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Low Carbon Asia Research Network (LoCARNet)

Climate Benefit of Sound Waste Management and Recycling

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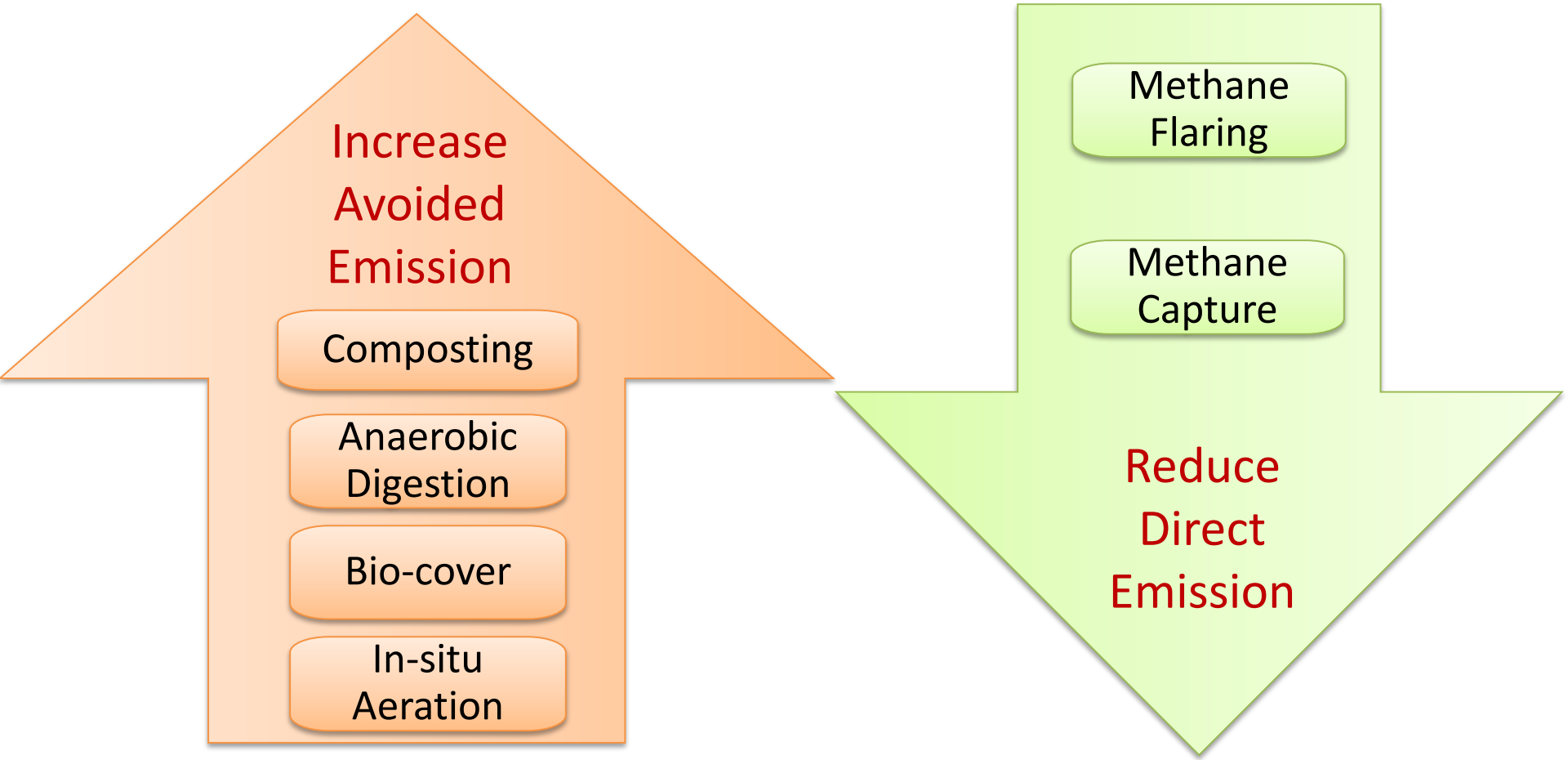
Climate Benefit from Waste Sector



