

Asian Circular Economy Leadership Academy



Module D: Policies

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Outline

- Objectives: Understand and assess a wide range of circular economy (CE) policies from different scales
- Outcomes
 - Synthesis of CE policies of multiple scales, types and cases
 - Policy impacts onto your fields
- Content
 - Policy cycle
 - Policies from different scales, of different types
 - Policies in Japan and China
 - Exercise

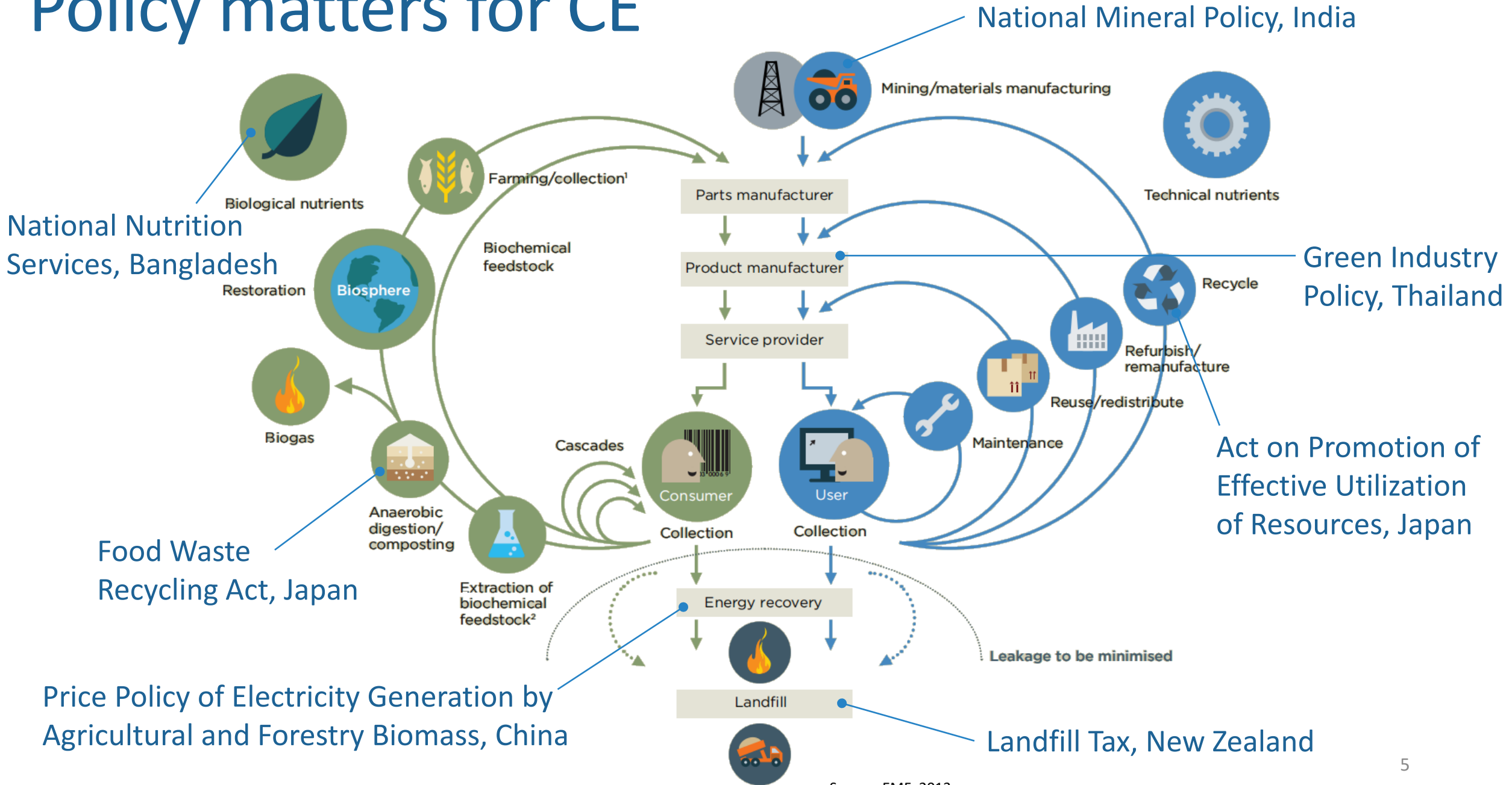
Policy

- A high-level overall plan embracing general goals and feasible procedures
- Usually adopted by a governance body
- Public policy consists of a set of actions—plans, laws, and behaviors—adopted by a government

