

11th Regional 3R and Circular Economy Forum in Asia and the Pacific

“Integrating Circular Economy in Major Development Sectors towards Achieving Zero Waste Societies and the SDGs”

8-10 February 2023, Siem Reap, Kingdom of Cambodia

Country Report

(Draft)

<Thailand>

This country report was prepared by the Government of Thailand as an input for the 11th Regional 3R and Circular Economy Forum in Asia and the Pacific. The views expressed herein do not necessarily reflect the views of the United Nations.

Country 3R Progress Report

Name of the Country: Thailand

Name, Designation and Organization Respondent:

Waste and Hazardous Substances Management Division

Other Ministries, Organizations, Agencies contributing to Country Report: Pollution Control Department, Ministry of natural Resources and Environment, Department of Industrial Works, Ministry of Industry

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(Email: 3R@uncrd.or.jp)

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

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

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

Thank you very much for your kind cooperation.

Secretariat of the Regional 3R and Circular Economy 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?	
<ul style="list-style-type: none"> - Roadmap on Plastic Waste Management 2018 – 2030 - Action Plan on Plastic Waste Management Phase 1 (2020 – 2022) - Action Plan on Plastic Waste Management Phase 2 (2023 – 2027) - National Waste Management Action Plan Phase 2 (2022 – 2027) 	
Q-2 What is the level of participation of households in “source” segregation of municipal waste streams? (Please check the appropriate box)	
<input type="checkbox"/> Very High (> 90%) <input type="checkbox"/> High (>70%) <input checked="" type="checkbox"/> Average (50~70%) <input type="checkbox"/> Low or not satisfactory (< 50%) <input type="checkbox"/> Does not exist	
Q-3 Total annual government expenditure per capita (US\$ per capita) in municipal solid waste management in 2014-2015	
1-2 US\$ per capita	
Challenges (policy/ institutional/ technological/ financial) faced in implementation:	
<ul style="list-style-type: none"> - Need incentives both financial and technical support, challenges in multi – stakeholders - Conflict between policy on tourism promotion and capabilities of existed waste management 	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant	
<ul style="list-style-type: none"> - Roadmap on Plastic Waste Management (2018 – 2073) can be reached at http://www.pcd.go.th - Action Plan on Plastic Waste Management Phase 2 (2023 – 2027) can be reached at http://www.pcd.go.th 	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2023~2027)	
<ul style="list-style-type: none"> - Roadmap on Plastic Waste Management (2018 – 2073) - 20 Year Pollution Management Strategy and Pollution Management Plan 2017 – 2021 - Annual “Clean Province” Action Plans - Action Plan on Plastic Waste Management Phase 2 (2023 – 2027) - National Waste Management Action Plan Phase 2 (2022 – 2027) 	
Is this Goal relevant for your country? <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all	

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.
<p><i>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?</i></p> <p>The National Waste Management Master Plan (2016-2021) which was approved by the Cabinet on the 3rd of May 2016 supports Integrated Waste Management. Within Integrated Waste Management, organic waste can be composted or anaerobic digested to produce biogas and generate electricity. In addition, Ministry of Interior has developed the DIY household compost bin applying for small household under the Clean Province Program.</p>	
<p><i>Q-2 What is happening to country's organic waste? (Please check the appropriate box)</i></p> <p><input type="checkbox"/> mostly landfilled</p> <p><input type="checkbox"/> mostly incinerated</p> <p><input checked="" type="checkbox"/> both landfilled and incinerated (34% of all waste generated is properly disposed, 44% of all waste generated is utilized 22% of all waste generated is improperly disposed)</p> <p><input type="checkbox"/> mostly open dumped or open burned</p>	
<p><i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i></p> <ul style="list-style-type: none"> - Inadequate numbers of knowledgeable staff to operate large anaerobic digestion systems - Slow growth of private investors and understanding from financial sector - Difficulties in obtaining consistent sources of segregated organic waste - Constraints in marketing and quality of compost produced from food waste 	
<p><i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i></p> <ul style="list-style-type: none"> - The National Waste Management Master Plan (2016-2021) http://www.pcd.go.th/Download/file/waste/WasteMasterPlan.pdf 	
<p><i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i></p> <ol style="list-style-type: none"> 1. National Greenhouse Gas Reduction Action Plan for Municipal Waste Sector (2021-2030) 2. Integrated Waste Management for GHG Reduction Project with GIZ within the Thai German Climate Change Programme 	
<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 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	Very High (>90%)	High (>70%)	Average (50~60%)	Poor (<50%)	Recycling does not exist	Definition of recycling rate*
Type						
Paper		✓				1
Plastic				✓		1
Metal			✓			1
Construction waste				✓		1
e-waste				✓		1
others						

*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)

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

- Enacted new MSW fee rate which collected from each household monthly based on Polluter Pay Principle,
- The National Policy and Plan on 3R and E-wastes management,
- Zero Waste Programme,
- Ministerial Notification under the Act on Maintenance of Cleanliness and Orderliness of the Country is stipulated to allow Local Government to initiate public awareness and the perceive public accountability on 3R

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

Rate	Very High (>90%)	High (>70%)	Average (50~60%)	Poor (<50%)	Recycling does not exist
Type					
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	Every Major City	Few Major Cities only	Does not exist	Supportive policy or programmes exists	No supportive policy or programmes
Type					
Paper	✓				
Plastic	✓				
Metal	✓				
Construction waste		✓			
e-waste				✓	

