

4th 3RINCs, Special session-4: Status of 3R in Asia and the Pacific Region, 9 March 2017, New Delhi

Points of Concern in the 3Rs and Waste Management in Asia and Pacific Region



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Points of Concern in the 3Rs and Waste Management in Asia and Pacific Region

1. Major Recommendations in the State of the 3Rs in Asia and the Pacific

1. The sign of improvement in waste reduction
2. Importance of 'reduce' strategy among 3R
3. Necessity of promoting 3R and low carbon strategies in material & waste management sectors

2. Additional Major Recommendations

1. Disaster waste and stock waste problem
2. Chemical control in material cycles and waste management

3. 3R Policy Developments and Academic Societies

1. Major Recommendations in the State of the 3Rs in Asia and the Pacific

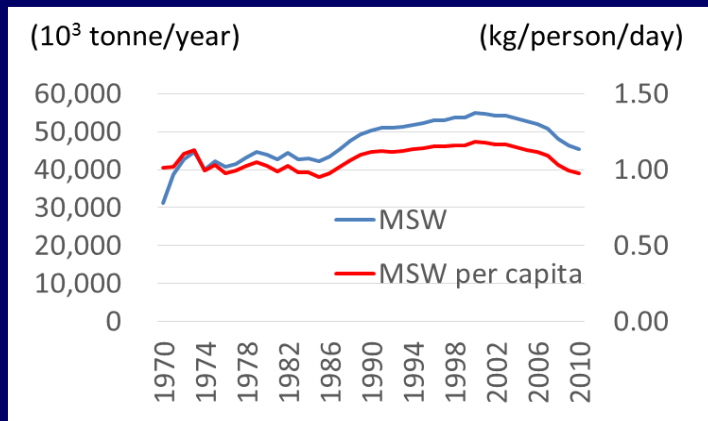
(1) The sign of improvement in waste reduction



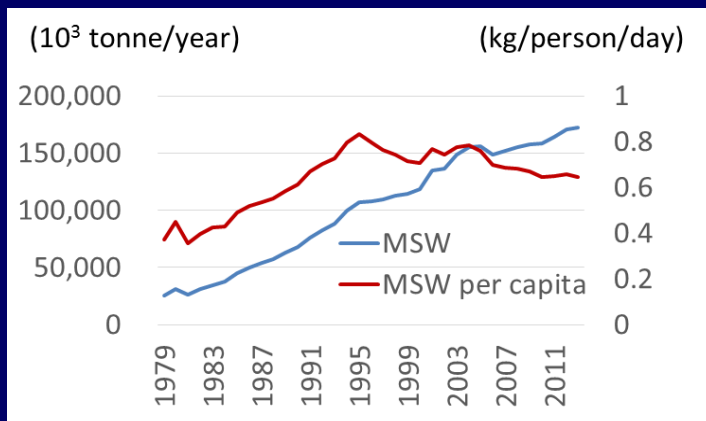
Some good messages:

The sign of improvement in waste reduction MSW Generation per capita in Japan & China

Japan



China



- The report on “State of the 3Rs in Asia and the Pacific” introduces various indicators for material cycles flow and waste management.
- Among those indicators, DMC/Capita or MSW/Capita show flat/ decrease trends in some countries. MSW/Capita has decreasing trends in countries such as China, Singapore and Japan.
- It is a good sign for Asia and the Pacific where 3R-related efforts have been seriously implemented for waste management.

