

Country 3R Progress Report

Name of the Country:

Singapore

Name, Designation and Organization Respondent:

Sharon Ong

Senior Manager

Waste and Resource Management Department

National Environment 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 interest and commitment 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 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 not only help the member countries to learn various 3R best practices in place across the region, but it would also help bi-lateral and multi-lateral development agencies, donors, development banks in assessing the sustainable needs and challenges to better devise their existing as well as future capacity building programmes and technical assistance in the areas of 3Rs and sustainable waste management.

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)
Email: 3R@uncrd.or.jp

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 producers 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 and had increased to 71% in 2012. To improve the recycling infrastructure for residents, a recycling bin was provided for every HDB block from 2014 in place of the fortnightly door-to-door collection services. Residents find it more convenient in terms of space for storage of recyclables and they are able to deposit their recyclables at any time of the day. The NRP has also been enhanced to provide private landed estates with more frequent collection, as well as garden waste collection. 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 by NEA, the private sector and non-government organisations (NGOs), to reduce packaging waste from consumer products and the supply chain. Since the launch of the Agreement in 2007 (i.e. from 1 July 2007 to 30 June 2016), the signatories have cumulatively reduced about 32,000 tonnes of packaging waste, with concomitant savings of more than S\$75 million in the material costs of locally consumed products.

More information on the SPA may be found here →

<http://www.nea.gov.sg/energy-waste/3rs/singapore-packaging-agreement>

Mandatory Waste Reporting for Large Commercial Premises

In April 2014, the Environmental Public Health Act was amended to require 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 managers of the potential for improving their premises’ waste management systems. Premises can tap on government assistance schemes / grants to support their efforts in reducing their waste.

More information on the mandatory reporting may be found here →

<http://www.nea.gov.sg/energy-waste/waste-management/mandatory-waste-reporting>

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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 has 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; it aims to educate people on 3Rs and allows them to find the nearest recycling/collection points in Singapore.
- iii) 3R Video for households
To spread 3Rs message, a video entitled “3R (Reduce, Reuse, Recycle) video for households 2015” has been made available 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 to co-develop 3R guidebooks. Examples of guidebooks developed so far are for households, condominiums & private apartments, shopping malls, hotels, industries and events. (<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 implementation of waste reduction initiatives is it can be quite tedious or inconvenient to quantify and track waste generation, unlike energy or water consumption which can be easily measured using meters.

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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.
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<p><u>Master Plan</u></p> <p>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 higher overall recycling rate from the current 61% to 70% in 2030.</p> <p>Below are some examples of initiatives to reduce waste generation in 2015:</p> <ul style="list-style-type: none"> • A packaging benchmarking database (accessible at www.nea.gov.sg/SPA) was launched in 2015 to allow producers to compare the packaging weight of their products against the benchmarks of similar products sold locally. The purpose of this database is to enable businesses to discover the potential for improving their packaging design and use of materials, and spur them to take action to reduce the amount of packaging in their products. (http://www.nea.gov.sg/corporate-functions/newsroom/news-releases/nea-launches-packaging-benchmarking-database-to-encourage-businesses-to-reduce-waste) • In November 2015, NEA rolled out a food wastage reduction outreach programme to encourage the public to prevent and reduce food waste at source. The outreach programme features educational materials displayed through channels such as newspapers and on TV, digital and mobile media platforms, and at bus-stop shelters. An online handy guide was also produced to provide consumers with a wide range of useful tips on how to reduce food wastage at home and when dining out. The handy guide may be downloaded from this webpage: www.cgs.sg/FWRGuide (http://www.nea.gov.sg/corporate-functions/newsroom/news-releases/saving-money-the-biggest-motivation-for-households-to-reduce-food-wastage-nea-ava-survey) 	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)	
<p><u>Packaging Waste Management</u></p> <p>NEA plans to introduce, in three to five years’ time, mandatory requirements for more sustainable packaging waste management, starting with mandatory reporting of packaging placed in the market and submission of packaging reduction plans. (http://www.nea.gov.sg/corporate-functions/newsroom/news-releases/nea-to-introduce-mandatory-requirements-for-more-sustainable-packaging-waste-management; http://www.channelnewsasia.com/news/singapore/singapore-to-have/2950222.html)</p>	
<p>Is this Goal relevant for your country? <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all</p>	