I. 3R Goals in Urban/Industrial Areas (3Rs in municipal solid waste)	
Goal 3	Achieve significant increase in recycling rate of recyclables (e.g., plastic, paper, metal, etc.), by introducing policies and measures, and by setting up financial mechanisms and institutional frameworks involving relevant stakeholders (e.g., producers, consumers, recycling industry, users of recycled materials, etc.) and development of modern recycling industry.
Challenges (policy/ institutional/ technological/ financial) faced in implementation:	
<ul style="list-style-type: none"> - Need incentive policy for informal sectors, specific law and regulation for waste separation, recovery and recycling, challenges on investment of modern recovery and recycling facilities - Need EPR mechanism for applying in manufacturing and goods import sectors. 	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant	
<ul style="list-style-type: none"> - The National 3R Strategy, Drafted 3R Promotion law:www.pcd.go.th - Green Junkshop program : www.pcd.go.th - Zero Waste Project : www.pcd.go.th 	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)	
<ul style="list-style-type: none"> - National Solid Waste Management Master Plan (2016 - 2021) - Action Plan “Thailand Zero Waste” (2016 – 2017) 	
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 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
<i>Q-1 What specific waste management policies and programmes are introduced to encourage private sector participation in municipal waste management?</i> According to ministerial notification on the Act on the Maintenance of Cleanliness and Orderliness of the country, specific public – private partnership procedure to enhance private sector participation has been established to facilitate the mobilization of private sector in municipal solid waste management	
<i>Q-2 What are the major waste management areas that have strong involvement of private and business sector?</i> (Please check appropriate boxes and add other areas if not listed below) <input 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 type="checkbox"/> PPP projects in waste sector	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i> PPP Projects on waste to energy rely on multi – ministerial regulation and power commercial policy which require time to complete the approval	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i> <ul style="list-style-type: none"> - Clean and Green City Projects - Lampang city municipality contracts out their waste collection process - Phuket City municipality has a PPP project for their waste incinerator - Hadyai City municipality has a PPP project for their waste gasification : www.dla.go.th, www.ppp.sepo.go.th - Incineration plant in BMA which investment and operate by private sector 	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i> Power development Plan (2018 - 2037) Alternative Energy Development Plan (2015 - 2036)	
<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 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?	
Several Clean Technology (CT) tools have been introduced to big industries and SMEs not only to alleviate competitiveness of the production but also conserve the environment at the same time. Under the clean technology project, the data is collected and evaluated systematically in order to find the root cause and best practices available both on the technology and operation practices.	
Q-2 What are the capacity building programmes currently in place to build the technical capacity of SMEs in 3R areas?	
The project has been launched to promote the use of industrial waste and reduction of the amount of waste to landfill which is prescribed to use resources efficient and reduce the environmental impact from the year 2009 by studying the utilization of industrial waste. A part of this project is the 3R training programmes which have been done for 200 participating factories.	
Challenges (policy/ institutional/ technological/ financial) faced in implementation:	
<ul style="list-style-type: none"> - Lack of expertise for specific industry / production process - Lack of financial support for technology alteration 	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant	
The practice of clean production technology has been brought to promote and develop the industrial sector with a total of 20 industrial sectors,i.e., dairy and dairy products, rubber, canned pineapple, frozen seafood, noodles and rice noodles, tapioca flour, canned fish, plating,fermented rice noodle, wooden furniture, rice mill, meat products (meatball-sausage), rubber products, air-condition, food packaging, canned corn, metal, glass, fruit and vegetable juice, and ready meals. Currently, the automotive industry is under promoting and developing.: www.diw.go.th	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)	
Implementation Planand Code of Practice (COP) on the Clean Production Technology in Industries	
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 6	Promote the greening of the value chain by encouraging industries and associated suppliers and vendors in socially responsible and inclusive ways.
Q-1 What percent of companies and industries have introduced green accounting and voluntary environmental performance evaluation (Ref: ISO 14000)?	
<input type="checkbox"/> Very High (> 90%) <input type="checkbox"/> High (>70%) <input checked="" type="checkbox"/> Average (50~70%) <input type="checkbox"/> Low or not satisfactory (< 50%) <input type="checkbox"/> None	
Q-2 What percent of companies and industries have introduced social accounting (Ref: SA 8000) in consultation with their workers?	
<input type="checkbox"/> Very High (> 90%) <input type="checkbox"/> High (>70%) <input checked="" type="checkbox"/> Average (50~70%) <input type="checkbox"/> Low or not satisfactory (< 50%) <input type="checkbox"/> None	
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?	
<p>There several Program running by the Ministry of Industry (MOI) such as Green Industry (GI) Project, Greening the SupplyChain incorporation with Federation of Thai Industry (FTI), Pollution Prevention Program, Cleaner Production and Clean Technology Programs etc. Ministry of Natural Resources and Environment (MONRE) also implementing the Green Public Procurement Promotion Plan and Green Public Promotion Plan.</p>	
Challenges (policy/ institutional/ technological/ financial) faced in implementation:	
Lack of integrated policy on sustainable consumption and production	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant	
<p>Green Industry Project: http://green.industry.go.th/?lang=en Green Publish Procurement : http://ptech.pcd.go.th/gp/</p>	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)	
Green Industry Project, Green Public Promotion Plan, Environmental Quality Management Plan	
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 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>The MOI by Department of Industrial Works (DIW) and Industrial Estate Authority of Thailand (IEAT), has made the concept of sustainable development on the principle “Eco”. IEAT has launched the Development of Eco Industrial Estate & Networks Project (DEE+Net Project) which is collaboration between IEAT and GTZ of Germany on the year 1999-2004. It was continuously implemented in five pilot estates of the Northern Region Industrial Estate, Bang Pu Industrial Estate, Map Ta Phut Industrial Estate, Eastern Seaboard Industrial Estate and Amata Nakorn Industrial Estate.</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>	
<p>DIW implemented the Eco Industrial Complex Projects between the 2010-2014 in 9 industrial areas, i.e., Rojana Industrial Park, Bang Kra Dee Industrial Park, 304 Industrial Park, Sahapat Kabinburi Industrial Park, Sahapat Sriracha Industrial Park, IRPC Industrial Zone, IPP Industrial Community, Hemaraj Rayong Industrial Zone, and Hemaraj Chonburi Industrial Zone. Following by the cabinet resolution in 31 March 2013, DIW expanded the development scope of Eco Industrial Town to cover broader activities and plans. Until 2017, many related projects have been implemented in 15 provinces (18 areas) and 34 Eco-Industrial Estates, e.g.</p> <ul style="list-style-type: none"> - Preparation of action plans for developing the eco industrial area - Promotion of the corporate social responsibility (CSR) in eco industrial area - Establishment of the Eco-town Center 	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
Inter-organization cooperation and technical or technological supports	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
Eco Industrial Town Projects: www.diw.go.th , www.ieat.go.th	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
<p>“The Application of Industry-Urban Symbiosis and Green Chemistry for Low Emission and Persistent Organic Pollutants (POPs) Free Industrial Development in Thailand” project concept note was conceptualized led by DIW. It had been submitted to the Global Environmental Fund (GEF) for the budget supporting. According to the grant approval and concept note endorsement by GEF in 2017, the project formulation phase is now under proceeding on the work program for the full project implementation.</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	

