http://www.nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/waste-minimisation-and-recycling

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

Singapore's climate change mitigation plan includes reducing plastics incineration (e.g. through measures to increase the overall waste recycling rate) and improving efficiency of WtE plants.

Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

IV. 3R Goals for Cross−cutting Issues

Goal 19 Enhance **national and local knowledge base and research network on the 3Rs and resource efficiency**, through facilitating effective and dynamic linkages among all stakeholders, including governments, municipalities, the private sector, and scientific communities.

Q-1 What specific policies are introduced to encourage triangular cooperation between government, scientific & research institutions and private/business sector in 3R areas?

Under the National Research Foundation's 2015 strategic plan, S$300 million (2011-2015) was also allocated to the Energy National Innovation Challenge to harness Singapore's R&D base to increase energy efficiency, reduce carbon emissions and increase energy options. More information may be found here:
https://www.nrf.gov.sg/programmes/national-innovation-challenges/the-energy-challenge

Q-2 Please share the number and list of dedicated scientific institution, or coordinating centers in the areas of 3Rs (e.g., waste minimization technologies, eco-products, cleaner production, recycling technologies, industrial symbiosis, resource efficiency, etc.)?

-

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

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Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

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Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

NEA is leading the CTWL research funding initiative to encourage collaborations with institutes of higher learning, research institutes and private sector partners, to develop technologies and solutions to tackle challenges posed by increasing waste generation, scarcity of resources and land constraints for waste management. The initiative will boost Singapore's R&D capabilities in developing solutions to extract value and resources from key waste streams including plastics, food, and electrical and electronic products.

More information may be found here:
http://www.nea.gov.sg/programmes-grants/grants-and-awards/closing-the-waste-loop-initiative

Is this Goal relevant for your country? ☐ Highly ☒ Partially ☐ Not at all

IV. 3R Goals for Cross−cutting Issues	
Goal 20	Strengthen multi-stakeholder partnerships among governments, civil society, and the private sector in raising public awareness and advancing the 3Rs, sustainable consumption and production, and resource efficiency, leading to the behavioural change of the citizens and change in production patterns.

Q-1 Does central government have official dialogue with multi-stakeholders in the process to formulate 3R-related policies and regulations? Which stakeholders are involved in the dialogue?(Please check all applicable)

☒ NGOs ☒ Industrial Association

☒ Local Government ☒ Academic Institution

☒ Others, please add/specify (businesses that are/will be affected, trade associations and chambers of commerce)

Q-2 What is the level of NGOs' involvement in 3R, sustainable production and consumption, resource efficiency related promotional activities? (Please check the appropriate box)

☒Very high ☐ Moderate ☐ Low ☐ Almost Negligible

Q-3 What is the level of citizens' awareness on beneficial aspects of 3R, sustainable production and consumption and resource efficiency. (Please check the appropriate box)

☐ Very high ☒ Moderate ☐ Low ☐ Almost Negligible

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

Singapore Packaging Agreement

SPA is a joint initiative between the government, industry and NGOs, that aims to engage businesses to review their packaging practices and designs, and carry out changes to reduce packaging waste from consumer products and the supply chain. The SPA also aims to raise awareness and educate consumers on how they can play their part to minimise packaging waste. More information on the SPA may be found here: *http://www.nea.gov.sg/SPA*

Energy Efficiency National Partnership

NEA launched an industry-focused Energy Efficiency National Partnership (EENP) programme on 29 April 2010. The EENP is a voluntary partnership programme for companies that wish to be more energy efficient, thereby enhancing their long-term business competitiveness and reducing their carbon footprint. The EENP aims to support companies in their energy efficiency efforts through learning network activities, provision of energy efficiency-related resources, incentives and recognition. More information may be found here: *https://www.e2singapore.gov.sg/programmes/energy-efficiency-national-partnership*

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

-

Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

IV. 3R Goals for Cross−cutting Issues	
Goal 21	**Integrate the 3Rs** in formal education at primary, secondary, and tertiary levels as well as non-formal education such as community learning and development, in accordance with Education for Sustainable Development.

Q-1 Provide a list of formal programmes that addresses areas of 3R and resource efficiency as part of the academic curriculum?