Shifting to recycle/recover options for more climate benefits

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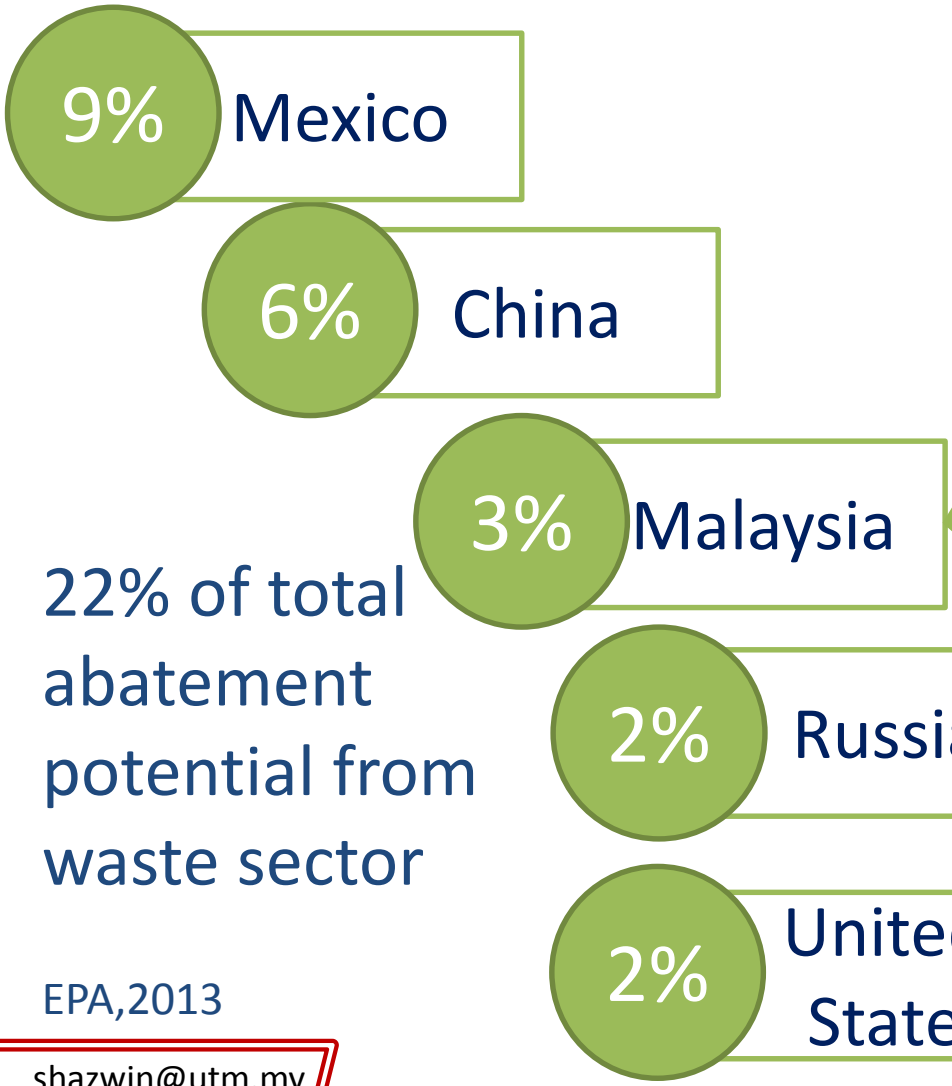
Emission Rate From Waste Sector

Landfills top 5 emitting countries in the world



22% of total abatement potential from waste sector

EPA,2013

- 90% landfill dependency
- 165 open dumping
- 8 sanitary landfill
- 47% methane emission estimated from food waste
- 49,000 tonnes of waste expected generation rate daily by 2020

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Policy Implementation in Malaysia

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Solid Waste and Public Cleansing Management 2007 (Act 672)

Separation at Source Initiative

- Mandatory to separate waste at generation source
- 1 September 2015
- 4 categories : Residual, Paper, Plastic, Others
- 2+1 Collection System
- 8 states : Kuala Lumpur, Putrajaya, Melaka, Johor, Negeri Sembilan, Pahang, Kedah, Perlis.