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>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>	
Around 3 - 5 universities and foundations	
<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>	
The project has been done on building technical capacity of SMEs and practitioners in the areas of cleaner production, resource efficiency, and environment-friendly technologies, etc. around 2,000,000 \$ per year.	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
Clean Technology policy dialogue and incentives to promote changes in the manufactures	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
Clean Technology for the Automotive Industry: http://www.ctcar-diw.com/index.html	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
MOI Strategic Plan 2017-2021 to promote and encourage the industry to be socially and environmentally friendly including with :	
<ul style="list-style-type: none"> - Develop appropriate regulating mechanism to improve law enforcement and increase compliance - Promote the development of Eco Industrial Towns - Promote comprehensive industrial waste, focusing on recycle - Encourage potential clusters to become Eco Industries - Encourage the industrial sector to develop socially and environmentally friendly products and processes - Promote and develop surveillance-watch networks for environmental impact management through community participation 	
<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 9	Develop proper classification and inventory of hazardous waste as a prerequisite towards sound management of such waste.
Q-1 Is there a systematic classification of hazardous waste? If so, please attach.	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Stated in the Notification of Ministry of Industry Re: Industrial Waste Disposal B.E. 2548 (2005), wastes are classified into 19 chapters and six-digit code is used as specific waste code. Any waste whose six-digit code is marked with “HA” (Hazardous waste – Absolute entry) or “HM” (Hazardous waste – Mirror entry) is a hazardous waste according to characteristics prescribed in Annex 2. However, the “mirror entries” cover wastes that have the potential to be either hazardous or non-hazardous depending on their actual composition and the concentrations of “dangerous substances” within the waste. Therefore, for waste that is marked with “HM”, analysis should be performed according to criteria prescribed in Annex 2 to demonstrate whether or not waste is hazardous according to this Ministerial Notification	
Q-2 What specific rules and regulations are introduced to separate, store, treat, transportation and disposal of hazardous waste?	
Notification of Ministry of Industry Re: Industrial Waste Disposal B.E. 2548 (2005) issued under the Factory Act B.E. 2535 (1992) as well as related regulations issued under the Hazard Substance Act B.E. 2535 (1992)	
Challenges (policy/ institutional/ technological/ financial) faced in implementation:	
Institutional cooperation, inspection and monitoring technology. Ignorance of the waste producers or processors in the details of notifications or guidelines also factual.	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant	
<ul style="list-style-type: none"> - Industrial Waste Management Projects : http://www2.diw.go.th/iwmb/ <ol style="list-style-type: none"> 1. Efficiency improvement for the sorting and recycling facilities of the used electrical and electronics products 2. Improvement and development of the management information systems (MIS) for the industrial waste 3. Capacity building and development for the industrial hazardous waste processors 4. Assistance on the industrial waste management and tracking for the renewal of factory registration license - Promotion of 3Rs : http://www.induswaste.com/waste4243/index.php - The Master Plan for Industrial Waste Management in Thailand (2015-2019) : http://www2.diw.go.th/iwmb/form/%E0%B9%81%E0%B8%9C%E0%B8%99%E0%B8%81%E0%B8%B2%E0%B8%A3%E0%B8%88%E0%B8%B1%E0%B8%94%E0%B8%81%E0%B8%B2%E0%B8%A3%E0%B8%81%E0%B8%B2%E0%B8%81.pdf - MOI Strategic Plan 2017-2021 : http://www.industry.go.th/psd/joomlatools-files/docman-files/%E0%B9%80%E0%B8%A5%E0%B9%88%E0%B8%A1%E0%B9%81%E0%B8%9C%E0%B8%99%E0%B8%A2%E0%B8%B8%E0%B8%97%E0%B8%98%E0%B8%A8%E0%B8%B2%E0%B8%AA%E0%B8%95%E0%B8%A3%E0%B9%8C%20%E0%B8%AD%E0%B8%81.60-64(%E0%B8%89%E0%B8%9A%E0%B8%B1%E0%B8%9A%E0%B8%97%E0%B8%9A%E0%B8%97%E0%B8%A7%E0%B8%99).pdf 	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)	
<ul style="list-style-type: none"> - The Master Plan for Industrial Waste Management in Thailand (2015-2019) by DIW& NEDO - MOI Strategic Plan 2017-2021 	
Is this Goal relevant for your country? <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all	