Recycling in schools

Since 2009, all primary and secondary schools as well as junior colleges have implemented recycling programmes. Recycling bins and recyclables collection are provided by the public waste collectors. NEA also encourages learning and activities on environmental issues in schools and youth through the following programmes:

- Environment Club Fund
- Environment Challenge for Schools
- Environmental Education Advisors
- Environment Champion Programme
- Uniformed Group Badge Programme
- Youth Environment Envoy Programme
- Youth for the Environment Day

More information may be found here:
https://www.cgs.sg/programmes/school-programmes/buddy-clean-workshop;
https://www.cgs.sg/programmes/youth-for-the-environment-day/home

Q-2 Please provide an overview of the Government policies and programmes to promote community learning and development (non-formal education) on 3R and sustainable waste management.

SEI runs the Programme for Environmental Experiential Learning (PEEL), an out-of-the-classroom learning programme that expands the general public's knowledge of environmental management through a series of site tours and visits to environmental facilities around Singapore. Each PEEL Trail gives a behind-the-scenes look at how Singapore manages and maintains a clean environment to achieve its environmental objectives. One such trail is the Recycling PEEL Trail, which takes participants to various sorting and recycling facilities. More information may be found here:
https://e-services.nea.gov.sg/TMSRegPortal/TrainingSession/Details/1045665

Clean and Green Singapore (CGS) is an annual nation-wide campaign organised by NEA and other organisations, for the community. It aims to inspire Singaporeans to care for and protect the living environment by adopting an environmentally-friendly lifestyle, including making energy efficiency & resource conservation practices an integral part of their daily lives. More information may be found here:
http://www.nea.gov.sg/events-programmes/campaigns/clean-green-singapore

Q-3 Please provide a list of academic and research institutions offering PhD programmes in the areas of 3Rs and resource efficiency?

-

IV. 3R Goals for Cross−cutting Issues	
Goal 21	**Integrate the 3Rs** in formal education at primary, secondary, and tertiary levels as well as non-formal education such as community learning and development, in accordance with Education for Sustainable Development.
Q-4 Please provide a list of management institutions (offering BBA / MBA courses) which have integrated resource efficiency and life cycle assessment (LCA) as part of their curriculum or course development? -	
Challenges (policy/ institutional/ technological/ financial) faced in implementation: -	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant -	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021) -	
Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all	

IV. 3R Goals for Cross-cutting Issues	
Goal 22	**Integrate the 3R concept** in relevant policies and programmes, of key ministries and agencies such as Ministry of Environment, Ministry of Agriculture, Forestry and Fisheries, Ministry of Industry, Ministry of Trade and Commerce, Ministry of Energy, Ministry of Water Resources, Ministry of Transport, Ministry of Health, Ministry of Construction, Ministry of Finance, Ministry of Labour, Ministry of Land and Urban Development, Ministry of Education, and other relevant ministries towards transitioning to a resource-efficient and zero waste society.

Q-1 Please list the name of the Ministries and major Government Agencies which are promoting 3R and resource efficiency as part of their policy, planning and developmental activities at local and national level.

Taking guidance from the SSB 2015, which outlines our national vision and plans for a more liveable and sustainable Singapore, the following government agencies are promoting resource efficiency as part of their policy and planning activities:

i) MEWR and NEA are the main government agencies promoting the 3Rs and resource efficiency;

ii) Ministry of Transport (MOT) promotes resource efficiency through measures such as limiting the growth of private transport and encouraging fuel efficiency. More information may be found here: *https://www.mot.gov.sg/About-MOT/Land-Transport/Sustainable-Transport/Improving-Resource-Efficiency/*

iii) Land Transport Authority (LTA) makes effort to improve energy efficiency in the design of the land transport system, and promotes the use of energy efficient vehicles through their Carbon Emissions-based Vehicle (CEV) Scheme, where car models with low carbon emissions will enjoy rebates on their Additional Registration Fee of up to S$20,000. More information may be found here: *https://www.lta.gov.sg/content/dam/ltaweb/corp/GreenTransport/files/COS12_Details%20on%20CEVS_Annex-A.pdf*

iv) Building & Construction Authority (BCA) promotes energy efficiency and recycling in buildings, through their Green Mark scheme. More information may be found here: *https://www.bca.gov.sg/GreenMark/others/BCA_Green_Mark_10th_Anniversary_Commemorative_Book.pdf*