Example: Municipal solid waste sorting

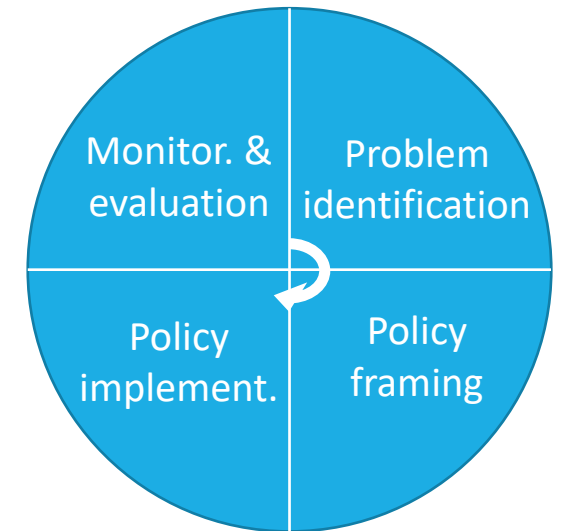
- Waste sorting policy in Shanghai, 2018
- Goals: By end 2020 , waste sorting system established, mandatory sorting implemented in organizations, voluntary sorting prevailed among residents, 35% recycling rate
- Procedures:
 - Standards, regulations and laws
 - Institutions and responsibilities
 - Waste sorting facilities
 - Shipment, disposal and recycling
 - Finance
 - Monitoring and evaluation

Policy matters for CE



Policy cycle

- **Problem identification:** Issues demanding policy attention are recognized by policy community and general public
- **Policy framing:** Guiding policy principles are determined, a policy position is developed, policy goals defined, and procedures proposed
- **Policy implementation:** Policy instruments are selected, resources allocated, communication and enforcement activities undertaken, and monitoring mechanisms established
- **Monitoring & evaluation:** Ongoing monitoring and evaluation of a policy are undertaken to enable learning and enhance performance



CE and Sustainable Development Goals



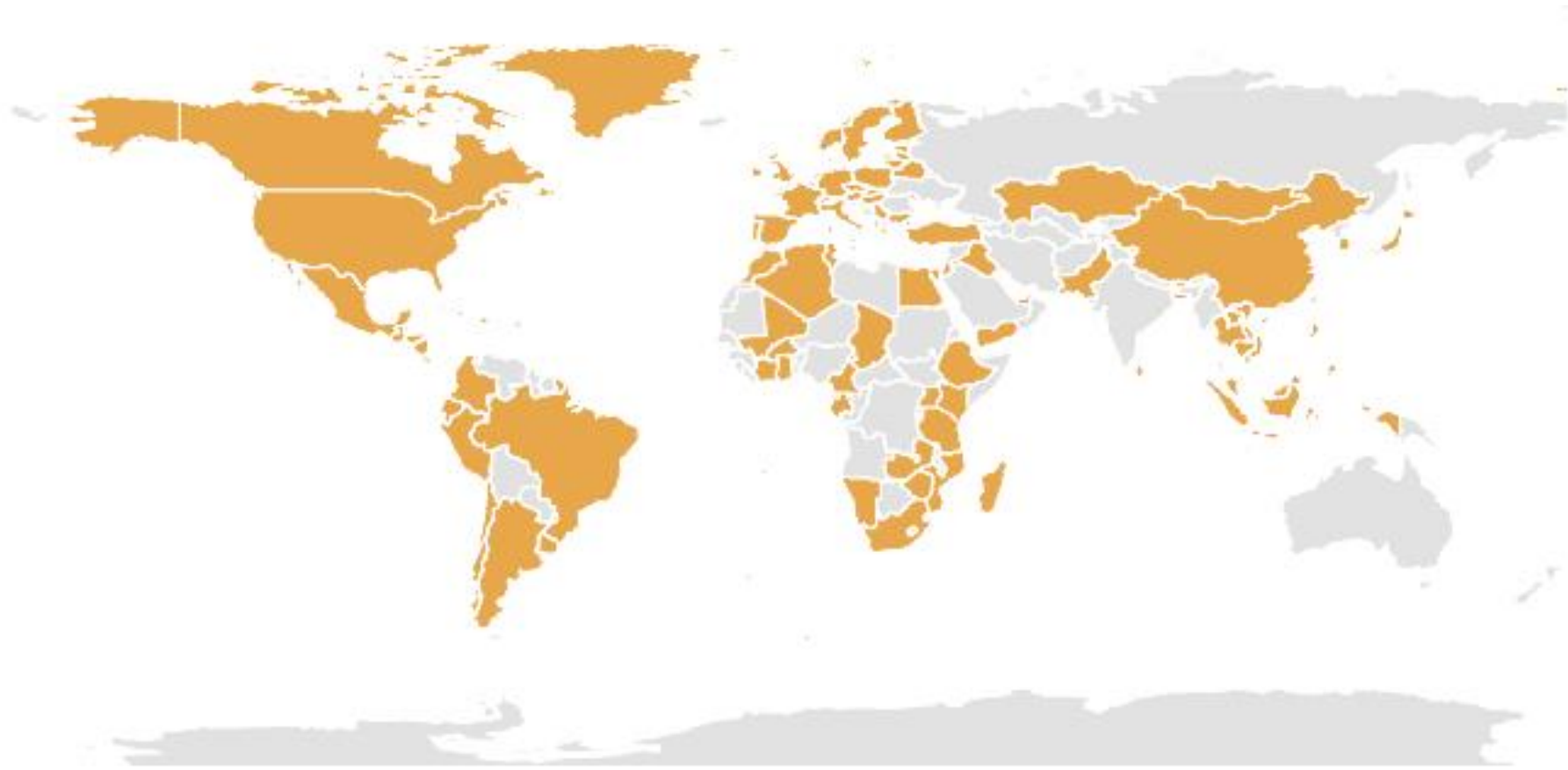
- **17** Sustainable Development **Goals** (SDGs), cover a broad range of development issues, in total **169 targets and 232 indicators**
- Heart of the *2030 Agenda for Sustainable Development* adopted by all UN members in 2015
- CE probably **most relevant to Goal 12** – Sustainable Consumption and Production (SCP)