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>	
Some private sectors such as Tesco Lotus have launched an awareness campaign to educate customers to reduce food waste	
<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>	
N/A	
<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%) N/A	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
Lack of budget for promotion to people to reduce food waste	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<ul style="list-style-type: none"> - National solid waste management plan (2016 – 2021) - Action Plan “Thailand Zero Waste” (2016) 	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
Drafting the Action Plan to reduce GHG from waste sector	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all	

II. 3R Goals in Rural Areas	
Goal 11	Promote full scale use of agricultural biomass waste and livestock waste through reuse and/or recycle measures as appropriate, to achieve a number of co - benefits including GHG emission reduction, energy security, sustainable livelihoods in rural areas and poverty reduction, among others.
Q-1 How much amount of – (a) agricultural biomass waste and (b) livestock waste are grossly generated per annum?	
(a) Around 55 million ton per annum (Data as of 2007)	
Q-2 How are most of the agricultural biomass wastes utilized or treated? (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 checked="" type="checkbox"/> composts/fertilizers <input type="checkbox"/> mostly left unutilized or open dumped <input checked="" type="checkbox"/> mostly open burned	
Q-3 What specific policies, guidelines, and technologies are introduced for efficient utilization of agricultural biomass waste and livestock waste as a secondary material inputs towards full scale economic benefits? Relevant websites could be shared for additional information.	
The National Strategy on Ban of Open - Burning, The National Alternative Energy Plan	
Challenges (policy/ institutional/ technological/ financial) faced in implementation:	
Need cost - effective technology for biomass utilization and market promotion	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant	
- Palm tree wastes composting, Biomass incineration for electricity: www.dede.go.th	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)	
Alternative Energy Development Plan (AEDP 2015-2036)	
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 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>1. Reduce marine plastic debris from the source by implement;</p> <ul style="list-style-type: none"> - Implement 3R concept - Improve management of plastic trash, no trash left over (get rid of plastic trash from system) <p>2. Campaign reducing single use plastic</p> <p>3 Circular Economy</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 checked="" type="checkbox"/> Very much <input type="checkbox"/> Somehow <input type="checkbox"/> Not at all	
<p>Implementation of an integrated coastal management (ICM) demonstration project in Chonburi province serve to reduce the volume of municipal and household solid wastes</p>	
<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>	
<ul style="list-style-type: none"> - Department of Marine and Coastal Resources (DMCR) has been developing microplastics monitoring programme in beach sediment, sea surface water and marine organisms. DMCR has also been establishing cooperation with the UNESCO/IOC-WASTPAC on regional standardize methodology for monitoring of microplastic including research on its impacts (no website yet). 	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
<ul style="list-style-type: none"> - Lack of incentive and technology development on alternative materials - Limited R & D on marine debris 	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<ul style="list-style-type: none"> - Master Plan on Plastic Waste Management: http://www.pcd.go.th - Pilot Project on Plastic Waste Collection in Coastal: http://www.dmcg.go.th - Public Private Partnership on Plastic cap seal phase out 	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
<ul style="list-style-type: none"> - International Convention for the Prevention of Pollution from ship (MARPOL 73/78) Annex 5 Regulations for the Prevention of pollution by garbage from ships - 1996 Protocol to the conventions on the Prevention of Marine Pollution by dumping of wastes and other matter,1972 - National Roadmap for the Development of Bioplastics Industry - Master Plan on Plastic Waste Management 	
<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 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
		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
	4	Recycle in another country
		Do not know how people dispose
		Operations in Thailand (No in schedule)
	1	Sell to junk shops
	2	Storage at home/office

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)?

- The Factory Act B.E. 2535 (1992)
- The Public Health Act B.E. 2535 (1992)
- The Hazardous Substance Act, B.E. 2535

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

Type of e-waste	Estimated total volume generated (ton/year)	% of collected by permitted recycler	% of volume recycled in collected
Television	99,497.71	N/A	N/A
Computer	59,711.41	N/A	N/A
Mobile phone	12,915.30	N/A	N/A
Refrigerators	65,995.07	N/A	N/A
Washing machines	62,807.60	N/A	N/A
Air conditioners	77,653.41	N/A	N/A
Others...	N/A	N/A	N/A

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

Thailand, by Pollution Control Department, will propose draft Act on Management of Waste from Electronic and Electronic Equipment B.E. to the parliament. The fundamental of the law is using the concept of Extended Producer Responsibility (EPR). Therefore, we, as the regulator, need to set up the tracking process system of the e-waste from the cradle to grave. Collection system and consumer awareness campaign are also needed to establish. Furthermore, recycling and reuse of WEEE is needed to be promoted

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

Thailand, by Pollution Control Department just launched the Master plan for solving local electronic waste management problems, approved by National Environment Board. It includes
1) Organize a return facility for electronic waste from the public and lead to proper handling