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Stakeholder and Capacity Building

- Responsible agencies:

Solid Waste Management and

Public Cleansing Corporation (SWCorp)

- Concession Companies:
  - Alam Flora (Kuala Lumpur, Putrajaya,Pahang)
  - Environment Idaman Sdn Bhd (Kedah, Perlis)
  - SWM Environment Sdn Bhd (Negri Sembilan, Malacca, Johor)

→Door to door visit for fliers and pamphlet distribution

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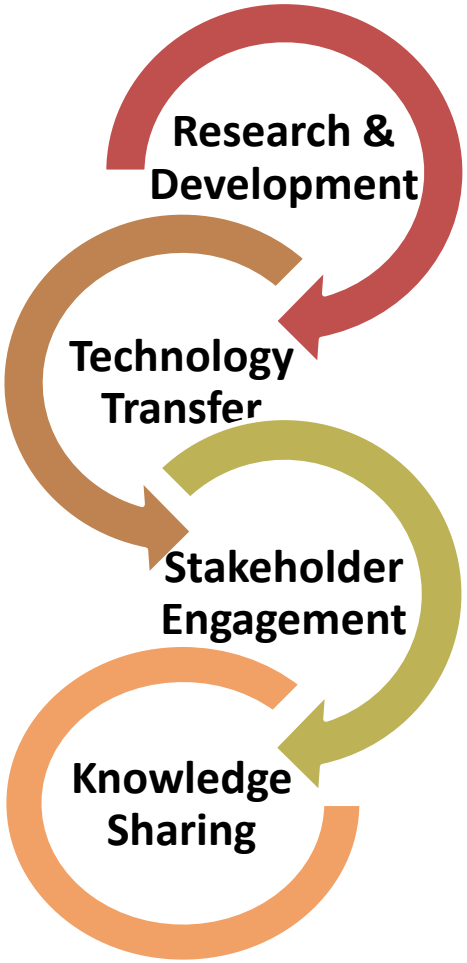
Our Engagement: Environmentally sound management of Fluorocarbons (FCs) Substances



Developing a framework outlining key milestones to be achieved by different stakeholders at different stages of FCs installation, maintenance, collection and destruction.

COHERENT SOURCE

- Traceable
- Quantifiable

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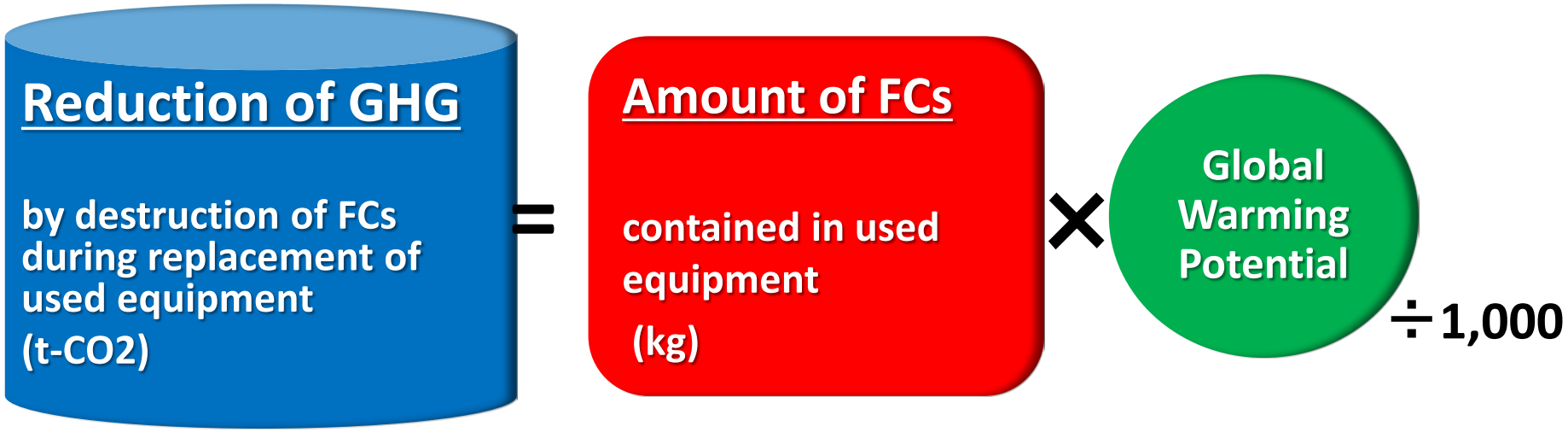
Prevention of global warming by FCs management



