Performance Indicators in the 3Rs and Resource Efficiency

-Overview of Session Background and 3R Policy Indicator Factsheets-

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1. Background

- For **improved policy implementation**, it is essential to **set clear policy targets** and **review** them regularly, which necessitates **a set of policy and performance indicators**.

- **RIO+20 outcome document** "Future We Want" places emphasis on "**goals, targets and indicators**" for measuring and accelerating progress towards implementation efforts of SD and green economy.

- HaNoi 3R Declaration also proposes **a set of priority goals** and to **list sample indicators** which can be useful in monitoring these goals.

Asia Resource Circulation Policy Research Group

- **8 Participating Organizations**: IGES, IDE-JETRO, NIES of Japan, University of Malaya, Asian Institute of Technology, Bandung Institute of Technology, Tokyo Institute of Technology and UNCRD

- Three WGs: 1) **3R Policy Indicator**, 2) Policy Research on Promoting Environmentally Sound Recycling Industries and Mechanisms, and 3) REDUCTION policy

- **Two collaborative WS** in FY 2012 (Bangkok: Dec. 2012, Tokyo: Feb. 2013)

3. Priority Thematic Areas in draft HaNoi 3R Declaration and sample 3R policy indicators with factsheets

Priority Thematic Areas	Goals	Sample Indicators	Type
MSW	G.1: Significant reduction in MSW	Total MSW Generation and MSW Generation Per Capita	Quantitative Pressure
	G.3: Significant increase in recycling rate	Recycling rate and target	Quantitative Response
	G.4: Informal waste sector	*To be prepared*	-
Industrial Sector.	G. 6: Encourage private sector…to increase resource efficiency…	Measuring 3Rs through Industrial Symbiosis	Qualitative and Quantitative set of indicators Response
	G. 10: Proper classification and inventory of HW	Hazardous Waste Management	-Qualitative Response -Quantitative Pressure
Rural Area	G.12: Full-scale use of agricultural biomass waste and livestock waste.	Promoting full-scale use of agricultural biomass residue and livestock waste.	Quantitative

3. Priority Thematic Areas in draft HaNoi 3R Declaration and sample 3R policy indicators with factsheets

Priority Thematic Areas	Goals	Sample Indicators	Type
New and Emerging Wastes	G.14: ESM of e-waste	Standards for Collection, Storage, Transport, Recovery, Treatment, and Disposal to Ensure ESM of E-waste	Qualitative Response
	G.16: EPR	Recycling Legislation based on the concept of EPR	Qualitative Response
Cross-cutting Issues	G. 19 Public Awareness	Measuring Public Awareness and Actions for the 3Rs	Qualitative/Quantitative Response
	G. 20 Green Procurement	Structure, content and implementation of green procurement	Qualitative Response

4. What are performance/policy indicators for the 3Rs? Why we need to use them?

- A set of information and data to **monitor progress towards 3R-related policy goals**.

- They are useful to track and review the progress of **national strategy**, policy priorities, and local governmental efforts and could provide **policy feedback and measure performance**.

- Can provide useful analytical tools for
  - **institutional arrangement groundwork,**
  - **infrastructure coordination** (such as logistical arrangements for collection as well as siting of treatment facilities**), and**
  - **market creation for 3R-related products, technologies and services.**

5. Examples of Existing National Targets and Indicators in Asia

Country and Policy	Targets and Indicators
Japan Fundamental Plan for Establishing a Sound Material Cycle Society	MFA-based indicators: Resource productivity, cyclical use-rate and final treatment of waste. Various 3R-indicators
The People's Republic of China Circular Economy	NDRC released Circular Economy Indicators in 2007
Philippines Ecological Solid Waste Management Act	To achieve a waste diversion rate of 25% for all solid waste via re-use, recycling and composting and other resource recovery activity before 2004 A minimum requirement to establish material recovery facilities (MRFs) in each barangay etc.
Malaysia Tenth Malaysia Plan 2011–2015	An increase in household recovery of waste from 15% to 25% by 2015 and closure of open dump sites
Viet Nam National Strategy for Integrated Management of Solid Waste up to 2025	To collect and treat up to environmental standards 100% of daily life solid waste in urban centres, 90% of which will be recycled, reused, recovered energy or used for organic fertiliser production