SDG 12: Ensure sustainable consumption and production patterns

| Targets | Indicators |
|--|--|
| 12.1 Implement the 10-year framework of programmes on SCP | 12.1.1 Number of countries with SCP national action plans or SCP mainstreamed into national policies |
| 12.2 By 2030, achieve the sustainable management and efficient use of natural resources | 12.2.1 Material footprint, MF/cap, MF/GDP 12.2.2 Domestic material consumption, DMC/cap, DMC/GDP |
| 12.3 By 2030, halve per capita global food waste and reduce food losses | 12.3.1 Global food loss index |
| 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle | 12.4.1 Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals 12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment |
| 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse | 12.5.1 National recycling rate , tons of material recycled |
| 12.6 Encourage companies to adopt sustainable practices and to integrate sustainability information into their reporting cycle | 12.6.1 Number of companies publishing sustainability reports |
| 12.7 Promote public procurement practices that are sustainable | 12.7.1 Number of countries implementing SPP policies |
| 12.8 By 2030, ensure that people everywhere have the relevant information and awareness for SD and lifestyles in harmony with nature | 12.8.1 Extent to which (i) global citizenship education and (ii) education for SD are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment |
| 12.A Support developing countries to strengthen their scientific and technological capacity to move towards SCP | 12.A.1 Amount of support to developing countries on R&D for SCP |
| 12.B Develop and implement tools to monitor SD impacts for sustainable tourism | 12.B.1 Number of sustainable tourism strategies or policies |
| 12.C Rationalize inefficient fossil-fuel subsidies | 12.C.1 Amount of fossil-fuel subsidies per unit of GDP |

National policies and initiatives on SCP

108 countries had national policies and initiatives relevant to SCP by 2018



Source: UN, 2018

International CE policies

- UN initiative of SDGs
- International laws
 - **Based on treaties** and applicable to countries
 - Consent-based governance
- Multilateral environmental agreements relevant to SCP and CE
 - Over 350 MEAs in total
 - UN Framework Convention on Climate Change
 - WTO: Coordination of free trade and environmental conservation
 - Basel Convention: Reducing movements of hazardous waste between countries
 - Stockholm Convention: Eliminating production and use of persistent organic pollutants
 - Montreal Protocol: Phasing out ozone-depletion substances

Regional CE policies

- Europe
 - *EU Action Plan for the Circular Economy, 2015*
 - A wide body of actions at EU from production, consumption, to waste management and recycling
 - 5 priority areas (plastic recycling, food waste, critical raw materials, C&D, and biomass), 10 monitoring indicators
- Asia-Pacific
 - Several collaborative platforms and dialogues created
 - ASEAN+3 Environment Ministers Meeting
 - Tripartite Environment Ministers Meeting among China, Japan and Korea(TEMM)
 - AP Roundtable for SCP, Regional 3R Forum in AP, etc.

