

**Eighth Regional 3R Forum in Asia and the Pacific**

*“Achieving Clean Water, Clean Land and Clean Air through 3R and Resource Efficiency- A 21<sup>st</sup> Century Vision for Asia-pacific Communities”*

Indore, Madhya Pradesh, India, 9-12 April 2018

# **Country Report**

**(Draft)**

**<Singapore>**

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This country report was prepared by the Government of Singapore as an input for the Eighth 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

Name of the Country:

**Singapore**

Name, Designation and Organization Respondent:

**Hosea Choo**

**Senior Executive**

**Waste & Resource Management Department**

**National Environmental Agency**

**Other Ministries, Organizations, Agencies contributing to Country  
Report:**

**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.

Secretariat of the Regional 3R Forum in Asia and the Pacific  
United Nations Centre for Regional Development (UNCRD)  
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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 source segregated 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 participation rate by households in NRP was 15 % at the start in 2001. By 2012, it had increased to 71%. To support residents' recycling efforts, a recycling bin was made available 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 regularly at their convenience into the bins supplied and they need not set aside space at home to store of recyclables. The NRP has also been enhanced with more frequent collection at landed houses and collection of garden waste. In addition, incentive schemes such as "Cash-for-Trash" were implemented to further encourage recycling.

<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 the Agreement in 2007, the signatories have cumulatively reduced close to 39,000 tonnes of packaging waste, with concomitant savings of about S\$93 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 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 50,000 square feet. 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 also available to support the operators in their recycling and waste reduction efforts.

More information on mandatory reporting may be found here → <http://www.nea.gov.sg/energy-waste/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 3R Outreach Programme (CROP)

Under the Community 3R Outreach Programme (CROP), all 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 Kits  
NEA developed a Preschool 3R Awareness Kit to help teachers plan activities to pique the preschoolers' interest in the 3Rs and to reinforce their 3R awareness.
- ii) myENV app  
“myENV” application is available for download for smart phones to raise public awareness of the 3Rs; the public can use the app to locate the nearest recycling/collection point.
- iii) 3R Video for households  
To spread 3Rs message, a video titled “3R (Reduce, Reuse, Recycle) video for households 2015” was published on Youtube on 27 Jul 15. The video shows how 3Rs can be easily incorporated into our daily lives. (<http://youtu.be/zp-Uw7L0sTw>.)
- iv) 3R Guidebooks  
NEA has been actively working with various stakeholders on 3R outreach and has co-developed 3R guidebooks. Guidebooks on 3R for households, condominiums & private apartments, shopping malls, hotels, industries and events are currently available. (<http://www.nea.gov.sg/energy-waste/3rs/3r-guidebooks>)

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

**Q-3 Total annual government 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 that it is more challenging to measure and track waste generation and recycling, unlike energy or water consumption, which can be easily measured using meters.

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

<b>Goal 1</b>	Significant <b>reduction</b> in the quantity of <b>municipal solid waste</b> 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.
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*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.

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

Packaging Waste Management

NEA will introduce, by 2021, mandatory requirements for more sustainable packaging waste management, starting with mandatory reporting of packaging data and submission of packaging waste reduction plans.

*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 is also required to be collected by the public waste collectors from landed houses for recycling.

National Parks Board (NParks), the national agency dedicated to providing and enhancing the greenery of Singapore, requires their contractors to send horticultural waste for recycling.

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 educational materials publicised on mass and digital media, the NEA also collaborates with more than 40 premises, including supermarkets, food retail establishments, schools and other private organisations on food waste reduction outreach.

To address food waste from the supply chain, food waste minimisation guidebooks have been developed for food manufacturers, food retail establishments and supermarkets. The guidebooks are aimed at helping businesses develop their food waste minimisation plan by outlining steps that can be taken to minimise food waste from businesses' operations and featuring case studies of current food waste minimisation efforts by industry players to encourage other companies to adopt similar initiatives. The guidebooks also 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 are available at <http://www.nea.gov.sg/energy-waste/3rs/food-waste-management>.

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 digestors/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 these wastes were segregated at source for conversion into animal feed. Some hotel, supermarket, school and food centre operators have also installed on-site food waste treatment machines. All remaining organic waste was sent to waste-to-energy incineration plants for energy recovery, and no organic waste is landfilled.