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.
<p>Monitor the impact on health and the environment.</p> <p>2) Issue Ministerial Regulations on Management Hygiene Garbage that is toxic or dangerous from the community, B.E.</p> <p>3) Expedite the drafting of the Electrical and Electronic Equipment Waste Management Act B.E.</p> <p>4) Develop technology / innovation in electronic waste management and reduce the use of hazardous substances in electrical appliances and electronic equipment</p>	
<p><i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i></p> <p>According to upcoming e-waste law, Pollution Control Department has two responsibilities which are 1) to set up a guideline for e-waste collection center 2) to set up a coordinating center.</p>	
<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 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.
<i>Q-1 What specific policies and regulations are introduced to prevent illegal import and export of e-waste?</i>	
<ul style="list-style-type: none"> - Rules and procedures under Basel Convention - Notifications of Ministry of Commerce - The Customs Act B.E.2560 (2017) - The Hazardous Substance Act, B.E. 2535 - Notifications of Department of Industry 	
<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>	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
Preventive method for transboundary movement is challenging. The recent waste sampling method is not highly effective so we still have illegal movement. The number of illegal imported containers left at the port has been increasing and take times to monitor and investigate. Under current regulations it cannot deport those containers immediately.	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<ul style="list-style-type: none"> - Capacity building for custom and relevant officials to comply with Basel Convention. - Developing the custom laws and regulation relate to deport illegal imported containers. 	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2023~2027)</i>	
<ul style="list-style-type: none"> - Capacity building for custom and relevant officials to comply with Basel Convention - Ban of plastic scraps and used tires imported to Thailand - Ban of E-Wastes imported to Thailand 	
<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 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.
<p><i>Q-1 What specific Extended Product Responsibility (EPR) policies are enacted or introduced? (If there is none, then skip Q-2 below)</i></p> <p>Thailand has initiated the goal for e-waste management by extending the producers’ responsibility, promoting environmental-friendly products via several means i.e. tax reduction, educating people and raising consumer awareness. The electric and electronic products shall be tracked and monitored from the production, use, and disposal processes. Therefore, the government needs to develop the sustainable business model that can help the manufacturers run their business by reducing negative impacts for the environment or society by remanufacturing, reuse, or recycle, creating tracking system from cradle to grave.</p> <p><i>Q-2 Please provide a list of products and product groups targeted by EPR nationally?</i></p> <p>First five priority of e-waste upon the law are refrigerator, air conditioner, computer, television and telephone.</p> <p><i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i></p> <p>We, Pollution Control Department as our country’s key pollution regulator, are well aware of the necessity of e-waste management in our country. As mentioned earlier, draft Act on management of waste from electronic and electronic equipment B.E. are being proposed and will become in effect very soon. When it becomes effective, the government needs to set up the whole process to ensure that five electronics equipment (refrigerator, air conditioner, computer, television and telephone) are complied with the law. This can be challenging.</p> <p><i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i></p> <p>Strategic plan for sustainable electronic and electronic equipment management.</p> <p><i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i></p> <p>Implementation of the upcoming e-waste law is needed. For example, guideline for e-waste registration facility, guideline for collection center, disposal facilities.</p> <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 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> The Public Health Ministry: Notification on Infectious Waste Management	
<i>Q-2 What is the total annual government expenditure towards healthcare waste management (US\$ per year)?</i> N/A	
<i>Q-3 List the agencies or authorities responsible for healthcare waste management.</i> Department of Health, Ministry of Public Health	
<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 checked="" type="checkbox"/> ordinary landfilling (untreated) <input type="checkbox"/> sanitary landfilling (treated) <input checked="" type="checkbox"/> Low cost small scale incineration (do not meet air emission standards) <input type="checkbox"/> Highly controlled air incineration (dedicated/modern medical waste incinerators) <input checked="" type="checkbox"/> Other methods (please specify names:) - Illegal dumping onto environment	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i> Lead among ASEAN on Health Promotion, cost - effective technology for health care waste	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i> Pilot project on health care wastes separation and collection: www.anamai.moph.go.th	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i> National Strategy Plan on Environment and Health	
<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 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>	
Guidelines and criteria for product standard, Promotion for government green procurement	
<i>Q-2 What specific energy efficiency schemes are introduced for production, manufacturing and service sector?</i>	
Government energy saving plan and Energy efficiency label on home appliances	
<i>Q-3 What specific policies are introduced to create green jobs in product and waste sector?</i>	
Green Industry Policy. Government Green Procurement and Green Label Schemes.	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
Need incentives for manufacture changes	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
Green products and services for government, Green label products : http://www.pcd.go.th , http://www.tei.or.th	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
Government Green Procurement Policy and Green Industrial Policy	
<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>	
<ul style="list-style-type: none"> - Linkage of municipal solid waste management to GHG reduction - improving recycling efficiency reduction of open - burning and dumping - Apply technologies for landfill gases reduction and recovery 	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
<ul style="list-style-type: none"> - Clear Benefits of reduction GHG or climate mitigation from waste management - Need to change conventional solid waste disposal to a modern technology 	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<ul style="list-style-type: none"> - GHG mitigation by municipal organic waste composting, biogas facilities and semi-aerobic landfill sites - Improving open - dumping site plan - Pilot project on semi-aerobic landfill at NakhonRatchasima Province: http://www.pcd.go.th 	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
Thailand GHG Mitigation Plan	
<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 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>	
<ul style="list-style-type: none"> - Thailand Institute of Science and Technological Research (TISTR): Waste minimization, material research 	
<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>	
<ul style="list-style-type: none"> - PCD : 3R and waste minimization, eco – products - DIW : Cleaner Production, Industrial symbiosis recycling technology, resource efficiency - TEI : Sustainable production and consumption, green label environmental labeling - Kasetsart University: LCA, green economy and CT/CP programme 	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
<ul style="list-style-type: none"> - Limitation of experts or researchers - Incentives for R&D 	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<ul style="list-style-type: none"> - Research and study on packaging and e-waste recovery : www.pcd.go.th - CT/CP programme for industrial sectors : www.diw.go.th 	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
The National Sustainable Development Policy, The National Environment Basic plan, and The National R&D Plan by National Research Council of Thailand	