1. Major Recommendations in the State of the 3Rs in Asia and the Pacific

(2) Importance of 'reduce' strategy among 3R



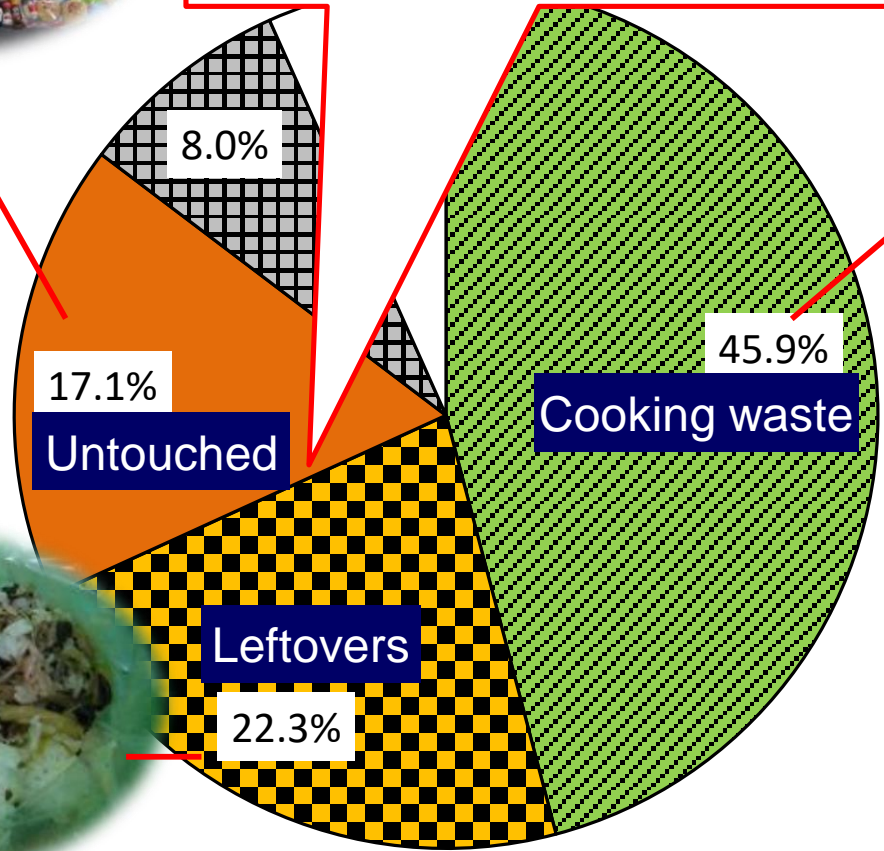
Untouched Food



Picture (2013-October-31)

Household food waste composition as of 2012

Food loss (untouched food and leftovers) accounted for about 40% of food waste
→ These are avoidable!



- Cooking waste
- Leftovers
- Untouched food
- Leaves and coffee residue
- Water sink