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

The main challenges associated with food waste treatment/recycling in Singapore are:

- Food waste contaminates recyclables and compromises recycling efforts. It also causes odour nuisance and vermin proliferation if not managed properly.
- Lack of a cost-effective solution for collection and centralised treatment/recycling of food waste
- Space constraints for on-site food waste treatment/recycling
- Lack of downstream demand for the usual products of food waste recycling, such as animal feed and compost, since Singapore is not a significant agricultural producer.

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

NEA is conducting two types of 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.

<http://www.nea.gov.sg/corporate-functions/newsroom/advisories/two-hawker-centres-to-trial-on-site-food-waste-recycling-systems>)

- (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. If successful, the process could potentially be implemented at the NEA's future Integrated Waste Management Facility, which will be co-located with the Public Utilities Board's Tuas Water Reclamation Plant.

<http://www.nea.gov.sg/corporate-functions/newsroom/advisories/two-hawker-centres-to-trial-on-site-food-waste-recycling-systems>)

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

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**Voluntary Progress/Achievements/Initiatives in  
Implementing Ha Noi 3R Declaration (2013~2023)**

Country Name Singapore

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

<b>Goal 2</b>	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.
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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)

<b>Goal 3</b>	Achieve significant <b>increase in recycling rate</b> 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.
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**Q-1 What is the recycling rate of various recyclables?** (Please check the appropriate cell & add more waste streams as relevant for the country)

Type \ Rate	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 <b>*subsumed under Others</b>	-	-	-	-	-	-
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)*

(<http://www.nea.gov.sg/energy-waste/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 National Recycling Programme provides a convenient means for residents living in public high-rise apartments and private landed housing estates to recycle their source segregated paper, plastic, metal and glass waste streams.

(<http://www.nea.gov.sg/energy-waste/3rs/national-recycling-programme>)

All new public and private high-rise residential developments shall be fitted with Centralised Chutes for Recyclables (CCR), providing parity of convenience for recycling and waste disposal, from 2014 and 2018 respectively.

(<http://www.nea.gov.sg/docs/default-source/corporate/COS-2015/cos-2015-media-factsheet---recycling-chutes.pdf>)

Other initiatives such as the Singapore Packaging Agreement mentioned in Goal 1, Q1 target to reduce/recycle paper, plastic, metal and glass packaging waste, while Mandatory Waste Reporting (also mentioned in Goal 1, Q1) aims to reduce/recycle waste streams such as paper, plastic, glass, metal, and food waste generated by the large commercial premises.

A metal recovery facility uses magnetic and eddy current separators to recover ferrous and non-ferrous metals from the incineration bottom ash (IBA) generated by Singapore's waste-to-energy (WTE) incineration plants.

<http://www.nea.gov.sg/corporate-functions/newsroom/news-releases/category/environmental-protection/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 has formed the 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.

<http://www.nea.gov.sg/energy-waste/3rs/e-waste-management/national-voluntary-partnership>

NEA has conducted a study on the collection, recycling and management of e-waste and is currently developing options for a regulated system for collecting, treating and recycling e-waste in Singapore.

<http://www.nea.gov.sg/corporate-functions/newsroom/advisories/nea-to-conduct-study-on-collection-recycling-and-management-of-e-waste>

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<sup>2</sup> are required to report the weight of waste and recyclables generated at their premises from fiscal year (FY) 2015 onwards.

[http://www.e2singapore.gov.sg/Programmes/Public\\_Sector\\_Taking\\_the\\_Lead\\_in\\_Environmental\\_Sustainability.aspx](http://www.e2singapore.gov.sg/Programmes/Public_Sector_Taking_the_Lead_in_Environmental_Sustainability.aspx)

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

Please refer to Q1 (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					

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Implementing Ha Noi 3R Declaration (2013~2023)**

Country Name Singapore

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?**

Type \ Level	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

**Voluntary Progress/Achievements/Initiatives in  
Implementing Ha Noi 3R Declaration (2013~2023)**

Country Name Singapore

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 extended producer responsibility concept in the management of e-waste, and mandatory reporting requirements for packaging data and packaging waste reduction plans by 2021.