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

From 1 Oct 2013, waste collectors transporting wood waste (alone or mixed with general waste) are not allowed to dispose such waste at the incineration plants. Such waste would instead be diverted 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 households 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

Food waste minimisation guidebooks have been developed for manufacturers, retail food establishments and supermarkets and these will be rolled out progressively from 2016.

A Working Group was formed in 2016 to develop standards on food waste management, with the aim of minimising food waste generated by manufacturers and moving towards eliminating food waste.

NEA also promotes and provides Government funding support (under the 3R funding scheme) for businesses who wish to adopt on-site food waste digester systems, which convert food waste into compost for landscaping purposes or water for non-potable use. (<http://www.nea.gov.sg/grants-awards/3r-fund>)

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.

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

In 2015, 72% of wood and horticultural wastes were converted into energy at the biomass plants, while 13% 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. All remaining organic waste was sent to waste-to-energy incineration plants for energy recovery, and no organic

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waste is landfilled.

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

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

- 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) On 21 January 2016, NEA launched a two-year on-site food waste recycling pilot at two hawker centres to test the economic viability and operational feasibility of food waste segregation and recycling 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 will commence by end 2016, will examine 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.

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

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

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

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

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

**Note: Please specify in the cell which of the following definitions (ie., 1 or 2 or 3) is followed for recycling rate*

Definition 1: (collected recyclable waste)/(estimated generation of waste)

Definition 2: (volume of utilized recyclable waste)/(volume of raw material)

Definition 3: (volume of utilized recyclable waste)/(volume of collected waste for recycling)

<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 and recycling 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>

Currently, the majority of households live in high-rise housing served by rubbish chutes on every floor or within every unit, making it more convenient to throw waste than to deposit recyclables separately. From 2014, all new public high-rise residential developments have been fitted with Centralised Chutes for Recyclables (CCR), providing parity of convenience for

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recycling and waste disposal.

(<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.

In addition, NEA has set up a metal recovery facility which 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. The incineration plants have conventional magnetic separators but they are only able to recover larger pieces of ferrous metals. However, with the metal recovery facility in operation, smaller pieces of ferrous metals as well as non-ferrous metals can now be recovered.

(<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 is forming a national voluntary partnership for 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 whole 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-lamp-battery-recycling/national-voluntary-partnership>)

NEA is also currently conducting a study on the collection, recycling and management of electrical and electronic waste (e-waste) to look into various options for a regulated system for collecting, treating and recycling e-waste.

(<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 m² 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)

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

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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					
Metal					
Construction waste					
e-waste					

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

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

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

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

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

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

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

I. 3R Goals in Urban/Industrial Areas (3Rs in 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?	
<p>Some of the policies and voluntary initiatives to encourage private sector participation include:</p> <ul style="list-style-type: none"> • 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-lamp-battery-recycling/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)	
<input checked="" type="checkbox"/> waste collection <input checked="" type="checkbox"/> resource recovery <input checked="" type="checkbox"/> waste recycling <input checked="" type="checkbox"/> waste to energy, composting, etc. <input checked="" type="checkbox"/> PPP projects in 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? <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> 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?

To promote and facilitate the adoption of energy efficiency in Singapore, the Energy Efficiency Programme Office (E2PO), a multi-agency committee led by the National Environment Agency (NEA) and the Energy Market Authority, has been established.