	CFC	HCFC	HFC	For CO2
Ozone Depletion Potential	1 to 0.5	0.5 to 0.005	0	
Global Warming Potential	380 to 8100 (R12=8100)	90 to 1800 (R22=1700)	140 to 11700 (R134=1300)	1

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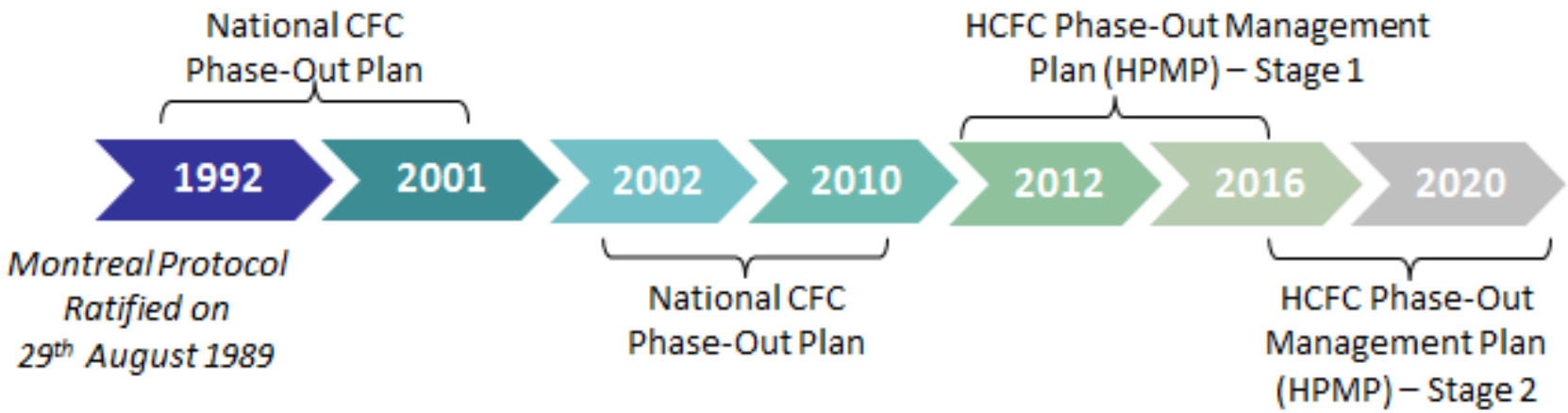
Policy Implementation



- Responsible Agency :

Ozone Unit, Department of Environment

- Malaysia HPMP for Compliance with the 2013 and 2015 Control Targets for Annex-C, Group-I Substances