*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:

- Singapore Packaging Agreement – To encourage companies to review their packaging designs and processes, and effect changes to reduce packaging waste from consumer products and the supply chain.  
<http://www.nea.gov.sg/SPA>
- Mandatory waste reporting for large commercial premises  
<http://www.nea.gov.sg/energy-waste/waste-management/mandatory-waste-reporting>
- National voluntary partnership for e-waste recycling – Funding scheme 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.  
<http://www.nea.gov.sg/energy-waste/3rs/e-waste-management/national-voluntary-partnership>
- 3R Programme for Hotels – This is a joint initiative by the Singapore Hotel Association and NEA to promote 3R awareness and education, continuous learning and improvement, as well as provide a platform for hotels to share their experiences and best practices in the areas of waste minimisation and 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 extended producer responsibility concept in the management of e-waste, and mandatory reporting requirements for packaging data and packaging waste reduction plans by 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 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?**

SMEs can tap on the following resources:

Incentives

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

Further details are available at: <http://www.nea.gov.sg/energy-waste/energy-efficiency/industry-sector>

Programmes

- [Energy Efficiency National Partnership](http://www.e2singapore.gov.sg/Programmes/Energy_Efficiency_National_Partnership.aspx) – To support companies in their energy efficiency efforts through learning network activities, provision of energy efficiency-related resources, incentives and recognition.

([http://www.e2singapore.gov.sg/Programmes/Energy\\_Efficiency\\_National\\_Partnership.aspx](http://www.e2singapore.gov.sg/Programmes/Energy_Efficiency_National_Partnership.aspx))

- [Energy Services Companies \(ESCO\) Accreditation Scheme](http://www.e2singapore.gov.sg/Programmes/ESCO_Accreditation_Scheme.aspx) – To enhance the professionalism and quality of services offered by energy services companies (ESCOs), who provide energy efficient technology and services including financing, design, implementation and management of projects.

([http://www.e2singapore.gov.sg/Programmes/ESCO\\_Accreditation\\_Scheme.aspx](http://www.e2singapore.gov.sg/Programmes/ESCO_Accreditation_Scheme.aspx))

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,

(<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?**

SPRING Singapore (an agency under the Ministry of Trade and Industry responsible for helping Singapore enterprises grow) provides assistance programmes to help SMEs in their capability upgrading efforts.

(<https://www.spring.gov.sg/Growing-Business/Grant/development-areas/Pages/productivity-improvement.aspx>)

**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)**

**Voluntary Progress/Achievements/Initiatives in  
Implementing Ha Noi 3R Declaration (2013~2023)**

Country Name Singapore

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

<b>Goal 5</b>	Encourage the <b>private sector</b> , including small-and medium-sized enterprises (SMEs) to implement measures to increase <b>resource efficiency and productivity</b> , creation of decent work and to improve environmentally-friendly practices through applying environmental standards, clean technologies, and cleaner production.
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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 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

The Singapore Packaging Agreement (SPA) is a joint initiative by the government, industry and non-government organisations (NGOs) to reduce packaging waste from consumer products and the supply chain. The SPA provides opportunities for networking and exchange of information on packaging waste reduction best practices through meetings, events and sharing sessions.

<http://www.nea.gov.sg/SPA>

SGX Sustainability Reporting

The Singapore Exchange introduced sustainability reporting in 2016. Singapore-listed companies will have to publish a sustainability report at least once a year, covering five primary components: material ESG 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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***Important policies/programmes/projects/master plans the government plans to undertake***

**Voluntary Progress/Achievements/Initiatives in  
Implementing Ha Noi 3R Declaration (2013~2023)**

Country Name Singapore

**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.

*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 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?***

JTC Corporation (JTC) is the lead agency in Singapore to spearhead the planning, promotion and development of a dynamic industrial landscape. With its Environmental Sustainability Framework, JTC aims to implement smart and sustainable solutions in its industrial estates and developments, and overcome issues such as environmental and land-use challenges through innovation. JTC aims to green its current estimated Gross Floor Area of 1.3 million square metres of industrial space by 2018. This will help create a greener environment and let its tenants benefit from improved energy and water efficiencies.