v) URA draws up its plans with long-term sustainability in mind, and is developing new growth areas, such as the Jurong Lake District, which will test out environmentally-friendly urban solutions. More information may be found here: *https://www.ura.gov.sg/services/download_file.aspx?f=%7B7DFC7DB9-335D-4A12-A072-9C3257269988%7D*

vi) Housing & Development Board (HDB) uses innovative designs and new technologies to make public housing more resource-efficient and introduced programmes such as the Eco Learning Journey to encourage the community to adopt a more environmentally responsible lifestyle. More information may be found here: *https://www.hdb.gov.sg/cs/infoweb/community/practising-eco-living*

vii) PUB has initiated programmes such as Mandatory Water Efficiency Labelling Scheme and Water Efficient Building Certification to promote water efficiency and

IV. 3R Goals for Cross-cutting Issues	
Goal 22	**Integrate the 3R concept** in relevant policies and programmes, of key ministries and agencies such as Ministry of Environment, Ministry of Agriculture, Forestry and Fisheries, Ministry of Industry, Ministry of Trade and Commerce, Ministry of Energy, Ministry of Water Resources, Ministry of Transport, Ministry of Health, Ministry of Construction, Ministry of Finance, Ministry of Labour, Ministry of Land and Urban Development, Ministry of Education, and other relevant ministries towards transitioning to a resource-efficient and zero waste society.

conservation. More information may be found here: *https://www.pub.gov.sg/watersupply/singaporewaterstory*

Q-2 What type of coordination mechanism are there among ministries and agencies for a resource efficient economic development?

☒ Official regular coordination meeting among ministries and agencies
☐ Official ad-hoc coordination meeting among ministries and agencies
☐ Informal meeting among ministries and agencies
☐ Other coordination mechanisms (please add/specify)

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

-

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

-

Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

IV. 3R Goals for Cross−cutting Issues	
Goal 23	Promote **green and socially responsible procurement** at all levels, thereby creating and expanding 3R industries and markets for environmentally-friendly goods and products.

Q-1 What specific policies are introduced to promote green and social responsible procurement?

The PSTLES initiative was first introduced in 2006 to improve resource efficiency within the public sector. Under the PSTLES initiative, public sector agencies are to procure the most cost-effective appliances, taking into account life cycle costs. New office information and communication technology equipment procured must meet the latest Energy Star standards. For electrical appliances that are under NEA's MELS, public sector agencies are to procure appliances of higher tick ratings (e.g. lamps and air-conditioning) are to be rated at least 3 ticks.

Public sector agencies are to also procure white printing paper that are accredited with the Singapore Green Label by the SEC.

More information may be found here:
http://www.e2singapore.gov.sg/Programmes/Public-Sector-Taking-the-Lead-in-Environmental-Sustainability

Q-2 Please provide details of eco-labelling schemes of your country.

- **MELS** allows consumers to compare energy efficiency performance and annual energy costs of different appliance models in order to make informed purchasing decisions. The scheme covers air-conditioners, refrigerators, clothes dryers, televisions and lamps. More information may be found here: *www.nea.gov.sg/els*

- **BCA Green Mark** to promote sustainability in the built environment and raise environmental awareness among developers, designers and builders when they start project conceptualisation and design, as well as during construction. More information may be found here: *http://www.bca.gov.sg/greenmark/green_mark_buildings.html*

- **Fuel Economy Labelling Scheme (FELS)** helps car buyers to choose fuel-efficient vehicles by highlighting each vehicle model's fuel consumption per 100 km. More information may be found here: *https://www.lta.gov.sg/content/ltaweb/en/roads-and-motoring/transport-options-for-motorists/encouraging-green-vehicles/Promoting-Clean-and-Energy-Efficient-Vehicles.html*

- **SGLS** is an environmental standard and certification mark that is applied to products which have passed stringent standards of environmental processes and procedures. More information may be found here: *http://sgls.sec.org.sg/*

- **Project: Eco-Office, Project: Eco-Shop and Project: Eco-F&B**, which are certification programmes for offices, retailers and Food and Beverage (F&B) operators implement effective environmentally-friendly practices. More information may be found here: *http://sgls.sec.org.sg/cms.php?cms_id=14*