National policies: Mainstreaming in 5-Year Plans (5YPs)

- 5YPs of national socio-economic development, a comprehensive policy tool adopted by a list of countries
- China: from 1953, 13th 5YP (2016–2020)
 - 5 principles: innovation, harmony, **green**, openness, sharing; S10 on environmental conservation, Ch43 on resource management
- India: from 1951, 12th 5YP (2012–2017)
 - Faster, more inclusive and sustainable growth
- Japan: Plans for specific issues
 - Basic Environmental Plan, from 1994, 5th BEP (2018)
 - Fundamental Plan for Establishing a **Sound Material-Cycle Society**, from 2003, 5th FPESMCS (2018)

Mainstreaming in 5YP, con't

- Pakistan: 1955-1998 (8 times), replaced with more effective programmes
- South Korea: 1962-1996 (7 times), replaced by market-based policy formation
- Thailand: from 1961, 12th National Economic and Social Development Plan (2017–2021)
 - Strategy 4 - Environmentally-Friendly Growth for Sustainable Development
- Vietnam: from 1958, 10th FYP (2016–2020)
 - Environmental objectives: 85% hazardous waste treated, 95-100% healthcare waste treated

National policies on SCP and CE

| Country | Policy framework |
|-------------|---|
| Bangladesh | National Sustainable Development Strategy (2010–2021) |
| Cambodia | National Policy and Strategic Plan on Green Growth (2013–2030) |
| China | Integrated Reform Plan for Promoting Ecological Civilization (2015); Circular Economy Promotion Law (2009); Circular Economy Development Strategies and Recent Action Plan (2013) |
| India | National Environment Policy (2006) |
| Indonesia | National 10 Year Framework Programmes on Sustainable Consumption and Production (2013) |
| Japan | Basic Act on Establishing a Sound Material-Cycle Society (2000); Fundamental Plan for Establishing a Sound Material-Cycle Society (2003) (2008) (2013) (2018) |
| Laos | Strategic Framework for National Sustainable Development Strategy for Lao PDR (2008) |
| Malaysia | National Sustainable Consumption and Production Blueprint (2016–2030) |
| Pakistan | National Action Plan on Sustainable Consumption and Production (2017) |
| South Korea | National Strategy for Green Growth (2009–2050); Five-Year Plan for Green Growth (2009–2013) (2014–2018) |
| Thailand | National Sustainable Consumption and Production Roadmap (2017) |
| Vietnam | National Strategy on Green Growth (2012); National Action Plan on Sustainable Consumption and Production to 2020 (2016) |

Types of CE policies

- Mainstreaming in macroeconomic policy
- Laws and regulations
 - e.g., System of CE laws in Japan; ban of plastic bags
- Standards
 - British Standard for CE (BS 8001: 2017)
- Taxation
 - Landfill tax in New Zealand
- Full-cost pricing
 - Pricing reform of water and energy; waste charging (PAYT)
- Incentives
 - Subsidy to recycling start-ups; green credits

Types of CE policies, con't

- Extended producer responsibility
 - Making the product manufacturer responsible for the entire life-cycle of product, especially for take-back, recycling and final disposal
 - Deposit-refund of bottles and packaging
- Sustainable public procurement
 - Green procurement in Japan
- Eco-labelling
 - Green label in Thailand, Ecomark in India
- Eco-industrial development
 - Eco-towns in Japan; EIP initiative in Korea

CE policies in Japan and China

- Most advanced vs. biggest economy in Asia
- Systematic policies on CE since the early 2000s
- Different and comparable policy approaches



循環型社会

Circular -Type Society

Sound Material-Cycle Society (SMCS)



循环经济

Economy

Circular Economy

Definition of SMCS in Japan

- **SMCS Committee, 1990**

To achieve sustainable development, the way of economic activity that fits to great cycles in ecosystems must be designed and practiced..... it is necessary to **restrain the input of primary resources, to minimize the amount of emissions to natural ecosystem, and to prevent the emissions from disturbing the environment** by putting a higher priority on **reuse and recycling** than disposal. Such socio-economic system can be called SMCS