(<http://www.mewr.gov.sg/ssb/files/ssb-c04.pdf>; [http://www.seas.org.sg/uploads/News/files/DecNewsletter\\_Driving%20the%20development%20of%20sustainable%20industrial%20infrastructure%20solutions%20in%20Singapore.pdf](http://www.seas.org.sg/uploads/News/files/DecNewsletter_Driving%20the%20development%20of%20sustainable%20industrial%20infrastructure%20solutions%20in%20Singapore.pdf))

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

-

***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)***

[Integrated Waste Management Facility \(IWMF\)](#)

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 when completed in 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 MSW, source-segregated recyclables, source-segregated food waste and treated used water sludge. The Integrated Waste Management Facility (IWMF) will also be co-located with PUB’s Tuas Water Reclamation Plant (TWRP) to derive optimal process and 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 IWMF’s food waste with used water sludge at TWRP to increase the yield of biogas production. Biogas will be utilised at IWMF to improve steam quality and in

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

<b>Goal 7</b>	Promote <b>industrial symbiosis</b> (i.e., recycling of waste from one industry as a resource for another), by providing relevant incentives and support.
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turn give rise to higher overall plant thermal efficiency and increased electricity production.

- Incineration of TWRP’s sludge at IWMF’s Sludge Incineration Facility to increase electricity production;
- Utilisation of IWMF’s steam for TWRP’s thermal hydrolysis process and greasy waste treatment; and
- Utilisation of TWRP’s treated water for IWMF’s processes

<http://www.straitstimes.com/singapore/environment/2-green-plants-to-improve-waste-treatment-efficiency>

Multi-Storey Recycling Facility (MSRF)

The National Environment Agency (NEA), together with JTC Corporation (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 is envisaged to support industry transformation to increase competitiveness in the Waste Management sector. Further industry consultations are currently on-going.

*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 (SEI)

The 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". Further information is available in the following webpage:

<http://www.nea.gov.sg/training-knowledge/singapore-environment-institute/professional-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.

<https://www.a-star.edu.sg/simtech-smc>;

[http://www.nas.gov.sg/archivesonline/data/pdfdoc/20091111003/media\\_publicity\\_smc\\_3\\_nov\\_2\\_.pdf](http://www.nas.gov.sg/archivesonline/data/pdfdoc/20091111003/media_publicity_smc_3_nov_2_.pdf)

Singapore Sustainability Academy

The Singapore Sustainability Academy (SSA) was launched in Aug 2016 to promote a low-carbon economy, resource efficiency and sustainability practices among businesses and the community. The SSA will offer training programmes, and promote collaboration between businesses, academics and young people in the area of improving sustainability efforts and standards in Singapore.

<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/>; [http://www.cdl.com.sg/app/attachment/cdl/investors\\_media/press\\_release/20160805.pdf](http://www.cdl.com.sg/app/attachment/cdl/investors_media/press_release/20160805.pdf)

*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.?*

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**Voluntary Progress/Achievements/Initiatives in  
Implementing Ha Noi 3R Declaration (2013~2023)**

Country Name	Singapore
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**I. 3R Goals in Urban/Industrial Areas (3Rs in Industrial waste)**

<b>Goal 8</b>	<b>Build local capacity</b> 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.
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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**

-

**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 Sustainable Singapore Blueprint, Singapore is working towards becoming a Zero Waste Nation by reducing consumption as well as reusing and recycling all materials to give them a second lease of life. The Government, the community and businesses will come together to put in place infrastructure and programmes that make this a way of life.

**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 can be found in this webpage:

<http://www.nea.gov.sg/docs/default-source/anti-pollution-radiation-protection/soil-pollution/20100505422108755681.pdf>

The list of controlled hazardous substances is available in this webpage:

<http://www.nea.gov.sg/docs/default-source/anti-pollution-radiation-protection/chemical-pollution/hazardous-substances/hs--table-1>

**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 details on the management of toxic industrial waste are available in this paper:

<http://www.nea.gov.sg/docs/default-source/anti-pollution-radiation-protection/chemical-pollution/management-of-hazardous-waste.pdf>

**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)**

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

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

- cadmium and its compounds;
- hexavalent chromium;
- lead and its compounds;
- mercury and its compounds;

**Voluntary Progress/Achievements/Initiatives in  
Implementing Ha Noi 3R Declaration (2013~2023)**

Country Name Singapore

**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.

- polybrominated biphenyls; and
- polybrominated diphenyl ethers.