(<http://www.e2singapore.gov.sg/>)

Industry including SMEs can tap on the following resources:

Incentives

- Design for Efficiency Scheme (DfE)
- Energy Efficiency Improvement Assistance Scheme (EASe)
- Grant for Energy Efficient Technologies (GREET)
- Singapore Certified Energy Manager (SCEM) Training Grant
- One-Year Accelerated Depreciation Allowance for Energy Efficient Equipment and Technology (ADAS)
- 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 – 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)
- Energy Services Companies (ESCO) Accreditation Scheme – 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)

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>)

**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 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.
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> 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.
<p><i>Q-1 What percent of companies and industries have introduced green accounting and voluntary environmental performance evaluation (Ref: ISO 14000)?</i></p> <p> <input type="checkbox"/> Very High (> 90%) <input type="checkbox"/> High (>70%) <input type="checkbox"/> Average (50~~70%) <input type="checkbox"/> Low or not satisfactory (< 50%) <input type="checkbox"/> None </p> <p>No data available.</p> <p><i>Q-2 What percent of companies and industries have introduced social accounting (Ref: SA 8000) in consultation with their workers?</i></p> <p> <input type="checkbox"/> Very High (> 90%) <input type="checkbox"/> High (>70%) <input type="checkbox"/> Average (50~~70%) <input type="checkbox"/> Low or not satisfactory (< 50%) <input type="checkbox"/> None </p> <p>No data available.</p> <p><i>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?</i></p> <p><u>Singapore Packaging Agreement</u> The Singapore Packaging Agreement (SPA) is a joint initiative by NEA, the private sector and non-government organisations (NGOs), to provide a platform and structure for industries to collaborate with the government to reduce packaging waste from consumer products and the supply chain. http://www.nea.gov.sg/SPA </p>	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
<p><i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all</p>	

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.
<i>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?</i>	
<p>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.</p> <p>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</p>	
<i>Q-2 How many eco-industrial parks or zones or the like, which is supported by the government, are there in the country?</i>	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
<p><u>Integrated Waste Management Facility (IWMF)</u></p> <p>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.</p> <p>Some key synergies derived through the co-location of the TWRP and IWMF include:</p> <ul style="list-style-type: none"> • 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 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 	

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.
<p>electricity production;</p> <ul style="list-style-type: none"> • 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 <p>(http://www.straitstimes.com/singapore/environment/2-green-plants-to-improve-waste-treatment-efficiency)</p> <p><u>Multi-Storey Recycling Facility (MSRF)</u></p> <p>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.</p> <p>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.</p> <p>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.</p>	
<p><i>Is this Goal relevant for your country?</i> <input type="checkbox"/> Highly <input checked="" type="checkbox"/> Partially <input type="checkbox"/> Not at all</p>	

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.
<p><i>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.?</i></p> <p><u>Singapore Environment Institute (SEI)</u> 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)</p> <p><u>Sustainable Manufacturing Centre</u> 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)</p> <p><u>Singapore Sustainability Academy</u> 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)</p> <p><i>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.?</i></p> <p>-</p>	
<p><i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i></p> <p>-</p>	

**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 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.
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
Is this Goal relevant for your country? <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> 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.
<p><i>Q-1 Is there a systematic classification of hazardous waste? If so, please attach.</i></p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>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</p> <p>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</p> <p><i>Q-2 What specific rules and regulations are introduced to separate, store, treat, transportation and disposal of hazardous waste?</i></p> <p>The handling, transportation, treatment and disposal of toxic industrial waste in Singapore are controlled under the Environmental Public Health (Toxic Industrial Waste) Regulations 1988.</p> <p>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.</p> <p>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</p>	
<p><i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i></p> <p>-</p>	
<p><i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i></p> <p>-</p>	
<p><i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i></p> <p>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.</p> <p>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:</p> <ul style="list-style-type: none"> • 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.
<ul style="list-style-type: none"> • polybrominated biphenyls; and • polybrominated diphenyl ethers. <p><i>(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)</i></p>	
<p>Is this Goal relevant for your country? <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all</p>	