- **Logo for Products with Reduced Packaging (LPRP)** was launched on 5 June 2017, and is a logo introduced under the SPA to mark the consumer products by SPA signatories that have undergone a reduction in the amount of packaging material used. The LPRP will enable consumers to identify products with reduced packaging and recognise companies

IV. 3R Goals for Cross−cutting Issues	
Goal 23	Promote **green and socially responsible procurement** at all levels, thereby creating and expanding 3R industries and markets for environmentally-friendly goods and products.

that have made the effort to minimise packaging waste. Currently, the LPRP is offered to SPA signatories for them to print on those of their products which have undergone reduction in the use of packaging materials (e.g. reduction in thickness, reduction in weight, elimination of unnecessary packaging etc.). The criteria for use of the LPRP is determined by a panel made up of members from the SPA Governing Board.

Q-3 Please provide a list of criteria for eco-labeled products and services in your country.

Please refer to webpages provided for Goal 23, Q-2.

Q-4 Please provide the list of Ministries and major Government Agencies which have adopted green procurement policy.

-

Q-5 What % of municipalities have adopted the green procurement policy?

-

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

-

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

-

Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

IV. 3R Goals for Cross−cutting Issues	
Goal 24	**Phase out harmful subsidies that favour unsustainable use of resources (raw materials and water) and energy**, and channel the freed funds in support of implementing the 3Rs and efforts to improve resource/energy efficiency.
Q-1 Are there any government subsidy programmes that directly or indirectly favour unsustainable use of resources (raw materials, water, and energy)? If so, please provide a list of such programmes along with the responsible Ministry or Agency administering and implementing it. -	
Challenges (policy/ institutional/ technological/ financial) faced in implementation: -	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant -	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021) -	
Is this Goal relevant for your country? ☐ Highly ☐ Partially ☒ Not at all	

IV. 3R Goals for Cross−cutting Issues

Goal 25	**Protect public health and ecosystems, including freshwater and marine resources by eliminating illegal** activities of open dumping, including dumping in the oceans, and controlling open burning in both urban and rural areas.

Q-1 Is waste management a public health priority in your country?

Yes, it is.

Q-2 What are the rules and regulations to prevent open dumping and open burning of waste?

Illegal Dumping of Waste

Under EPHA, Cap 95, Section 20 - Prohibition against dumping and disposing, "Any person found guilty under this sub-section, is liable to be fined an amount not exceeding $50,000 or to imprisonment for a term not exceeding 12 months or to both". More information may be found here: *https://sso.agc.gov.sg/Act/EPHA1987#pr20-*

Open Burning of Waste

Under Environmental Public Health (Public cleansing) Regulations, Section 6A – Prohibition on open burning, etc, "No person shall carry out, or cause or permit, any open burning of refuse or waste in or at any place". More information may be found here: *https://sso.agc.gov.sg/SL/EPHA1987-RG3?DocDate=20180611#pr6A-*

Q-3 Rank the five most important rivers in terms of water quality (BOD values) passing through major cities and urban areas?

-

Q-4 What are the specific laws, rules and regulations in place to prevent littering in river and water bodies?

The EPHA and its subsidiary legislation aim to deter littering in public places. More information may be found here: *https://sso.agc.gov.sg/Act/EPHA1987#pr5-*

The discharge of wastewater into open drains, canals and rivers is regulated by the EPMA and the Environmental Protection and Management (Trade Effluent) Regulations. More information may be found here:
https://www.nea.gov.sg/our-services/pollution-control/water-quality/keeping-our-water-clean.

Q-5 What are the specific laws, rules and regulations in place to prevent marine littering?

The Prevention of Pollution of the Sea Act and its subsidiary legislation aim to prevent sea pollution, whether originating from land or from ships. The Act also gives Marine Port Authority (MPA) the power to take preventive measures to prevent pollution, including denying entry or detaining ships. More information may be found here:
http://www.mpa.gov.sg/web/portal/home/port-of-singapore/maritime-legislation-of-singapore/prevention-of-pollution-of%20the-sea-act

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

IV. 3R Goals for Cross−cutting Issues	
Goal 25	**Protect public health and ecosystems, including freshwater and marine resources by eliminating illegal** activities of open dumping, including dumping in the oceans, and controlling open burning in both urban and rural areas.
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant -	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021) -	
Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all	

IV. 3R Goals for Cross−cutting Issues	
Goal 26	Facilitate the international circulation of re-usable and recyclable resources as well as remanufactured products as mutually agreed by countries and in accordance with international and national laws, especially the Basel Convention, which contributes to the reduction of negative environmental impacts and the effective management of resources.