- **Basic Act on Establishing SMCS, 2000**

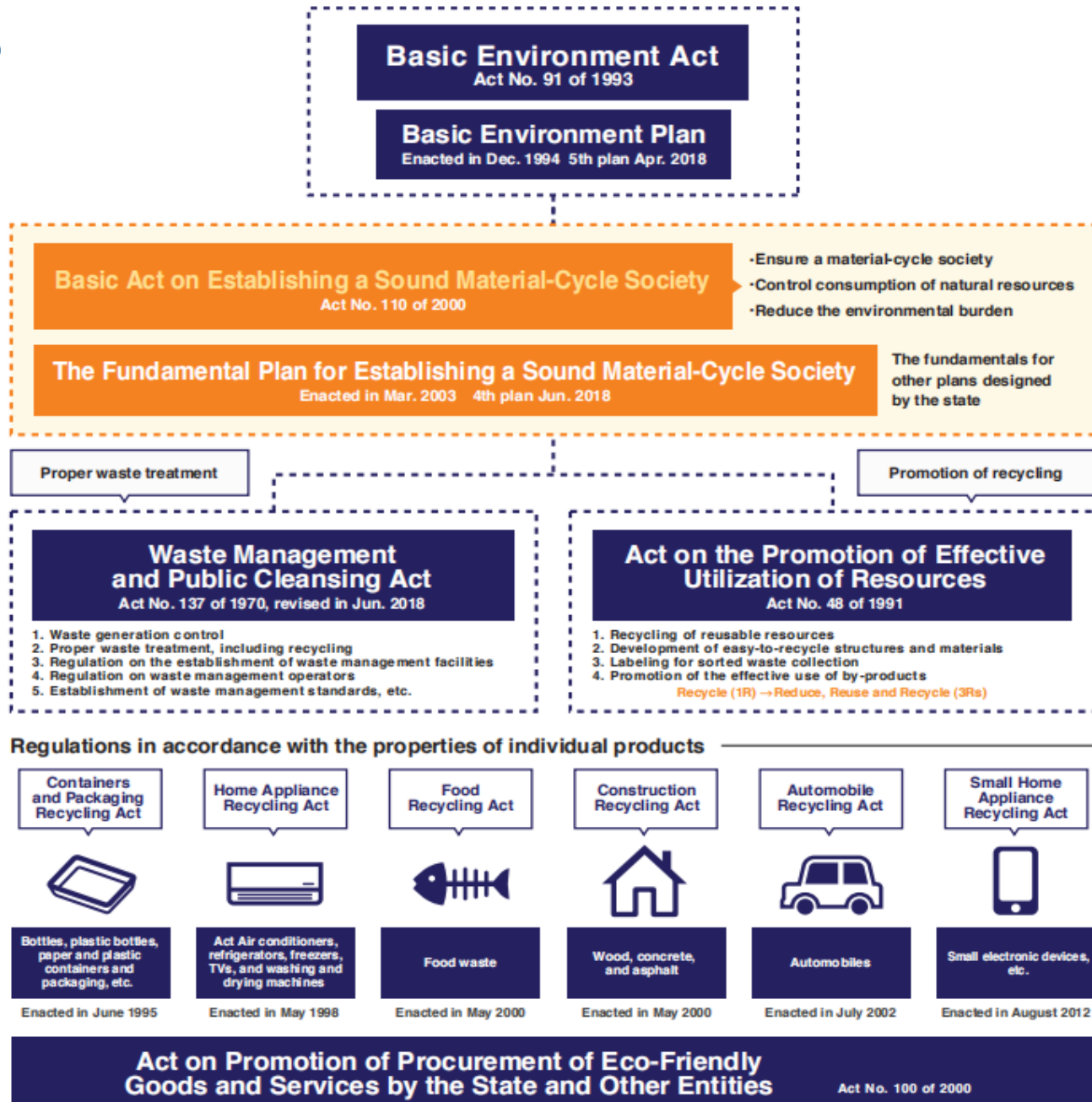
SMCS is a society where **the consumption of natural resources is restrained and the environmental load is reduced to the greatest extent possible**, by restraining products, etc. from becoming wastes, etc., promoting appropriate **cyclical use** of products, etc. when they have become recyclable resources, and securing appropriate disposal of the recyclable resources not recycled

Development of SMCS in Japan

- 1990, Committee for SMCS was established in Japanese Environment Agency (upgraded to the Ministry of Environment in 2001)
- 1993, *Basic Environmental Act*
- 1994, *First Basic Environment Plan*
 - **4 long-term environmental policy goals** – **SMCS**, harmonious coexistence, participation, and international cooperation
- 2000, *Basic Act on Establishing SMCS*
- 2003, *First Fundamental Plan for Establishing SMCS*
 - Fundamental Plan renewed in 2008, 2013, and 2018