II. 3R Goals in Rural Areas	
Goal 10	Reduce losses in the overall food supply chain (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.
<i>Q-1 What specific policies, rules and regulations, including awareness programmes, are introduced to minimize food or crop waste?</i>	
<p>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</p> <p>NEA has worked with various industry stakeholders to develop food waste minimisation guides for food manufacturers, retail food establishments and supermarkets to reduce food waste in their business operations, as well as promote food donation and redistribution.</p> <p>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.</p>	
<i>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?</i>	
-	
<i>Q-3 What is the average wastage of crops or agricultural produce between farms to consumers, if there is a study in your country?</i>	
<input type="checkbox"/> Very High (> 20~ 30%) <input type="checkbox"/> High (10~20%) <input type="checkbox"/> Medium (5~10%) <input type="checkbox"/> Low (< 5%) <input type="checkbox"/> Negligible (<1%)	
No data available.	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	

**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 food supply chain (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.
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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.
<i>Q-1 How much amount of – (a) agricultural biomass waste and (b) livestock waste are grossly generated per annum?</i>	
No data available. Singapore is not a significant agricultural producer.	
<i>Q-2 How are most of the agricultural biomass wastes utilized or treated?</i> (Please <u>check all appropriate boxes</u>)	
<input type="checkbox"/> as secondary raw material input (for paper, bioplastic, furniture, etc.) <input checked="" type="checkbox"/> biogas/electricity generation <input type="checkbox"/> composts/fertilizers <input type="checkbox"/> mostly left unutilized or open dumped <input type="checkbox"/> mostly open burned	
<i>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.</i>	
Chicken manure from Singapore’s local chicken farm is converted into fertilizer using an innovative rapid thermophilic digestion technology. (http://www.thepoultrysite.com/poultrynews/28601/biomax-technology-recycles-poultry-wastes-to-organic-fertiliser/)	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
<i>Is this Goal relevant for your country?</i> <input type="checkbox"/> Highly <input type="checkbox"/> Partially <input checked="" type="checkbox"/> 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.
<i>Q-1 What specific policies and regulations are in place to address the issue of plastic wastes in coastal and marine environment?</i>	
<p>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.</p> <p>http://www.mpa.gov.sg/web/portal/home/port-of-singapore/maritime-legislation-of-singapore/prevention-of-pollution-of%20the-sea-act</p> <p>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</p>	
<i>Q-2 What extent issue of plastic waste is considered in integrated coastal zone management (ICZM)? (Please check the appropriate box)</i>	
<input type="checkbox"/> Very much <input checked="" type="checkbox"/> Somehow <input type="checkbox"/> Not at all	
<i>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.</i>	
-	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input type="checkbox"/> Highly <input checked="" type="checkbox"/> Partially <input type="checkbox"/> 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 control of new developments, including e-waste facilities. This is to ensure that environmental considerations and factors are incorporated at the land use planning, development control and building control stages, so as to minimise pollution and to mitigate pollution 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. While we do not have any statistics on the amount of e-waste recycled, we are aware that 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 electrical waste equipment (e.g. white goods) are usually disassembled and sold as scrap.

<http://www.nea.gov.sg/docs/default-source/corporate/COS-2015/cos-2015-media-factsheet---national-voluntary-e-waste-recycling-partnership.pdf>

Type of e-waste	Estimated total volume generated (ton/year)	% of collected by permitted recycler	% of volume recycled in collected
Television			

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.			
	Computer			
	Mobile phone			
	Refrigerators			
	Washing machines			
	Air conditioners			
	Others...			
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				
<p>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, lamp and battery 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:</p> <p>http://www.nea.gov.sg/energy-waste/3rs/e-waste-lamp-battery-recycling/national-voluntary-partnership</p> <p>http://www.nea.gov.sg/energy-waste/3rs/e-waste-lamp-battery-recycling</p>				
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? <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> 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?	
<p>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.</p> <p>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.</p>	

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.
<p>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</p> <p><i>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?</i></p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<p><i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all</p>	