(<https://chemicalwatch.com/asiahub/48954/singapore-publishes-rohs-regulation-plans-2017-implementation>; <http://statutes.agc.gov.sg/aol/search/display/view.w3p?page=0;query=Id%3A96fd5245-c724-4875-ace6-6d30a7dac0a6%20Depth%3A0%20Status%3Apublished%20Published%3A01%2F06%2F2016;rec=0;resUrl=http%3A%2F%2Fstatutes.agc.gov.sg%2Faol%2Fsearch%2Fsummary%2Fresults.w3p%3Bpage%3D0%3Bquery%3DId%253A96fd5245-c724-4875-ace6-6d30a7dac0a6%2520Depth%253A0%2520Status%253Apublished%2520Published%253A01%252F06%252F2016> )

*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.

[http://www.mnd.gov.sg/budgetdebate2014/foodsafety\\_imc.htm](http://www.mnd.gov.sg/budgetdebate2014/foodsafety_imc.htm)

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

To raise awareness to consumers, collateral materials 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 is 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:***

-

***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)***

**Voluntary Progress/Achievements/Initiatives in  
Implementing Ha Noi 3R Declaration (2013~2023)**

Country Name Singapore

**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.

-

*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:**

-

**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 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.

<http://www.mpa.gov.sg/web/portal/home/port-of-singapore/maritime-legislation-of-singapore/prevention-of-pollution-of%20the-sea-act>

The Environmental Public Health Act 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.

<http://statutes.agc.gov.sg/aol/search/display/view.w3p;page=0;query=DocId%3A%228615ccd4-a019-485d-aa9e-d858e4e246c5%22%20Status%3Ainforce%20Depth%3A0;rec=0>

*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 particulates (<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. See webpage for details: <http://www.nea.gov.sg/anti-pollution-radiation-protection/central-building-planning>

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. See webpage for details:

<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 are recycled at Singapore’s e-waste recycling plants while unwanted electronic equipment from consumers are 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. A consumer survey showed that 6% (by weight) of e-waste from consumers are deposited into e-waste recycling bins.

<http://www.nea.gov.sg/corporate-functions/newsroom/news-releases/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 on the national voluntary partnership and e-waste recycling programmes can be found at the following webpages:  
<http://www.nea.gov.sg/energy-waste/3rs/e-waste-lamp-battery-recycling>  
<http://www.nea.gov.sg/energy-waste/3rs/e-waste-management/about>

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

NEA is currently exploring options for a regulated e-waste management framework.

**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 acceded 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

**III. 3R Goals for New and Emerging Wastes**

<b>Goal 14</b>	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.
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person who wishes to export, import or transit hazardous wastes shall obtain a permit from the NEA. 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 Basel Convention is available at this webpage:  
<http://www.nea.gov.sg/anti-pollution-radiation-protection/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:*

-

*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**

<b>Goal 15</b>	Progressive implementation of “ <b>extended producer responsibility (EPR)</b> ” 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.
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*Q-1 What specific Extended Product Responsibility (EPR) policies are enacted or introduced? (If there is none, then skip Q-2 below)*

-

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

-

*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)*

NEA will introduce extended producer responsibility concept in the management of e-waste, and mandatory reporting requirements for packaging data and packaging waste reduction plans 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.

Further information on the control of biohazardous wastes is available in this webpage: <http://www.nea.gov.sg/anti-pollution-radiation-protection/chemical-safety/toxic-industrial-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, National Environment Agency

***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:***

-

***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 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) for household air-conditioners and refrigerators in 2018. 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 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).

For more information on Mandatory Energy Labelling and Minimum Energy Performance Standards, please refer to [www.nea.gov.sg/els](http://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. (<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. (<http://www.sgl.s.ec.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 on the programmes is available at : <http://www.nea.gov.sg/energy-waste/energy-efficiency/industry-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:***

-

***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 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, and by burning all organic waste (which makes up about 90% of waste disposed of) in waste-to-energy incineration plants. In land-scarce Singapore, waste-to-energy (WTE) incineration 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 incineration plants generate electricity, reducing the amount of fossil fuel used to generate electricity in the power plants
- ii) Incineration of waste results in the release of lower amount of GHGs as well as less potent GHGs compared to landfilling of waste (landfilling releases methane, which has higher global warming potential than carbon dioxide).