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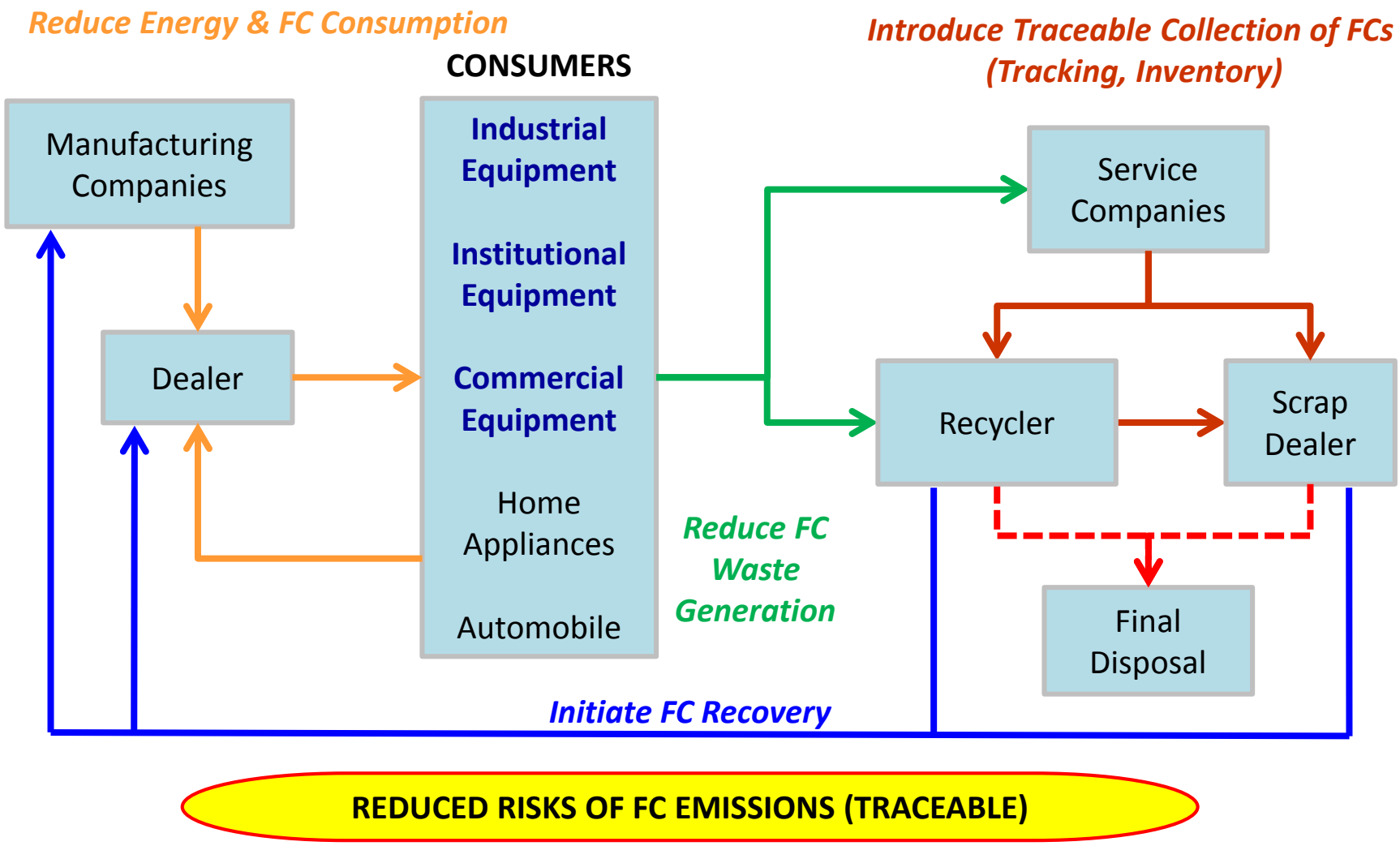
Source: DOE Malaysia and UNDP (2012)