6. Preliminary evaluation of existing statistics related t the 3Rs and waste management

	Domestic Waste generation and disposed	Industrial Waste generation, disposed	Hazardous waste, waste generation, disposed	Collection of recyclables, recovery
Japan	○	○	△	○
South Korea	○	○	?	○
China	○	○	○	△(industry)
Singapore	○	×	?	○
Indonesia	△	×	○	△
Malaysia	○	×	○	△
Philippines	○	×	○	△
Thailand				
Viet Nam	△	△	△	△

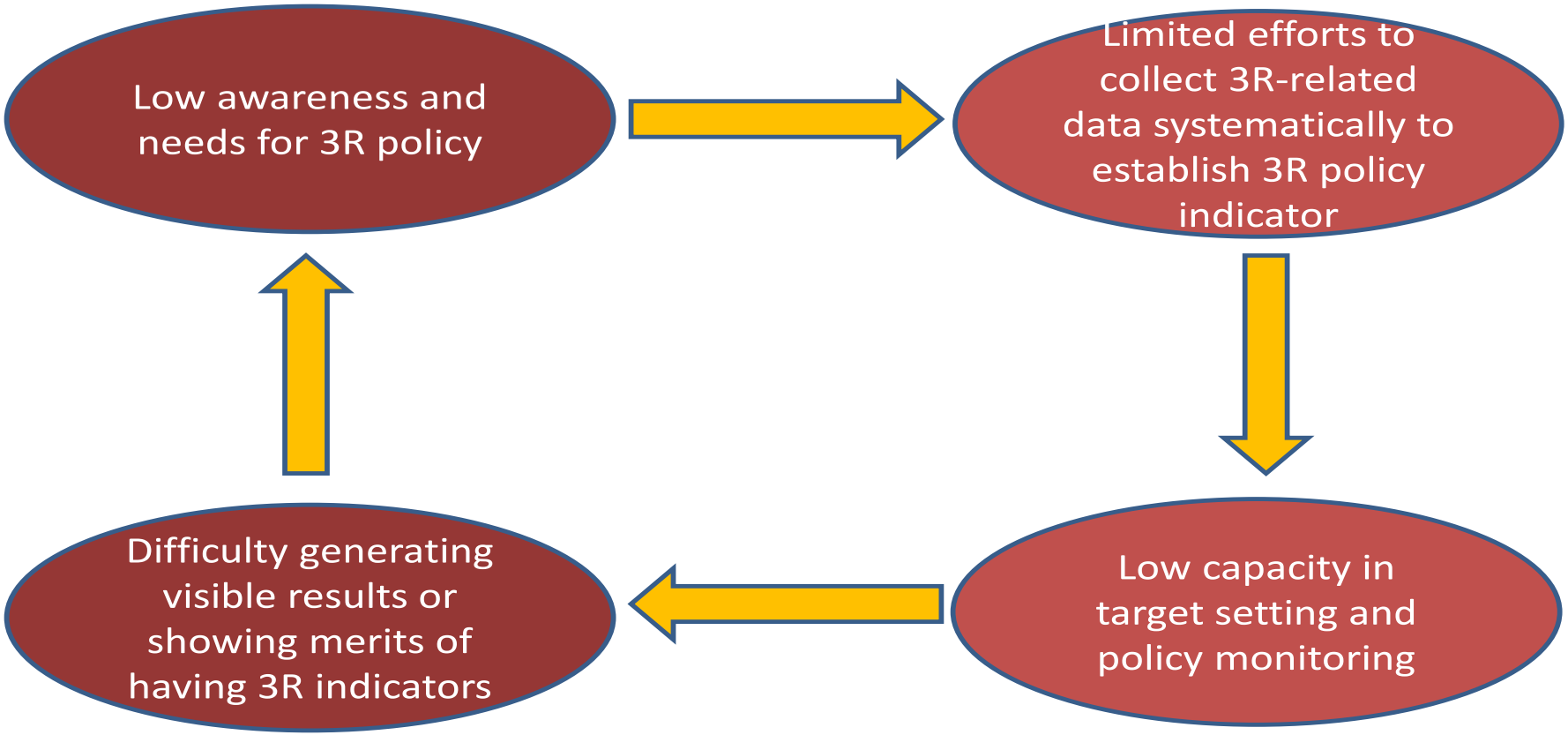
Note: ○ Data is collected and disclosed
△ data is limited to specific areas or items. Not disclosed
× Data is not collected periodically

Source: Kojima (2012) "Progress on Work on 3R Policy Indicators in ERIA Working Group", *Asia Resource Circulation Policy Research Workshop*, Bangkok 2012.