<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 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> <table style="width: 100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> NGOs</td> <td><input checked="" type="checkbox"/> Industrial Association</td> </tr> <tr> <td><input checked="" type="checkbox"/> Local Government</td> <td><input checked="" type="checkbox"/> Academic Institution</td> </tr> <tr> <td colspan="2"><input type="checkbox"/> Others, please add/specify ()</td> </tr> </table>		<input checked="" type="checkbox"/> NGOs	<input checked="" type="checkbox"/> Industrial Association	<input checked="" type="checkbox"/> Local Government	<input checked="" type="checkbox"/> Academic Institution	<input type="checkbox"/> Others, please add/specify ()	
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<input checked="" type="checkbox"/> Local Government	<input checked="" type="checkbox"/> Academic Institution						
<input type="checkbox"/> Others, please add/specify ()							
<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> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Very high</td> <td><input checked="" type="checkbox"/> Moderate</td> <td><input type="checkbox"/> Low</td> <td><input type="checkbox"/> Almost Negligible</td> </tr> </table>		<input type="checkbox"/> Very high	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Low	<input type="checkbox"/> Almost Negligible		
<input type="checkbox"/> Very high	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Low	<input type="checkbox"/> Almost Negligible				
<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> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Very high</td> <td><input checked="" type="checkbox"/> Moderate</td> <td><input type="checkbox"/> Low</td> <td><input type="checkbox"/> Almost Negligible</td> </tr> </table>		<input type="checkbox"/> Very high	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Low	<input type="checkbox"/> Almost Negligible		
<input type="checkbox"/> Very high	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Low	<input type="checkbox"/> Almost Negligible				
<p>Challenges (policy/ institutional/ technological/ financial) faced in implementation: Awareness raising needs financial support and small market of green products because of price competitiveness, personal perception, and lack of quality standards for customers</p>							
<p>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</p> <ul style="list-style-type: none"> - Green Public Procurement Promotion Plan, 2013-2016 : http://ptech.pcd.go.th/gp/ - Zero Waste School Project, 2017 : www.deqp.go.th - Green and Clean City Project : www.pcd.go.th 							
<p>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</p> <ul style="list-style-type: none"> - Continuation of Green Public Procurement Promotion Plan 2017 - Action Plan for Thailand Zero Waste (2016 - 2017) 							
<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.
<i>Q-1 Provide a list of formal programmes that addresses areas of 3R and resource efficiency as part of the academic curriculum?</i>	
<ul style="list-style-type: none"> - Mining programme - Environment science - Environmental engineering programme - Environmental technology programme 	
<i>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.</i>	
The Roadmap for Municipal Solid Waste Management provide a strategy addressed on environmental education, public awareness raising, public participation programmes	
<i>Q-3 Please provide a list of academic and research institutions offering PhD programmes in the areas of 3Rs and resource efficiency?</i>	
<ul style="list-style-type: none"> - Asian Institute of Technology - Kasetsart University - Chulalongkorn University - Mahidol University - Chiang Mai University 	
<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>	
<ul style="list-style-type: none"> - Kasetsart University - The National Institute of Development Administration (NIDA) 	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
Limitation on know how to develop environmental education programme	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
Integrated 3R and solid waste management into environmental education at school and universities	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
The National Basic Environmental Plan and the National Solid Waste Management Master Plan	
<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	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.
<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>	
<ul style="list-style-type: none"> - Ministry of National Resources and Environment - Ministry of Public Health - Ministry of Education - Ministry of Industry - Ministry of Interior - Ministry of Energy - Ministry of Finance - Ministry of Tourism and Sport 	
<i>Q-2 What type of coordination mechanism are there among ministries and agencies for a resource efficient economic development?</i>	
<input checked="" type="checkbox"/> Official regular coordination meeting among ministries and agencies <input checked="" type="checkbox"/> Official ad-hoc coordination meeting among ministries and agencies <input type="checkbox"/> Informal meeting among ministries and agencies <input type="checkbox"/> Other coordination mechanisms (please add/specify)	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
Challenges in cooperation among relevant ministries, limitation on ministry authority and knowledge	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<ul style="list-style-type: none"> - Green Industry Programme : www.diw.go.th - Alternative energy from wastes policy : The Department of Alternative Energy Development and Efficiency : www.dede.go.th - Environmental education program : www.moe.go.th 	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
<ul style="list-style-type: none"> - The National Environmental Management Plan and the National Solid Waste Master Plan - Green Industry Plan - Action Plan for Thailand Zero Waste - Eco-Tourism Plan - National Plan on Health and Environment 	
<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 23	Promote green and socially responsible procurement at all levels, thereby creating and expanding 3R industries and markets for environmentally-friendly goods and products.
<p><i>Q-1 What specific policies are introduced to promote green and social responsible procurement?</i></p> <p>Green Public Procurement Promotion Plan 2008-2011 and continue to 2013-2016 was approved by the Cabinet Resolution on 22 January 2008.</p> <ul style="list-style-type: none"> - The 1st Green Public Procurement Promotion Plan 2009-2012 - The 2nd Green Public Procurement Promotion Plan 2013-2016 and - The 3rd Green Public Procurement Promotion Plan 2017-2021 <p><i>Q-2 Please provide details of eco-labelling schemes of your country.</i></p> <p>The Thai Green Label Scheme was initiated by the Thailand Business Council for Sustainable Development (TBCSD) in October 1993 as a TBCSD council project. It was formally launched in August 1994 by the Thailand Environment Institute (TEI) in association with the Ministry of Industry.</p> <p>The Green Label is an environmental certification awarded to specific products that are shown to have minimum detrimental impact on the environment in comparison with other products serving the same function.</p> <p>The Thai Green Label Scheme applies to products and services, not including foods, drinks, and pharmaceuticals. Products or services which meet the Thai Green Label criteria can carry the Thai Green Label. Participation in the scheme is voluntary.</p> <p>The symbol signifies environmental conservation. The flora (the leaves) and fauna (the bird) depicted are the living wonders of the world. In the myriad of links with our earth, our hopes for future generations (the smiling face) grow from life respecting nature.</p> <p><i>Q-3 Please provide a list of criteria for eco-labeled products and services in your country.</i></p> <p>Typical criteria based on performance standard as common criteria plus environment concern. The criteria can be found at http://www.tei.or.th/greenlabel/categories.html. There are 645 models, 26 product category and 61 companies certified green label. It can be found at : http://www.tei.or.th/greenlabel/application.html</p> <p><i>Q-4 Please provide the list of Ministries and major Government Agencies which have adopted green procurement policy.</i></p> <ul style="list-style-type: none"> - All Ministry and Central Government have adopted green procurement on voluntary basis <p><i>Q-5 What % of municipalities have adopted the green procurement policy?</i></p> <p>Around 22%</p> <p><i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i></p> <ul style="list-style-type: none"> - Being GPP implementation and monitoring on voluntary basis, low response rate have shown with the result of a misrepresentation of actual level of procurement of green products and services. The lack of centralized purchases and/or procurement platform with green product and service databases requires each implementing agency to track their own GPP data to report which cause time consuming and reluctant to report the result. - The Sustainable Consumption and Production (SCP) activities in Thailand on sustainable procurement are good. There are government sustainable procurement policies in place and have already been implement 3 phases. In 3rd phases, there will be more products and services lists and the sustainable 	