Q-1 What are major recycling industries in your country?

There are recycling plants for construction and demolition waste, plastic waste, e-waste, wood/horticultural waste and ferrous metals.

Q-2 Please specify the regulation on transboundary movement of hazardous waste.

Basel Convention

Singapore accedes to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal (Basel Convention) in the control of export, import and transit of hazardous wastes on 2 January 1996. On 16 March 1998, Singapore enacted The Hazardous Waste (Control of Export, Import and Transit) Act and its Regulations to regulate the control of export, import and transit of hazardous wastes in accordance with the principles and provisions of the Basel Convention.

Under the Hazardous Waste (Control of Export, Import and Transit) Act and its Regulations, any person who wishes to export, import or transit hazardous wastes shall obtain a permit from the NEA. The NEA adopts the Prior Informed Consent (PIC) procedure of the Basel Convention in granting any permit for the export, import or transit of hazardous wastes. More information may be found here:
https://www.nea.gov.sg/our-services/pollution-control/chemical-safety/multilateral-environmental-agreements/basel-convention

Q-3 If your government has restriction on import of non-hazardous waste or quality control of non-hazardous waste, please list it up.

Singapore does not encourage the import of waste. The need for import of waste is assessed on a case-by-case basis.

Q-4 Does your government restrict import of remanufactured goods?

No

Q-5 Does your government regard remanufactured goods as secondhand goods, and regulate it as secondhand goods?

No

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

IV. 3R Goals for Cross−cutting Issues	
Goal 26	Facilitate the international circulation of re-usable and recyclable resources as well as remanufactured products as mutually agreed by countries and in accordance with international and national laws, especially the Basel Convention, which contributes to the reduction of negative environmental impacts and the effective management of resources.
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant -	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021) -	
Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all	

IV. 3R Goals for Cross−cutting Issues

Goal 27 Promote data collection, compilation and sharing, public announcement and application of statistics on wastes and the 3Rs, to understand the state of waste management and resource efficiency.

Q-1 Please give an overview on availability of various data and information on material flow and waste management by checking (X or ✓) the appropriate boxes. (Please respond on both "Data Availability" and Monitoring Base")

Data Type	Data Availability			Monitoring Base	
	Good	Very limited	No data exist	Good	Not good
Waste generation	✓			✓	
Material flow			✓		✓
Cyclical use			✓		✓
Amount of final disposal	✓			✓	
Disposal to land	N.A.	N.A.	N.A.	N.A.	N.A.
Direct disposal to water	N.A.	N.A.	N.A.	N.A.	N.A.
Import of waste	✓			✓	
Export of waste	✓			✓	
Total landfilled waste	✓			✓	
Import of recyclables	✓				✓
Export of recyclables	✓				✓
Hazardous waste generation (solid, liquid, sludge, etc.)	✓			✓	
e-waste generation		✓			✓

(Please add any other date type relevant to your country)

Q-2 What are the current and planned government policies and programmes to strengthen data and information availability in waste sector?

The EPHA was amended on 1 April 2014 to effect the mandatory reporting of waste data and waste reduction plan by large commercial premises, starting with large hotels and shopping malls. More information may be found here: *https://www.nea.gov.sg/our-services/waste-management/mandatory-waste-reporting*.

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

Waste statistics are compiled and more information on the recycling statistics may be found here: *http://www.nea.gov.sg/our-services/waste-management/waste-statistics-and-overall-recycling*

IV. 3R Goals for Cross−cutting Issues	
Goal 27	Promote data collection, compilation and sharing, public announcement and application of statistics on wastes and the 3Rs, to understand the state of waste management and resource efficiency.
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021) -	
Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all	

IV. 3R Goals for Cross−cutting Issues	
Goal 28	Promote heat recovery (waste-to-energy), in case wastes are not re-usable or recyclable and proper and sustainable management is secured.

Q-1 What are the government policies and programmes, including incentives, for waste-to-energy programmes?

All incinerable waste that is not sent for recycling must be disposed of at the WtE plants. Only incineration ash and non-incinerable waste are allowed to be disposed of at Semakau Landfill.