Current Handling Flow



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Stakeholder Involvement

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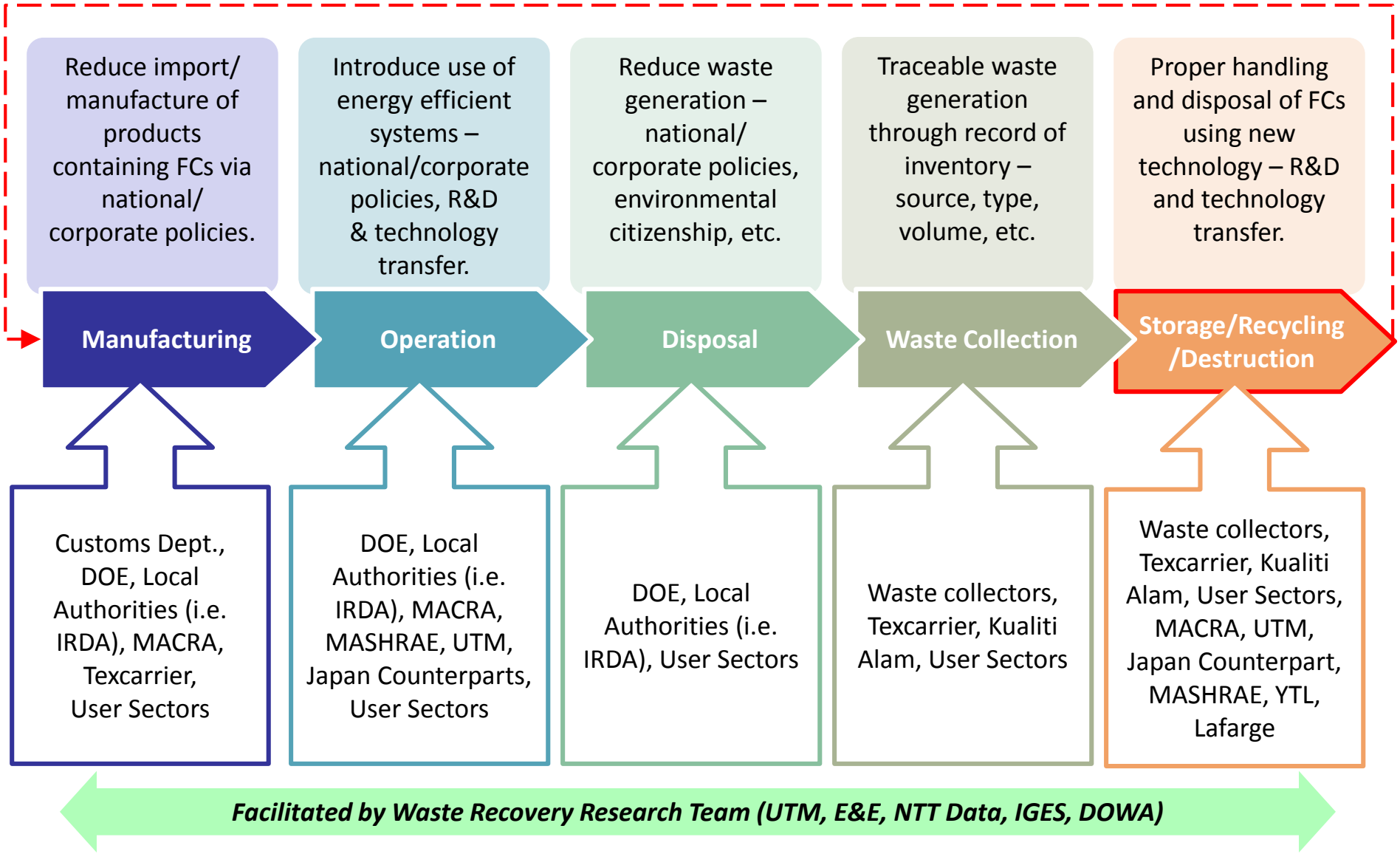
Capacity Building



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Case Study Result in Johor

Facility	Target equipment	Potential GHG Reduction
M-1 Hospital Sultan Ismail	Chiller (700 TR × 2)	GHG Reduction : 340tCO2/y
M-2 Skudai Parade	Chiller (720 TR × 2)	GHG Reduction : 280tCO2/y
M-3 UTM	Chiller (250 TR × 2, 300TR × 2)	GHG Reduction : 326tCO2/y

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Way Forward

Energy Efficiency Estimation

Energy Saving Equipment

Reduction of Energy Consumption and Cost

Household

Factory

Commercial Facility

Survey on Recovery of EOL Equipment and FCs

Collection/Transportation

Environmental Sound Management

Dismantle/Separation of Equipment, Recovery of Fluorocarbons (FCs)

Fluorocarbons

Recyclable Resources

GHG Reduction by FCs Destruction

Environmental Sound Management

Destruction of FCs

Recycle, Waste Management

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Thank You

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