[\(https://www.nccs.gov.sg/climate-change-and-singapore/domestic-actions/reducing-emissions/waste-and-water;](https://www.nccs.gov.sg/climate-change-and-singapore/domestic-actions/reducing-emissions/waste-and-water;)

<http://www.nea.gov.sg/energy-waste/3rs/waste-minimisation-and-recycling;>

[https://www.nccs.gov.sg/sites/nccs/files/NCCS\\_Mitigation\\_FA\\_webview%2027-06-16.pdf\)](https://www.nccs.gov.sg/sites/nccs/files/NCCS_Mitigation_FA_webview%2027-06-16.pdf)

***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)***

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 waste-to-energy incineration plants.

[\(https://www.nccs.gov.sg/sites/nccs/files/NCCS\\_Mitigation\\_FA\\_webview%2027-06-16.pdf\)](https://www.nccs.gov.sg/sites/nccs/files/NCCS_Mitigation_FA_webview%2027-06-16.pdf)

***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 R&D base to increase energy efficiency, reduce carbon emissions and increase energy options.  
(<http://www.nrf.gov.sg/about-nrf/programmes/national-innovation-challenges>)

*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:*

-

*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 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. (<http://www.nea.gov.sg/docs/default-source/default-document-library/annex-f---factsheet-on-funding-schemes.pdf>)

*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**

The Singapore Packaging Agreement (SPA) is a joint initiative by the government, industry, and non-government organisations (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.

<http://www.nea.gov.sg/SPA>

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.

[http://www.e2singapore.gov.sg/Programmes/Energy\\_Efficiency\\_National\\_Partnership.aspx](http://www.e2singapore.gov.sg/Programmes/Energy_Efficiency_National_Partnership.aspx)

**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?

Schools Recycling Corner Programme

The Schools Recycling Corner Programme was launched in Sep 2002, with the aim of educating and inculcating the habit of recycling among the students. Under this programme, NEA collaborates with schools to set up “recycling corners”, where recycling bins (provided by the PWCs) for paper, cans and plastic bottles are placed and educational materials such as posters are put up by students to raise awareness of waste minimisation and recycling. The Schools Recycling Corner Programme has been implemented in all local schools.

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 on the programmes is available at:

<http://www.nea.gov.sg/events-programmes/programmes/schools-youth>

**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.

NEA’s Singapore Environment Institute (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. ([http://www.nea.gov.sg/training-knowledge/singapore-environment-institute/all-courses/peel-\(programme-for-environmental-experiential-learning\)](http://www.nea.gov.sg/training-knowledge/singapore-environment-institute/all-courses/peel-(programme-for-environmental-experiential-learning)))

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. (<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**

<b>Goal 21</b>	<b>Integrate the 3Rs</b> 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.
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*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 Sustainable Singapore Blueprint 2015 (SSB), 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) The Ministry of the Environment and Water Resources (MEWR) and National Environment Agency (NEA) are the main government agencies promoting the 3Rs and resource efficiency;
- ii) Ministry of Transportation (MOT) – MOT promotes resource efficiency through measures such as limiting the growth of private transport and encouraging fuel efficiency. (<https://www.mot.gov.sg/About-MOT/Land-Transport/Sustainable-Transport/Improving-Resource-Efficiency/>)
- iii) Land Transport Authority (LTA) – 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. ([https://www.lta.gov.sg/ltaacademy/doc/J12%20May-p38Melvyn%20THONG\\_Energy%20Efficiency%20in%20Singapore%20Rapid.pdf](https://www.lta.gov.sg/ltaacademy/doc/J12%20May-p38Melvyn%20THONG_Energy%20Efficiency%20in%20Singapore%20Rapid.pdf); [https://www.lta.gov.sg/content/dam/ltaweb/corp/GreenTransport/files/COS12\\_Details%20on%20CEVS\\_Annex-A.pdf](https://www.lta.gov.sg/content/dam/ltaweb/corp/GreenTransport/files/COS12_Details%20on%20CEVS_Annex-A.pdf))
- iv) Building & Construction Authority (BCA) – BCA promotes energy efficiency and recycling in buildings, through their Green Mark scheme ([https://www.bca.gov.sg/GreenMark/others/BCA\\_Green\\_Mark\\_10th\\_Anniversary\\_Commemorative\\_Book.pdf](https://www.bca.gov.sg/GreenMark/others/BCA_Green_Mark_10th_Anniversary_Commemorative_Book.pdf));
- v) Urban Redevelopment Authority (URA) – URA, Singapore’s national land use planning and conservation authority, 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. ([https://www.ura.gov.sg/skyline/skyline12/skyline12-03/special/URA\\_Designing%20our%20City%20Supplement\\_July12.pdf](https://www.ura.gov.sg/skyline/skyline12/skyline12-03/special/URA_Designing%20our%20City%20Supplement_July12.pdf); <http://www.channelnewsasia.com/news/singapore/ura-calls-for-master-plan/2947206.html>)
- vi) Housing & Development Board (HDB) – HDB, Singapore’s public housing authority, 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. (<http://www.hdb.gov.sg/cs/infoweb/community/practise-eco-living>)
- vii) Public Utilities Board (PUB) – PUB, Singapore’s national water agency, has initiated programmes such as Mandatory Water Efficiency Labelling Scheme and Water Efficient Building Certification to promote water efficiency and conservation. (<https://www.pub.gov.sg/watersupply/singaporewaterstory>)