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.
<p>procurement policy will be expanded to local administrative organizations, universities and private sectors. There are online systems providing documents required for the sustainable procurement, listed of approved manufacturers and products with eco-labels including monitoring systems to facilitate the adopting of sustainable procurement. However, cooperation for data filling into online monitoring system is lacking. It has been well established in the public sectors. However, it much more needs to be done in particular at the local level. Thailand is ranked by medium level, just like Malaysia, whereas Japan, South Korea and the EU is ranked at a higher level as they have achieved more with this area.</p>	
<p><i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i></p> <ul style="list-style-type: none"> - Green Public Procurement Promotion Plan 2009-2012, 2013-2016 and 2017-2021 :http://ptech.pcd.go.th/gp *2551-2554 - Thai eco labeling : http://tei.ot.th/greenlabel/thcategories.html 	
<p><i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i></p> <p>Green Public Procurement Promotion Plan 2017-2021 is under developing by related stakeholder</p>	
<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>	

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>	
N/A	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
N/A	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
N/A	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
N/A	
<i>Is this Goal relevant for your country?</i> <input type="checkbox"/> Highly <input type="checkbox"/> Partially <input 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? The Waste and Hazardous Waste Management Road Map and Master Plan which was approved by the National Council for Peace and Order on the 26 th of August 2014, calls for an end to improper disposal methods such as open dumping.	
Q-3 Rank the five most important rivers in terms of water quality (BOD values) passing through major cities and urban areas? 1) Lower Chao Phraya River 2) Lower Tha Chin River 3) Upper Phangrad River 4) Lower Rayong River 5) Kuang River	
Q-4 What are the specific laws, rules and regulations in place to prevent littering in river and water bodies? <ul style="list-style-type: none"> - The Public Cleansing Act B.E. 2535 Article 26, 29-34: Prohibits the disposal of waste in public areas - Navigation in the Thai Waters Act B.E.2456 (1913) 	
Q-5 What are the specific laws, rules and regulations in place to prevent marine littering? <ul style="list-style-type: none"> - Navigation in the Thai Waters Act B.E.2456 (1913) - Enhancement and Conservation of National Environmental Quality Act, B.E. 2535 (1992) - The Act on the Promotion of Marine and Coastal Resources Management, B.E. 2558 (2015) 	
Challenges (policy/ institutional/ technological/ financial) faced in implementation: Need cooperation among related ministries and organizations	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant <ul style="list-style-type: none"> - The Waste and Hazardous Waste Management Road Map : http://www.pcd.go.th/Info_Serv/roadmapWaste.html (in Thai language) - The National Waste and Hazardous Waste Management Master Plan (2016-2021) : http://www.pcd.go.th/Download/file/waste/WasteMasterPlan.pdf (in Thai language) - The Act on Maintaining the Country Cleanliness and Tidiness (2016 version): www.dla.go.th - Pilot project on plastic waste collection: www.dmcr.go.th 	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021) <ul style="list-style-type: none"> - The Act on Maintaining the Country Cleanliness and Tidiness (2016 version) is being reviewed - The Waste Management Act is being drafted - The Department of Marine and Coastal Resources is recently tasked with the responsibility to manage waste in marine waters 	
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 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.
<p>Q-1 What are major recycling industries in your country?</p> <ul style="list-style-type: none"> - Factory type 101(Central waste treatment plant) - Factory type 105 (Sorting and/or landfill facility of waste) - Factory type 106 (Recycling facility in which unusable industrial products wastes being utilized in production process to produce raw material or new product) <p>Q-2 Please specify the regulation on transboundary movement of hazardous waste. According to the Hazardous Substance Act B.E. 2535 (1992), hazardous waste be classified to Hazardous Substance Type 3 which obtain permission before specified actions. The importer - exporter shall submit an application for a permit for Type 3 hazardous substance to Department of Industrial work (DIW) Ministry of Industry.</p> <p>Q-3 If your government has restriction on import of non-hazardous waste or quality control of non-hazardous waste, please list it up.</p> <ul style="list-style-type: none"> - Plastic wastes (Apply to the Notification of Ministry of Industry on the criteria for the approval of the import of the scrap and used material which is made of used plastic and unused plastic B.E. 2551 (2008) dated on 21 January 2008) - Used tyres (Apply to the Notification of Ministry of commerce on the importation of used tyres into Thailand B.E. 2556 (2013) dated on 16 August 2013) <p>Q-4 Does your government restrict import of remanufactured goods? Some goods which many impact to society, health and environment</p> <p>Q-5 Does your government regard remanufactured goods as secondhand goods, and regulate it as secondhand goods? Yes</p>	
Challenges (policy/ institutional/ technological/ financial) faced in implementation: Need specific law and regulation for transboundary movement of wastes, recyclables and goods	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant Goods control for impart and export: www.costoms.go.th , www.pcd.go.th , www.diw.go.th	
Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021) Transboundary movement of wastes under the Basel Convention Agreement	
<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 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	✓			✓	
Direct disposal to water		✓			✓
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?