6. Challenges to establish effective indicators

- **Data availability and accuracy**
  - Often unavailable, scattered, unobservable or time-consuming
  - Data related to waste stream handled by informal sector
  - Possibility of falsifying data
- **Lack of standard methodology and issues of definition**
  - Different sampling and data collection methods may produce different results.
  - Similar yet different indicators exists (recycling rate, resource recovery rate, waste diversion rate etc.)
- **Data-related to existing policies and incentives**
  - Important to have accurate understanding of existing policy instruments and economic incentives that have decisive effects over possible options for waste treatment and recycling.

7. Breaking the Vicious Cycle



1. Establishment of a national focal point,
2. Development of model cases,
3. Training and capacity development to develop methodology and guideline

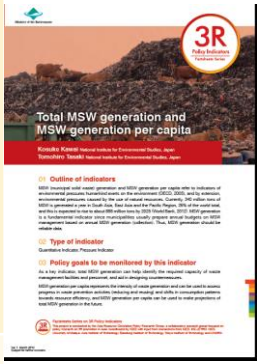
through international collaboration.

8. Clear Policy Priorities and Links to Targets and Indicators

- Main method of waste treatment (Open dumping? Controlled landfill? Sanitary landfill? Incineration?)
- Coverage of waste collection services
- Is market-based recycling functioning or not?
- Is there a priority on GHG reduction thus in energy recovery?
- Are there any concerns about particular hazardous wastes?
- Is there any focus on particular recyclables?
- Do recycling industries create pollution

8. Example of Merits for Having 3R Policy Indicators

Factsheets	Merits of Indicators
Total MSW generation and MSW generation per capita	• Would enhance **governmental decision-making capacity**. • Would raise the precision of the **national inventory on waste sector greenhouse gas emissions** (linkages with climate issues).
Recycling Rate and Targets	• Many governments in Asia have incorporated it into **national 3R targets**. • **Need a caution for inter-country comparisons:** there very similar indicators based on different assumptions and policy priorities (resource recovery rate, collection rate of recyclables, waste diversion rate etc.).
Measuring 3Rs in Industrial Symbiosis (Eco-industrial Parks)	Benefits for industrial sectors: **1)Reduction in the waste generated** **2)Ratio of recycled materials used through waste exchanges**, **3)Reduction in landfill**, and **4)Reduction in the cost of waste treatment**.



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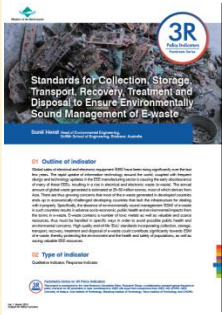
Factsheets	Merits of Indicators	
Hazourdous Waste Management	• Many Asian countries have ratified the **Basel Convention.** • It requires submission of **data and information on hazardous waste regulations, existing facilities, generation and import and export**.	
Promoting full-scale use of agricultural biomass residue and livestock waste	There are number of **co - benefits**; •GHG emission reduction, energy security, poverty reduction, sustainable livelihoods in rural areas, investment mobilisation, regional economic gains and public health improvements.	
ESM Standards of E-waste	• Enables monitoring of the **environmental performance of the entire EoL chain of e-waste** and the policy gaps. • Possible to monitor operations related to the emerging **informal e-waste recycling sector**.	

8. Example of Merits for Having 3R Policy Indicators

Factsheets	Merits of Indicators
Recycling Legislation based on the Concept of Extended Producer Responsibility (EPR)	• This kind of qualitative indicator is useful when shared between countries. • **Sharing information on good practices**, challenges and lessons would constitute **a useful tool to promote effective policy implementation**.
Measuring Public Awareness and Actions for 3Rs	• Both **public awareness and action are basic ingredients** for the successful 3Rs. • This FS gives the basic approaches for measuring these important elements for the 3Rs.
Green Procurement	• **A market for green and recycled products and materials** to be established. • **Cross-border sharing of information would enhance and expand economic incentives** for promoting 3R-related goods and services in Asia.

9. Future work plan of 3R policy indicator working group of Asia Resource Circulation Policy Research

- Additional factsheets
- Examine possible development of regional-level integrated indicators
- Development of training programme/guideline on 3R indicator development.
- Possible collaboration to make a training programme under JICA, UNESCAP Statistical Training Center or other UN organizations such as UNEP and UNCRD.