III. 3R Goals for New and Emerging Wastes	
Goal 15	Progressive implementation of “ extended producer responsibility (EPR) ” by encouraging producers, importers, and retailers and other relevant stakeholders to fulfill their responsibilities for collecting, recycling, and disposal of new and emerging waste streams, in particular e-waste.
<i>Q-1 What specific Extended Product Responsibility (EPR) policies are enacted or introduced? (If there is none, then skip Q-2 below)</i>	
-	
<i>Q-2 Please provide a list of products and product groups targeted by EPR nationally?</i>	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
NEA is currently exploring options for a regulated e-waste management framework, and plans to introduce mandatory requirements for packaging waste management between 2019 and 2021.	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all	

III. 3R Goals for New and Emerging Wastes	
Goal 16	Promote the 3R concept in health-care waste management.
<i>Q-1 What specific policies and regulations are in place for healthcare waste management?</i>	
<p>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.</p> <p>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</p>	
<i>Q-2 What is the total annual government expenditure towards healthcare waste management (US\$ per year)?</i>	
-	
<i>Q-3 List the agencies or authorities responsible for healthcare waste management.</i>	
<p>Ministry of Health National Environment Agency</p>	
<i>Q-4 What is the common practice for disposal of healthcare wastes?</i>	
(Please check the appropriate box and add if any other practice followed)	
<input type="checkbox"/> open dumping (untreated) <input type="checkbox"/> open burning (untreated) <input type="checkbox"/> ordinary landfilling (untreated) <input type="checkbox"/> sanitary landfilling (treated) <input type="checkbox"/> Low cost small scale incineration (do not meet air emission standards) <input checked="" type="checkbox"/> Highly controlled air incineration (dedicated/modern medical waste incinerators) <input type="checkbox"/> Other methods (please specify names: _____)	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> 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.
<i>Q-1 What specific policies and guidelines are introduced for product standard (towards quality/durability, environment/eco-friendliness, labour standard)?</i>	
<p>Mandatory Energy Labelling was introduced for registrable goods since 1 January 2008. Under Section 12 of the Energy Conservation Act, no person shall, in the course of any trade or business, supply any registrable goods in Singapore on or after the effective date unless the registrable goods are registered and labelled in the prescribed manner, and meet minimum energy efficiency standards where prescribed.</p> <p>For more information on Mandatory Energy Labelling and Minimum Energy Performance Standards, please refer to the following webpages: http://www.nea.gov.sg/energy-waste/energy-efficiency/household-sector/about-mandatory-energy-labelling; http://www.nea.gov.sg/energy-waste/energy-efficiency/household-sector/minimum-energy-performance-standards)</p> <p>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)</p>	
<i>Q-2 What specific energy efficiency schemes are introduced for production, manufacturing and service sector?</i>	
<p>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</p>	
<i>Q-3 What specific policies are introduced to create green jobs in product and waste sector?</i>	
-	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> 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.
<i>Q-1 Please share how climate mitigation is addressed in waste management policies and programmes for co-benefits?</i>	
<p>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:</p> <ul style="list-style-type: none"> 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). <p>(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)</p>	
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)	
<p>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.</p> <p>(https://www.nccs.gov.sg/sites/nccs/files/NCCS_Mitigation_FA_webview%2027-06-16.pdf)</p>	
Is this Goal relevant for your country? <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> 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.
<i>Q-1 What specific policies are introduced to encourage triangular cooperation between government, scientific & research institutions and private/business sector in 3R areas?</i>	
<p>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</p>	
<i>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.)?</i>	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
<p>To support the research and commercialisation of waste-to-energy (WtE) technologies, NEA has signed a collaboration agreement with Nanyang Technological University (NTU) to co-fund the development of a S\$40 million WtE research facility. Expected to be commissioned by late 2018, the facility will be an open platform to support research, as well as manpower training to build technical competencies in WtE domain areas. http://www.nea.gov.sg/corporate-functions/newsroom/news-releases/nea-and-ntu-collaborate-to-develop-a-waste-to-energy-research-facility; http://www.businesstimes.com.sg/government-economy/nea-and-ntu-to-develop-new-waste-to-energy-incineration-research-facility)</p>	
<i>Is this Goal relevant for your country?</i> <input type="checkbox"/> Highly <input checked="" type="checkbox"/> Partially <input type="checkbox"/> 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.
<p>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)</p> <p> <input checked="" type="checkbox"/> NGOs <input checked="" type="checkbox"/> Industrial Association <input checked="" type="checkbox"/> Local Government <input checked="" type="checkbox"/> Academic Institution <input checked="" type="checkbox"/> Others, please add/specify (businesses that are/will be affected, trade associations and chambers of commerce) </p>	
<p>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)</p> <p> <input checked="" type="checkbox"/> Very high <input type="checkbox"/> Moderate <input type="checkbox"/> Low <input type="checkbox"/> Almost Negligible </p>	
<p>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)</p> <p> <input type="checkbox"/> Very high <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low <input type="checkbox"/> Almost Negligible </p>	
<p>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</p> <p>-</p>	
<p>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</p> <p>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</p> <p>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</p>	
<p>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</p> <p>-</p>	
<p>Is this Goal relevant for your country? <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all</p>	