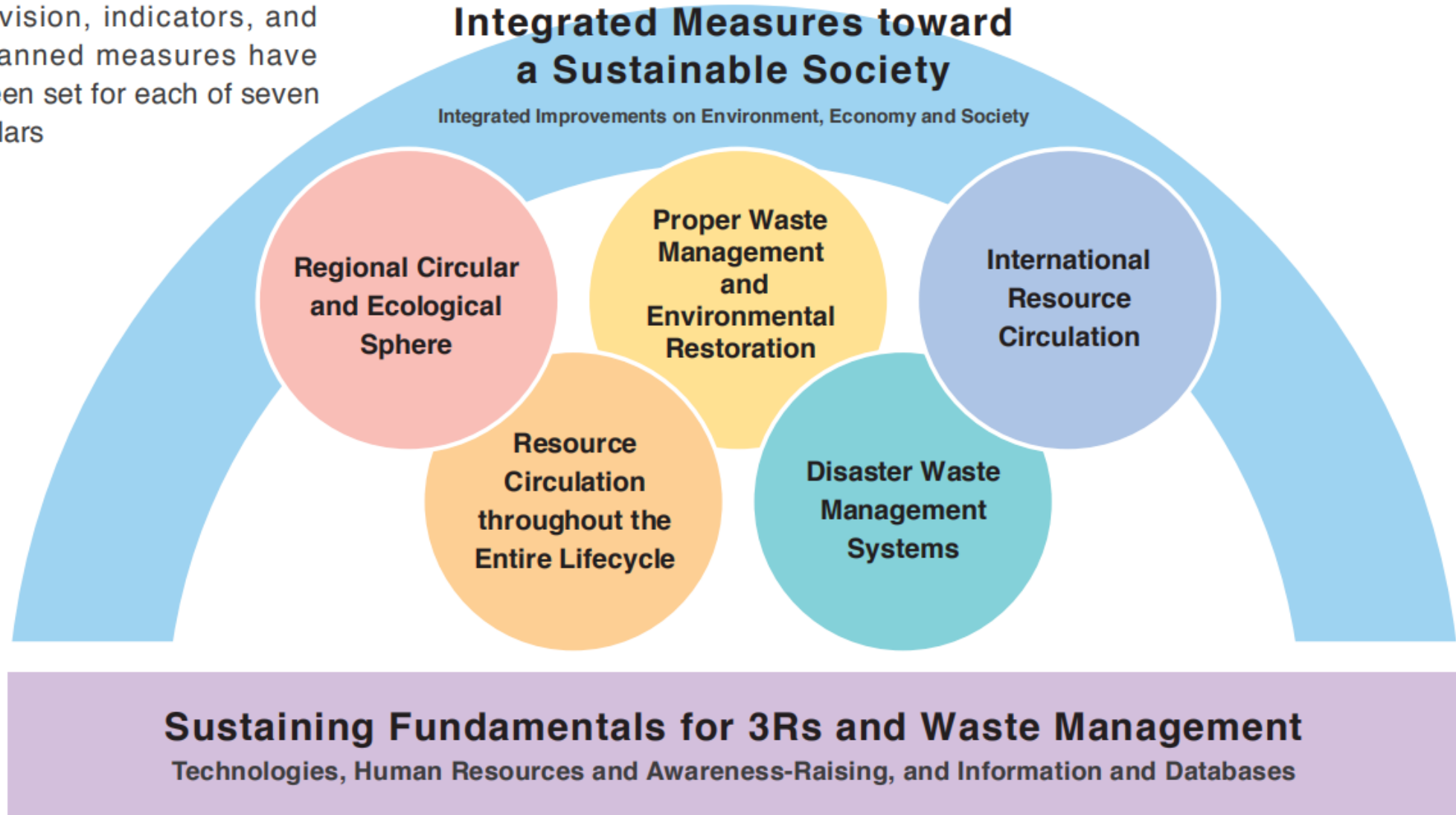
Legislation of SMCS

- Comprehensive laws and regulations
- Regulations on specific products and wastes