Public Discloses Policy/ Environmental Promotion Programme

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

- Data collection and sharing need high budget
- Different data collection techniques and capability

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

- Municipal solid waste management data collection for annual report of pollution status : www.pcd.go.th
- Municipal Solid Waste Data Base study

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

- 3R data base and knowledge hub development
- Municipal Solid Waste Data Base study

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

IV. 3R Goals for Cross-cutting Issues	
Goal 28	Promote heat recovery (waste-to-energy), in case wastes are not re-usable or recyclable and proper and sustainable management is secured.
<i>Q-1 What are the government policies and programmes, including incentives, for waste-to-energy programmes?</i>	
Waste and Hazardous Waste Management Road Map encourages waste to energy facilities as part of an integrated waste management system for local authorities with public-private partnerships approach.	
<ul style="list-style-type: none"> - Tax incentives from Board of Investment (BOI) - A new feed in tariff system has been introduced for driving production of energy from waste 	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
<ul style="list-style-type: none"> - Procedures for public private partnerships for waste to energy projects need to be simplified and explained to local authorities - Inadequate numbers of local higher technology providers 	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
<ul style="list-style-type: none"> - Waste and Hazardous Waste Management Road Map : http://www.pcd.go.th/Info_Serv/roadmapWaste.html (in Thai language) - Undergoing a project to conduct feasibility studies for waste to energy facilities in Thailand for large, medium and small size 	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
<ul style="list-style-type: none"> - The National Waste and Hazardous Waste Management Master Plan (2016-2021) is being drafted - The Alternative Energy Development Plan (2015 – 2036) 	
<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.
<i>Q-1 Please provide a list of on-going bilateral/multi-lateral technical cooperation in 3R areas?</i>	
<ul style="list-style-type: none"> - ASEAN-UNEP IETC Joint Activities on Waste Management Under ASEAN Working Group on Multilateral Environmental Agreement (AWGMEA) - Capacity Building Project on Environmental Management Among Local Regional And Central Authorities :JICA 	
<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>	
Developing master plan on solid and hazardous wastes management which include international cooperation	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
N/A	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
Waste Landfill Planning Assistance for Thailand: JICA, Fukuoka	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
The National Waste Management Master Plan 2016-2021	
<i>Is this Goal relevant for your country?</i> <input checked="" type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all	

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>	
-	
<i>Q-2 Please list 3R related projects linked to climate change, biodiversity, disaster management and sustainable tourism. (This is <u>to be reported by SIDS countries only</u>)</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 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>	
-	
<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 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.
Q-1 What is the approximate market size (in US\$) of the informal waste sector? Approximately 650,000 USD	
Q-2 Number of annual labor inspections in waste sector? Around 100,000 people	
Q-3 Is health insurance a mandatory to all informal workers in waste sector by law? Only registered waste recycling companies	
Q-4 What specific policies and enforcement mechanisms are in place to prevent illegal engagement of children in waste sector? <ul style="list-style-type: none"> - Labor law and related notifications - Measures in Prevention and Suppression of Trafficking in Women and Children Act B.E. 2540 (1997) - Child Protection Act B.E. 2546 (2003) 	
Q-5 Number of landfill sites accessible to register waste pickers? N/A	
Q-6 Average life span of informal waste workers? N/A	
Q-7 Any government vaccination programmes for informal waste workers? Yes, it is operated by the local authority and the public health units.	
Q-8 Any public awareness programmes for informal waste workers on health and safety measures? Yes, it is running by local authority on green junk shop programs.	
Challenges (policy/ institutional/ technological/ financial) faced in implementation: <ul style="list-style-type: none"> - Register informal waste sectors for supporting welfare - Mandatory provision of health insurance is limited by finance and related laws 	
Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant <ul style="list-style-type: none"> - Promotion for green junk shops : www.pcd.go.th - Promotion health care for informal labor : www.thaihealth.or.th 	
Important policies/programs/projects/master plans the government plans to undertake within next five years (2016~2021) Master Plan on National Health Care and Insurance	
Is this Goal relevant for your country? <input type="checkbox"/> Highly <input checked="" type="checkbox"/> Partially <input 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>	
N/A	
<i>Challenges (policy/ institutional/ technological/ financial) faced in implementation:</i>	
N/A	
<i>Examples of pilot projects, master plans and/or policies developed or under development – include websites where relevant</i>	
N/A	
<i>Important policies/programmes/projects/master plans the government plans to undertake within next five years (2016~2021)</i>	
N/A	
<i>Is this Goal relevant for your country?</i> <input type="checkbox"/> Highly <input type="checkbox"/> Partially <input type="checkbox"/> Not at all	

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