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:

- Environmental Club Fund
- Environmental Education Advisors
- Environmental 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	
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.
<i>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?</i>	
-	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all	

IV. 3R Goals for Cross-cutting Issues	
Goal 22	<p>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.</p>
<p><i>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.</i></p> <p>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:</p> <ul style="list-style-type: none"> 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/ltacademy/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) 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); 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; http://www.channelnewsasia.com/news/singapore/ura-calls-for-master-plan/2947206.html) i) 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) ii) 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. 	

IV. 3R Goals for Cross-cutting Issues	
Goal 22	<p>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.</p> <p><i>(https://www.pub.gov.sg/watersupply/singaporewaterstory)</i></p> <p>Q-2 What type of coordination mechanism are there among ministries and agencies for a resource efficient economic development?</p> <p><input checked="" type="checkbox"/> Official regular coordination meeting among ministries and agencies</p> <p><input type="checkbox"/> Official ad-hoc coordination meeting among ministries and agencies</p> <p><input type="checkbox"/> Informal meeting among ministries and agencies</p> <p><input type="checkbox"/> Other coordination mechanisms (please add/specify)</p>
<p>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</p> <p>-</p>	
<p>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</p> <p>-</p>	
<p>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</p> <p>-</p>	
<p>Is this Goal relevant for your country? <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all</p>	

IV. 3R Goals for Cross-cutting Issues

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

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

The 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

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.
(<http://www.nea.gov.sg/energy-waste/energy-efficiency/household-sector/about-mandatory-energy-labelling>)
- **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)
- **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)
- **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)

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

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.
<i>Q-4 Please provide the list of Ministries and major Government Agencies which have adopted green procurement policy.</i>	
-	
<i>Q-5 What % of municipalities have adopted the green procurement policy?</i>	
-	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all	

IV. 3R Goals for Cross-cutting Issues	
Goal 24	Phase out harmful subsidies that favour unsustainable use of resources (raw materials and water) and energy, and channel the freed funds in support of implementing the 3Rs and efforts to improve resource/energy efficiency.
<i>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.</i>	
None.	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
<i>Is this Goal relevant for your country?</i> <input type="checkbox"/> Highly <input type="checkbox"/> Partially <input checked="" type="checkbox"/> 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 and pollution 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	
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.
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i> -	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i> -	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i> -	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all	

IV. 3R Goals for Cross-cutting Issues	
Goal 26	Facilitate the international circulation of re-usable and recyclable resources as well as remanufactured products as mutually agreed by countries and in accordance with international and national laws, especially the Basel Convention, which contributes to the reduction of negative environmental impacts and the effective management of resources.
<i>Q-1 What are major recycling industries in your country?</i>	
In Singapore, there are recycling plants for construction and demolition waste, plastics, e-waste, wood/horticultural waste and ferrous metals.	
<i>Q-2 Please specify the regulation on transboundary movement of hazardous waste.</i>	
<p><u>Basel Convention</u> 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.</p> <p>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</p>	
<i>Q-3 If your government has restriction on import of non-hazardous waste or quality control of non-hazardous waste, please list it up.</i>	
Singapore does not encourage the import of waste; the need for import of waste is assessed on a case-by-case basis.	
<i>Q-4 Does your government restrict import of remanufactured goods?</i>	
No.	
<i>Q-5 Does your government regard remanufactured goods as secondhand goods, and regulate it as secondhand goods?</i>	
No.	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	