**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-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

<b>Goal 23</b>	Promote <b>green and socially responsible procurement</b> at all levels, thereby creating and expanding 3R industries and markets for environmentally-friendly goods and products.
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***Q-1 What specific policies are introduced to promote green and social responsible procurement?***

The Public Sector Taking the Lead in Environmental Sustainability (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 Mandatory Energy Labelling Scheme, 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 Singapore Environment Council.

More information at:

[http://www.e2singapore.gov.sg/Programmes/Public\\_Sector\\_Taking\\_the\\_Lead\\_in\\_Environmental\\_Sustainability.aspx](http://www.e2singapore.gov.sg/Programmes/Public_Sector_Taking_the_Lead_in_Environmental_Sustainability.aspx)

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

- **Mandatory Energy Labelling Scheme (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.  
([www.nea.gov.sg/els](http://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.  
([http://www.bca.gov.sg/greenmark/green\\_mark\\_buildings.html](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.  
([http://www.onemotoring.com.sg/publish/onemotoring/en/lta\\_information\\_guidelines/buy\\_a\\_new\\_vehicle/fuel\\_economy.html](http://www.onemotoring.com.sg/publish/onemotoring/en/lta_information_guidelines/buy_a_new_vehicle/fuel_economy.html))
- **Singapore Green Labelling Scheme (SGLS)** is an environmental standard and certification mark that is applied to products which have passed stringent standards of environmental processes and procedures.  
(<http://sgls.sec.org.sg/>)
- **Eco-Office, Eco-shop and Eco-F&B**  
([http://sgls.sec.org.sg/cms.php?cms\\_id=14](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 Singapore Packaging Agreement (SPA) to mark the consumer products by SPA signatories that have undergone a reduction in the amount of

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.

packaging material used. The LPRP will enable consumers to identify products with reduced packaging and recognise companies that have made the effort to minimise packaging waste. Currently, the LPRP is offered to winners of the SPA Awards (formerly known as 3R Packaging Awards) 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.



**An initiative of the SPA**  
www.nea.gov.sg/SPA

*Q-3 Please provide a list of criteria for eco-labeled products and services in your country. Refer to webpages provided above.*

*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**

<b>Goal 24</b>	<b>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.</b>
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*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.*

None

*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

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

Illegal Dumping of Waste

Under Environmental Public Health Act (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". The EPHA can be viewed at the following webpage:

<http://statutes.agc.gov.sg/aol/search/display/view.w3p;page=0;query=DocId%3A8615ccd4-a019-485d-aa9e-d858e4e246c5%20Depth%3A0%20Status%3Ainforce;rec=0>

Open Burning of Waste

Under Environmental Public Health (Public cleansing) Regulations, Section 6A. The regulations can be viewed at the following webpage:

<http://statutes.agc.gov.sg/aol/search/display/view.w3p;page=0;query=Id%3A%229ca1a537-b4a2-49ad-a00b-4a4a8170b04f%22%20Status%3Ainforce;rec=0>

**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 Environmental Public Health Act and its subsidiary legislation aim to deter littering in public places.

(<http://statutes.agc.gov.sg/aol/search/display/view.w3p;page=0;query=DocId%3A%228615ccd4-a019-485d-aa9e-d858e4e246c5%22%20Status%3Ainforce%20Depth%3A0;rec=0>)

The discharge of wastewater into open drains, canals and rivers is regulated by the Environmental Protection and Management Act (EPMA) and the Environmental Protection and Management (Trade Effluent) Regulations.