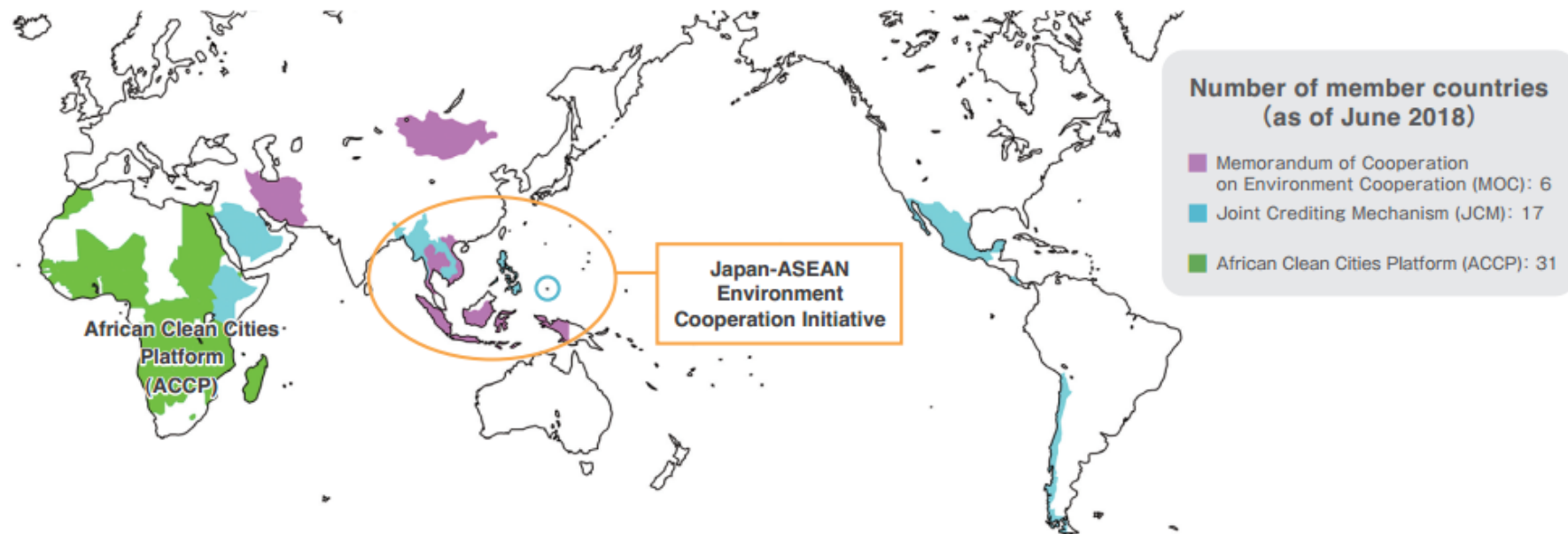
Pillars of the 4th SMCS Fundamental Plan

- A vision, indicators, and planned measures have been set for each of seven pillars