NEA encourages processes that can maximise energy recovery, minimise ash & land use. To maximise efficiency, wood and horticultural waste are segregated and sent to biomass WtE plants for co-/tri-generation (e.g. conversion into utility steam for industry use).

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

NEA is developing a new WtE plant (6th WtE plant) to increase Singapore's overall incineration capacity by 3,600 tonnes per day. Located at a 4.8 hectare site, the plant will be Singapore's most compact and energy-efficient WtE plant. The 6th WtE plant is expected to be operationalised in 2019. More information may be found here: *https://www.nea.gov.sg/media/news/news/index/national-environment-agency-and-hyflux-mitsubishi-heavy-industries-consortium-sign-waste-to-energy-services-agreement*

To ensure greater environmental sustainability and provide sufficient waste disposal capacity in the longer term, NEA will also be IWMF, which will be commissioned in phases from 2022 onwards and will tentatively be completed by 2027. More information may be found here: *https://www.nea.gov.sg/our-services/waste-management/waste-management-infrastructure/integrated-waste-management-facility*

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

-

Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

IV. 3R Goals for Cross−cutting Issues	
Goal 29	Promote overall regional cooperation and multi-stakeholder partnerships based on different levels of linkages such as government-to-government, municipality-to-municipality, industry-to-industry, (research) institute-to-institute, and NGO-to-NGO. Encourage technology transfer and technical and financial supports for 3Rs from developed countries to less developed countries.

Q-1 Please provide a list of on-going bilateral/multi-lateral technical cooperation in 3R areas?

3Rs / Solid Waste Management is one of the areas of cooperation under Letter of Intent (LOI) on Environmental Cooperation between the Ministry of the Environment of Japan (MOEJ) and the NEA, Singapore from 2010 to 2017. The LOI was renewed on 20 June 2017 in the form of a Memorandum of Cooperation between MOEJ and MEWR. Both agencies have exchanged experiences and information through policy dialogues, site visits and study visits.

MEWR and the Ministry of Development (MOD) of Brunei Darussalam have a Memorandum of Understanding (MOU) on Bilateral Partnership in Environmental Affairs for both countries to strengthen collaboration in the fields of environmental protection and management. The Brunei-Singapore Working Group on the Environment implements activities under the MOU and both countries share information, best practices and expertise through meetings, workshops and study visits.

MEWR had also signed an MOU with the Ministry of Infrastructure and Water Management of the Netherlands in November 2018 to pursue collaboration in the areas of mutual interest including circular economy and policies on 3Rs.

SEI, under NEA, actively seeks to foster environmental capacity building and development on a regional and international scale. Besides facilitating bilateral technical exchanges, SEI regularly organises technical assistance training programmes for the ASEAN region as well as for small island developing states. SEI does this in partnership with International Organisations such as:

- Asia Development Bank (ADB)
- Asian Environmental Compliance and Enforcement Network (AECEN)
- British High Commission
- Cities Development Initiative for Asia (CDIA)
- Clean Air Initiative-Asia (CAI-Asia)
- Colombo Plan Secretariat
- Deutsche Gesellschaft Für Internationale Zusammenarbeit GmbH (GIZ)
- French Embassy
- Hanns Seidel Foundation (HSF)
- Japan International Cooperation Agency (JICA)
- Korea International Cooperation Agency (KOICA)
- Royal Norwegian Embassy
- Thailand International Cooperation Agency (TICA)
- United Nations Development Programme (UNDP)
- United Nations Industrial Development Organisation (UNIDO)
- World Health Organisation (WHO)

Some of the training programmes have included “Waste Minimisation and Recycling Efforts in Singapore” as a topic in the curriculum. More information may be found here: *https://www.nea.gov.sg/programmes-grants/courses/sei/programmes*

Q-2 What actions are being taken to promote inter-municipal or regional cooperation in areas

IV. 3R Goals for Cross−cutting Issues	
Goal 29	Promote overall regional cooperation and multi-stakeholder partnerships based on different levels of linkages such as government-to-government, municipality-to-municipality, industry-to-industry, (research) institute-to-institute, and NGO-to-NGO. Encourage technology transfer and technical and financial supports for 3Rs from developed countries to less developed countries.

of waste exchanges, resource recovery, recycling, waste-to-energy and trade of recyclables?