(<http://www.nea.gov.sg/anti-pollution-radiation-protection/water-pollution-control>)

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

The Prevention of Pollution of the Sea Act aims 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.

(<http://www.mpa.gov.sg/web/portal/home/port-of-singapore/maritime-legislation-of-singapore/prevention-of-pollution-of%20the-sea-act>)

**IV. 3R Goals for Cross-cutting Issues**

<b>Goal 25</b>	<b>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.</b>
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*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**

<b>Goal 26</b>	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.
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***Q-1 What are major recycling industries in your country?***

In Singapore, there are recycling plants for construction and demolition waste, plastics, e-waste, wood/horticultural waste and ferrous metals.

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

Basel Convention

Singapore acceded 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. 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 is available at this webpage:

<http://www.nea.gov.sg/anti-pollution-radiation-protection/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:***

-

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

-

**Voluntary Progress/Achievements/Initiatives in  
Implementing Ha Noi 3R Declaration (2013~2023)**

Country Name Singapore

**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.

*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 data 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 Environmental Public Health Act was amended on 1 Apr 2014 to effect the mandatory reporting of waste data and waste reduction plan by large commercial premises, starting with large hotels and shopping malls.  
(<http://www.nea.gov.sg/energy-waste/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 made available on NEA’s website at this link →  
<http://www.nea.gov.sg/energy-waste/waste-management/waste-statistics-and-overall-recycling>

**Voluntary Progress/Achievements/Initiatives in  
Implementing Ha Noi 3R Declaration (2013~2023)**

Country Name Singapore

**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?***

In Singapore, all incinerable waste that is not sent for recycling must be disposed of at the waste-to-energy (WTE) plants. Only incineration ash and non-incinerable waste are allowed to be disposed of at Semakau Landfill.

For waste-to-energy, 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 waste-to-energy 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 waste-to-energy plant (6<sup>th</sup> WTE plant) to increase Singapore’s overall incineration capacity. When operationalised in 2019, it will be Singapore’s largest, most energy-efficient and land-efficient WTE plant.

<http://www.nea.gov.sg/corporate-functions/newsroom/news-releases/hyflux-ltd-and-consortium-partner-mitsubishi-heavy-industries-ltd-to-build-new-waste-to-energy-plant-in-tuas>

To ensure that sufficient waste disposal capacity in the longer term, NEA will also be developing Integrated Waste Management Facility that will be commissioned in phases from 2022 onwards, with full completion in 2027.

<http://www.nea.gov.sg/corporate-functions/newsroom/news-releases/pub-nea-to-call-tenders-for-dtss-phase-2-and-iwmf-projects>

***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 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 on Environmental Cooperation between the Ministry of the Environment of Japan (MOEJ) and the National Environment Agency, Singapore (NEA) from 2010 to 2017. The LOI was renewed on 20 Jun 2017 in the form of a Memorandum of Cooperation between MOEJ and Singapore's Ministry of the Environment and Water Resources (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.

The Singapore Environment Institute (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. Further information is available in the following webpage:

**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.

<http://www.nea.gov.sg/training-knowledge/singapore-environment-institute/international-programmes>

**Q-2 What actions are being taken to promote inter-municipal or regional cooperation in areas of waste exchanges, resource recovery, recycling, waste-to-energy and trade of recyclables?**

The biennial CleanEnviro Summit Singapore (CESS) is organised by the National Environment Agency 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 on the CleanEnviro Summit Singapore can be found at this webpage: <http://www.cleanenviros Summit.sg/>

**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)**

-

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

**IV. 3R Goals for Cross-cutting Issues**

<b>Goal 30</b>	Pay special attention to issues and challenges faced by developing countries including SIDS in achieving sustainable development.
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***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  
 → [https://www.scp.gov.sg/content/scp/courses\\_offered\\_applicationprocedure/courses/2017/201702/sample13.html](https://www.scp.gov.sg/content/scp/courses_offered_applicationprocedure/courses/2017/201702/sample13.html)

***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)***

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***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**

<b>Goal 31</b>	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.
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***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)***

The national voluntary partnership for e-waste recycling brings together various existing partner programmes under one umbrella to provide consumers with more convenient access to collection points for e-waste, to facilitate e-waste recycling.

(<http://www.nea.gov.sg/energy-waste/3rs/e-waste-management/national-voluntary-partnership>)

***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:*

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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/programs/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 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)*

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*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.