**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.
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> 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>

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

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

Country Name **Singapore**

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.
<i>Q-1 What are the government policies and programmes, including incentives, for waste-to-energy programmes?</i>	
<p>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.</p> <p>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).</p>	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<p>NEA is developing a new waste-to-energy plant (6th 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.</p> <p>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</p> <p>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.</p> <p>http://www.nea.gov.sg/corporate-functions/newsroom/news-releases/pub-nea-to-call-tenders-for-dtss-phase-2-and-iwmf-projects</p>	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> 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 a Letter of Intent [on Environmental Cooperation](#) between [the Ministry of the Environment of Japan](#) and NEA. Both agencies have exchanged experiences and information through policy dialogues, site visits and study visits.

[The Brunei-Singapore Working Group on the Environment](#), which was established in 2006, implements activities under the Memorandum of Understanding (MOU) between Singapore's Ministry of the Environment and Water Resources and Brunei's Ministry of Development. Solid waste management is one of the areas of collaboration [under this MOU](#), where 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:

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

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.
<p><i>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?</i></p> <p>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.</p> <p>More information on the CleanEnviro Summit Singapore can be found at this webpage: http://www.cleanenvirosummit.sg/</p>	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all	

IV. 3R Goals for Cross-cutting Issues	
Goal 30	Pay special attention to issues and challenges faced by developing countries including SIDS in achieving sustainable development.
<i>Q-1 Please describe any past and on-going cooperation with SIDS (Small Island Developing States) countries in 3R areas.</i>	
<p>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</p>	
<i>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)</i>	
-	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input type="checkbox"/> Highly <input checked="" type="checkbox"/> Partially <input type="checkbox"/> Not at all	

IV. 3R Goals for Cross-cutting Issues	
Goal 31	Promote 3R + “Return” concept which stands for Reduce, Reuse, Recycle and “Return” where recycling is difficult due to the absence of available recycling industries and limited scale of markets in SIDS, especially in the Pacific Region.
<i>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)</i>	
<p>The National Voluntary E-waste Recycling Partnership 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.</p> <p>(http://www.nea.gov.sg/energy-waste/3rs/e-waste-lamp-battery-recycling/national-voluntary-partnership)</p>	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input type="checkbox"/> Highly <input checked="" type="checkbox"/> Partially <input type="checkbox"/> 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.
<i>Q-1 What is the approximate market size (in US\$) of the informal waste sector?</i>	
Not applicable	
<i>Q-2 Number of annual labor inspections in waste sector?</i>	
-	
<i>Q-3 Is health insurance a mandatory to all informal workers in waste sector by law?</i>	
-	
<i>Q-4 What specific policies and enforcement mechanisms are in place to prevent illegal engagement of children in waste sector?</i>	
-	
<i>Q-5 Number of landfill sites accessible to register waste pickers?</i>	
-	
<i>Q-6 Average life span of informal waste workers?</i>	
-	
<i>Q-7 Any government vaccination programmes for informal waste workers?</i>	
-	
<i>Q-8 Any public awareness programmes for informal waste workers on health and safety measures?</i>	
-	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programs/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input type="checkbox"/> Highly <input type="checkbox"/> Partially <input checked="" type="checkbox"/> Not at all	

IV. 3R Goals for Cross-cutting Issues	
Goal 33	Promote 3Rs taking into account gender considerations.
<i>Q-1 Please give a brief assessment on how the national, provincial and municipal governments incorporate gender considerations in waste reduction, reuse and recycle.</i>	
Not applicable.	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
-	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
-	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
-	
<i>Is this Goal relevant for your country?</i> <input type="checkbox"/> Highly <input type="checkbox"/> Partially <input checked="" type="checkbox"/> Not at all	