The biennial CleanEnviro Summit Singapore (CESS) is organised by the NEA and provides a global networking platform for thought leaders, senior government officials and policy makers, regulators and industry captains to identify, develop and share practical, replicable and scalable solutions to address environmental challenges in the context of waste-water-energy nexus in Asia's growing cities. The key highlights include the CleanEnvironment Leaders Summit, CleanEnvironment Regulators Roundtable, Clean Environment Convention and the WasteMET Asia exhibition.

More information can be found here: *http://www.cleanenvirosummit.sg/*

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

-

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

-

Is this Goal relevant for your country? ☒ Highly ☐ Partially ☐ Not at all

IV. 3R Goals for Cross−cutting Issues	
Goal 30	Pay special attention to issues and challenges faced by developing countries including SIDS in achieving sustainable development.

Q-1 Please describe any past and on-going cooperation with SIDS (Small Island Developing States) countries in 3R areas.

The Singapore Cooperation Programme (SCP) serves as the primary platform through which Singapore offers technical assistance to other countries. An example of training programmes which cover the 3Rs include the Singapore Co-operation Programme Training Awards (SCPTA)/ Small Island Developing States Technical Co-operation (SIDSTEC) training programme on Urban Solid Waste Management. More information may be found here: *www.scp.gov.sg*

Q-2 Please list 3R related projects linked to climate change, biodiversity, disaster management and sustainable tourism. (This is to be reported by SIDS countries only)

-

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

-

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

-

Is this Goal relevant for your country? ☐ Highly ☒ Partially ☐ Not at all

IV. 3R Goals for Cross−cutting Issues	
Goal 31	Promote 3R + "Return" concept which stands for Reduce, Reuse, Recycle and "Return" where recycling is difficult due to the absence of available recycling industries and limited scale of markets in SIDS, especially in the Pacific Region.

Q-1 What specific policies, programme, including pilot projects, are implemented to promote 3R+ "Return" concept? (This is to be reported by SIDS countries only)

NEA has launched the national voluntary partnership for e-waste recycling with interested stakeholders to bring together and enhance the various programmes under one umbrella. More information may be found here: *https://www.nea.gov.sg/programmes-grants/schemes/national-voluntary-partnership-for-e-waste-recycling;*

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

-

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

-

Is this Goal relevant for your country? ☐ Highly ☒ Partially ☐ Not at all

IV. 3R Goals for Cross−cutting Issues	
Goal 32	Complete elimination of illegal engagement of children in the **informal waste sector** and gradually **improve** the working conditions and livelihood security, including **mandatory provision of health insurance**, for all workers.

Q-1 What is the approximate market size (in US$) of the informal waste sector?

Not applicable

Q-2 Number of annual labor inspections in waste sector?

-

Q-3 Is health insurance a mandatory to all informal workers in waste sector by law?

-

Q-4 What specific policies and enforcement mechanisms are in place to prevent illegal engagement of children in waste sector?

-

Q-5 Number of landfill sites accessible to register waste pickers?

-

Q-6 Average life span of informal waste workers?

-

Q-7 Any government vaccination programmes for informal waste workers?

-

Q-8 Any public awareness programmes for informal waste workers on health and safety measures?

-

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

-

Important policies/programs/projects/master plans the government plans to undertake within next five years (2016~2021)

-

IV. 3R Goals for Cross−cutting Issues	
Goal 32	Complete elimination of illegal engagement of children in the **informal waste sector** and gradually **improve** the working conditions and livelihood security, including **mandatory provision of health insurance**, for all workers.
Is this Goal relevant for your country? ☐ Highly ☐ Partially ☒ Not at all	

IV. 3R Goals for Cross−cutting Issues	
Goal 33	Promote 3Rs taking into account gender considerations.

Q-1 Please give a brief assessment on how the national, provincial and municipal governments incorporate gender considerations in waste reduction, reuse and recycle.

Not applicable.

Challenges (policy/ institutional/ technological/ financial) faced in implementation:

-

Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant

-

Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)

-

Is this Goal relevant for your country? ☐ Highly ☐ Partially ☒ Not at all

Q- Please provide a brief comprehensive summary of important 3R and resource efficiency policies /programmes/ projects/ master plans of your country.