1. Major Recommendations in the State of the 3Rs in Asia and the Pacific

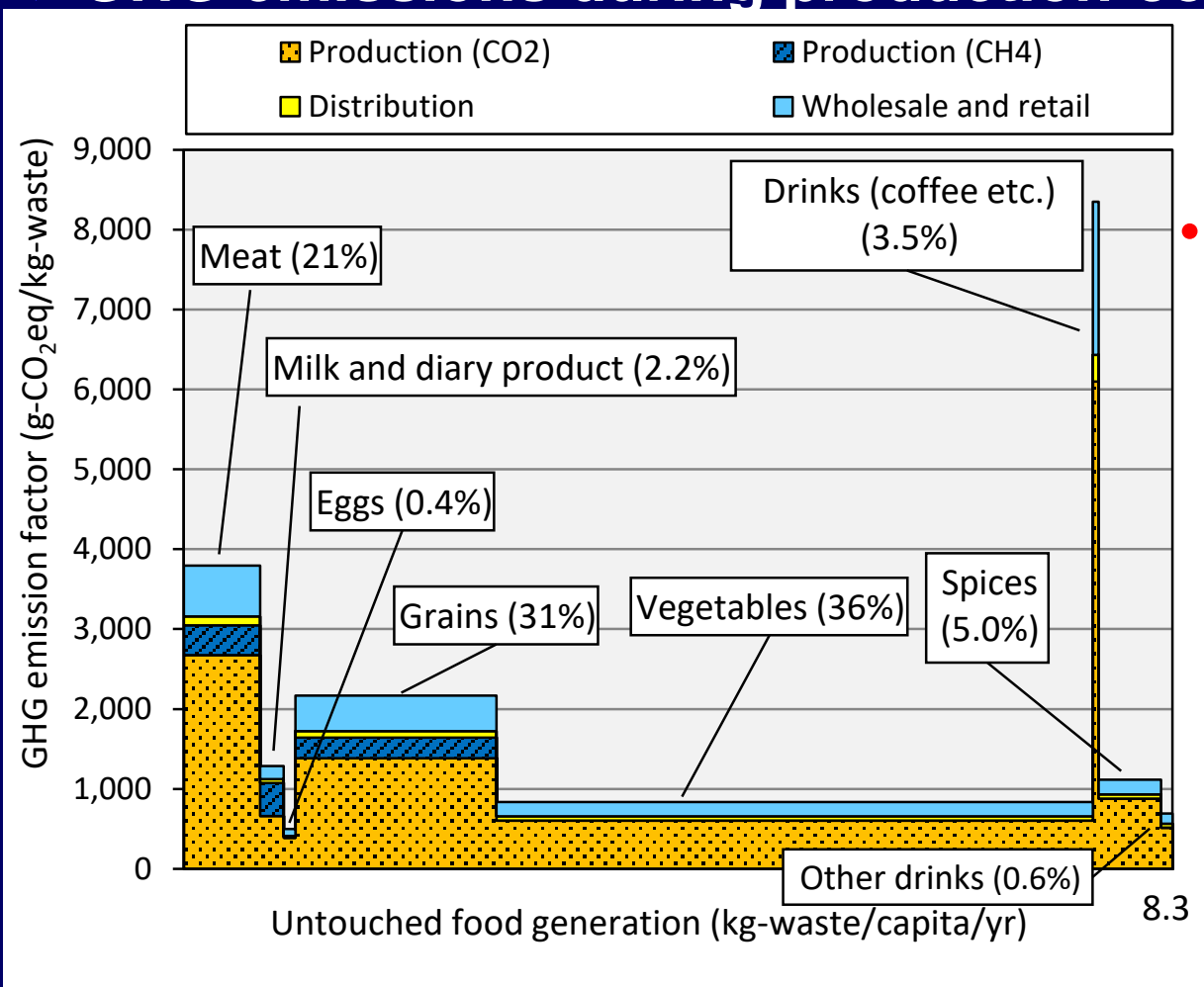
(3) Necessity of promoting 3R and low carbon strategies in material & waste management sectors



Relationship between food loss generated and GHG emission factors of each food category

Untouched food

GHG emissions during production-cooking: approx.



12 kg-CO₂eq/cap/yr.

• Meat accounted for less than 10% on food waste composition basis.

But, on GHG emission basis it accounted for larger proportion, 21%.

(Ref.) Matsuda, Yano, Hira, Sakai (2010) Life cycle analysis of household waste management considering trade-off between food waste reduction and recycling, *Journal of LCA* 6 (4): 280–287.

Renewable and Non-Renewable Resources

Type of Resource	Note	Specific example
Non-renewable resources	Resources that cannot be replenished on the human timescale.	Fossil fuels: Never returns to the original hydrocarbon forms on the human timescale. Mineral resources: Exhaustible because soon-to-be unavailable with current technology and economic level.
Renewable resources	Resources that can be considered as no depletion depending on their usage amounts	Sunlight: Energy emitted from the sun to the earth will last for over billions of years.
	Resources with actually no depletion considering usage amount and renewable amount.	Biomass: Plants produced through photosynthesis process using solar energy; i.e., non-depletable on the human time scale.

Ref.: Global Environmental Problem (3) – Transition from resource restriction and waste problem to recyclable society, Shinichi Sakai, Environmental Education, The Japanese Society for Environmental Education (2012)

2. Additional Major Recommendations

(1) Disaster waste and stock waste problem



The Great Hanshin-Awaji Earthquake, January 17, 1995



Amount of disaster waste generated

Year	Disaster	Amount of waste
2011	The Great East Japan Earthquake	25 million t
2010	2010 Haiti earthquake	Around 23 - 60 million t
2009	Terremoto dell'Aquila (Italy)	Around 1- 3 million t
2008	2008 Sichuan earthquake (China)	20 million t
2005	Hurricane Katrina (U.S.)	76 million m ³
2004	Hurricane Frances & Jeanne (U.S.)	3 million m ³
2004	2004 Indian Ocean earthquake and tsunami	10 million m ³ (only in Indonesia)
2004	Hurricane Charley (U.S.)	2 million m ³
1999	Marmara earthquake (Turkey)	13 million t
1995	The Great Hanshin-Awaji Earthquake (JPN)	15 million t

Note :Some modification was made on review article by Brown et al.⁴⁾

Meaning of Disaster Waste Unit of “ 1 ton/m²”

Average unit of potential waste generated from
collapsed building: 1 ton/m²

→ Building of 100 m² generates 100 tons of waste

Amount of daily waste generation:

1 kg/ person per day ⇒ 1 ton/ year (family of
three)

→ The amount of disaster waste generated by the
earthquake equivalent to 100 years of daily
domestic waste



2. Additional Major Recommendations

(2) Chemical control in material cycles and waste management



Towards the Establishment of a Cycle-Oriented Society and Chemical Substances Control

Preservation of Earth System
and Living System

Cycle-oriented Society

Chemical Substances Control

Climate Change

Endocrine Disruptors

We will be able to save
Earth and Livings if We run
after Two Hears

Waste

Dioxins

Resources & Energy

Mercury

* We have no choice except pursuing these two ways to save livings and this planet.

“Clean/ Cycle/ Control”, 3C Concept

- ❖ Basic concept for technologies and society systems with the control of hazardous wastes and persistent chemicals
- ❖ Avoid the use of hazardous chemicals and the use of alternatives. **(Clean)**
- ❖ In case there is no appropriate alternative substances and the use of specified material is essential because of its crucial effect, recycling should be the principle. **(Cycle)**
- ❖ Emission control to the environment, and the decomposition and stabilization of stock substances and wastes which have been used in the past. **(Control)**

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3. 3R Policy Developments and Academic Societies



The 30th anniversary of KSWM in 2013

- ❖ **Korean Society of Waste Management (KSWM)** was founded in 1983 and is holding a special annual meeting at Jeju International Convention Center on November 14- 16, 2013.
- ❖ Sincere congratulation on the 30th anniversary of KSWM to all KSWM members on behalf of the members of JSMCWM and am very proud of attending the celebration meeting of KSWM together.



Korea Society of
Waste Management

History of the **Japan Society of Material Cycles and Waste Management (JSMCWM)**

- ❖ JSMCWM was established in March 27, 1990
- ❖ The purpose is to have academic contributions of developments of proper waste management and recycling activities through the academic researches and their information exchanges
- ❖ Members in 1990
 - Individuals: 1222, Students: 3, Supporting: 143, Public: 54
- ❖ Members in 2015
 - Individuals: 2266, Students: 189,
 - Supporting: 115 Public: 85



3RINCs 2014

- **3R International Scientific Conference on Material Cycles and Waste Management**

ORGANIZER: Japan Society of Material Cycles and Waste Management (JSMCWM)

CO-ORGANIZERS: Korean Society of Waste Management (KSWM), Society for Solid Waste, Chinese Society for Environmental Sciences (SSW-CSES) and other regional and global academic networks

SUPPORTERS: Ministry of the Environment Government of Japan, UNEP-IETC, UNCRD, JICA Kansai, IGES, Kyoto Prefecture, Kyoto City



Journal of Material Cycles and Waste Management (JMCWM)

- ❖ First issue was published in 1999 as an academic international journal of **Springer-Verlag** Tokyo edited by JSMCWM
- ❖ JMCWM has been followed by quarterly publication
- ❖ JMCWM has been registered in the Web of Science, and **SCI (Scientific Citation Index)** was also given in 2010.
- ❖ Electric submission and reviewing system has started in 2011



END

Thank you for your attention!