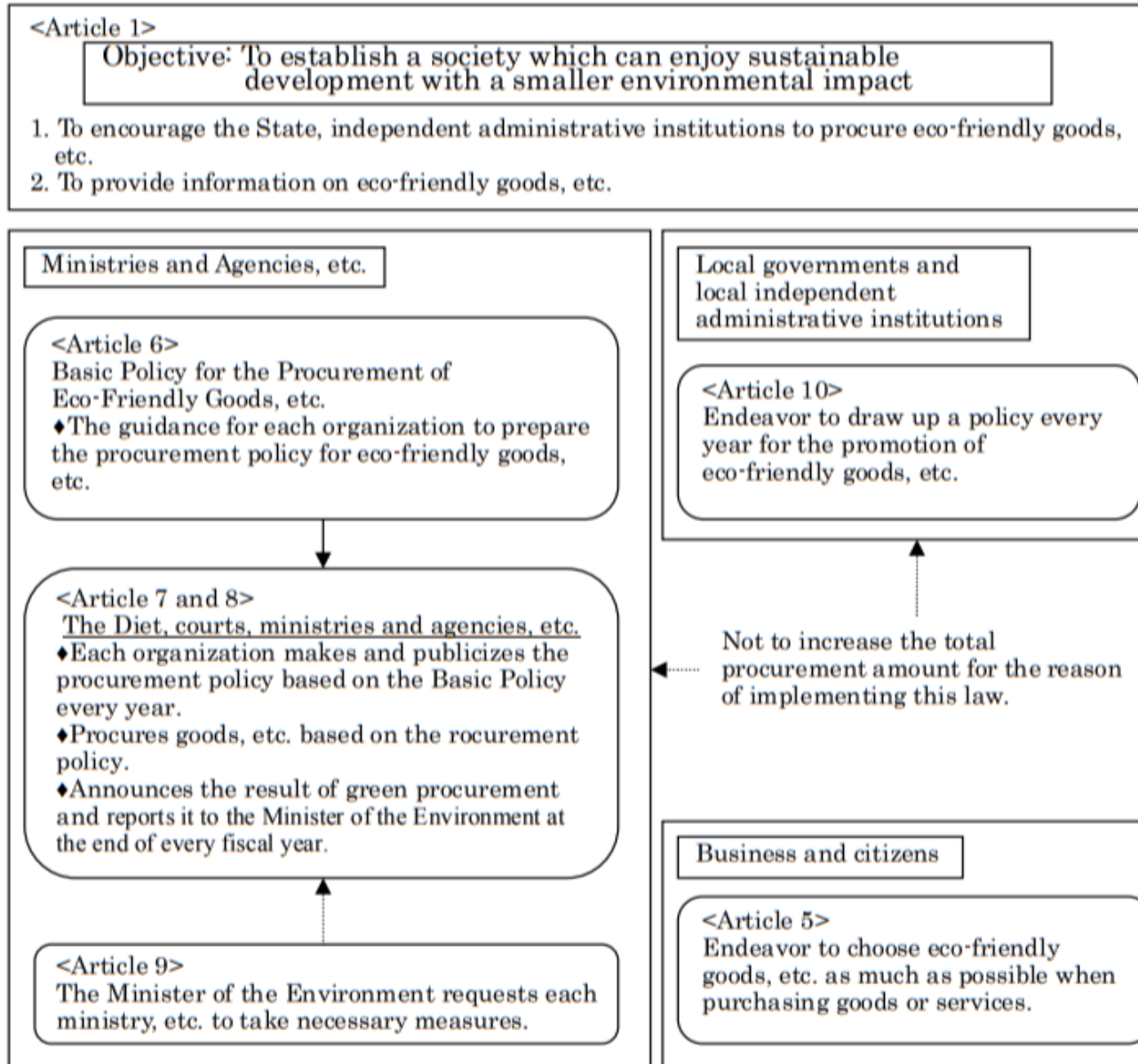


International resource circulation

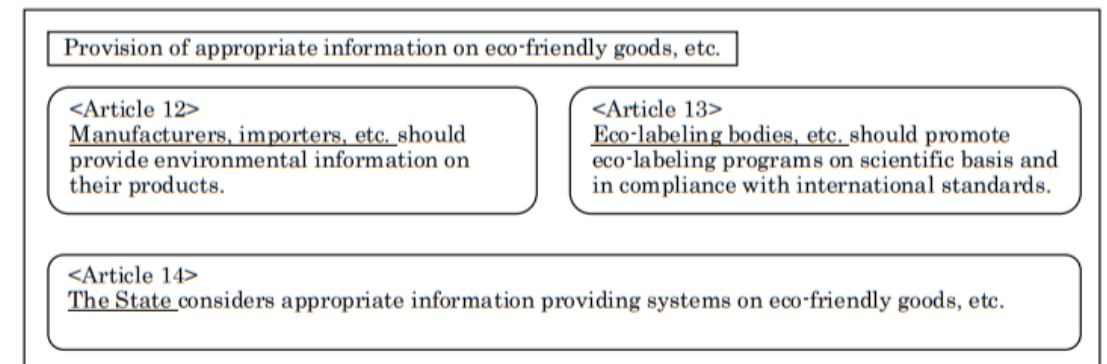
- International resource circulation system to secure a resource efficient society
- Japanese contribution
 - High-quality environmental infrastructures through a package of outstanding technologies, institutions and systems
 - Management know-how regarding disaster waste
- Indicator: Number of countries with a memorandum of environmental cooperation



Act on Green Procurement in Japan

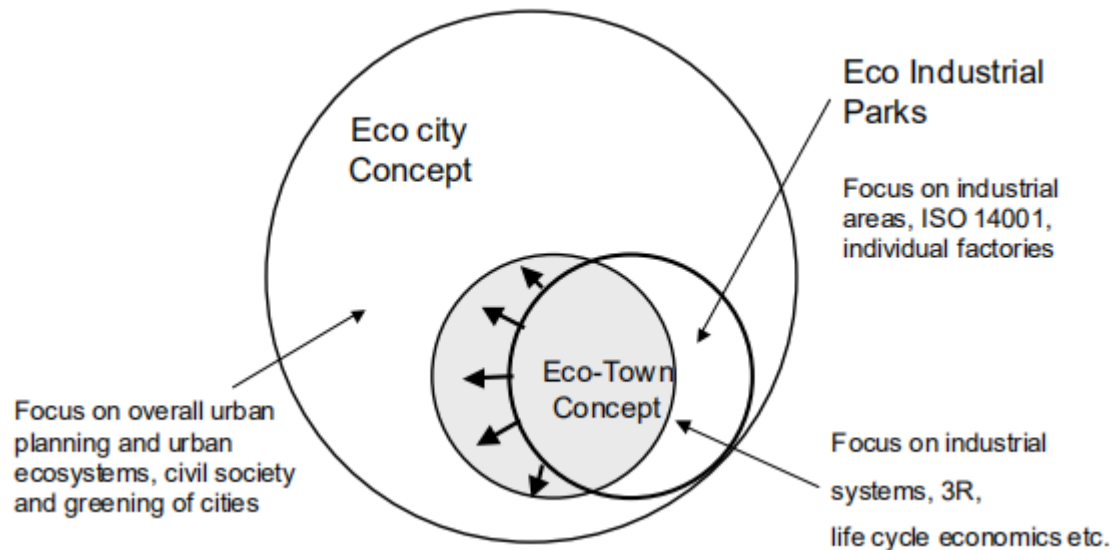


- *Act on Promotion of Green Procurement* was enacted in 2000
- Basic guidelines and a list of designated procurement goods and their standards
- Eco-labeling

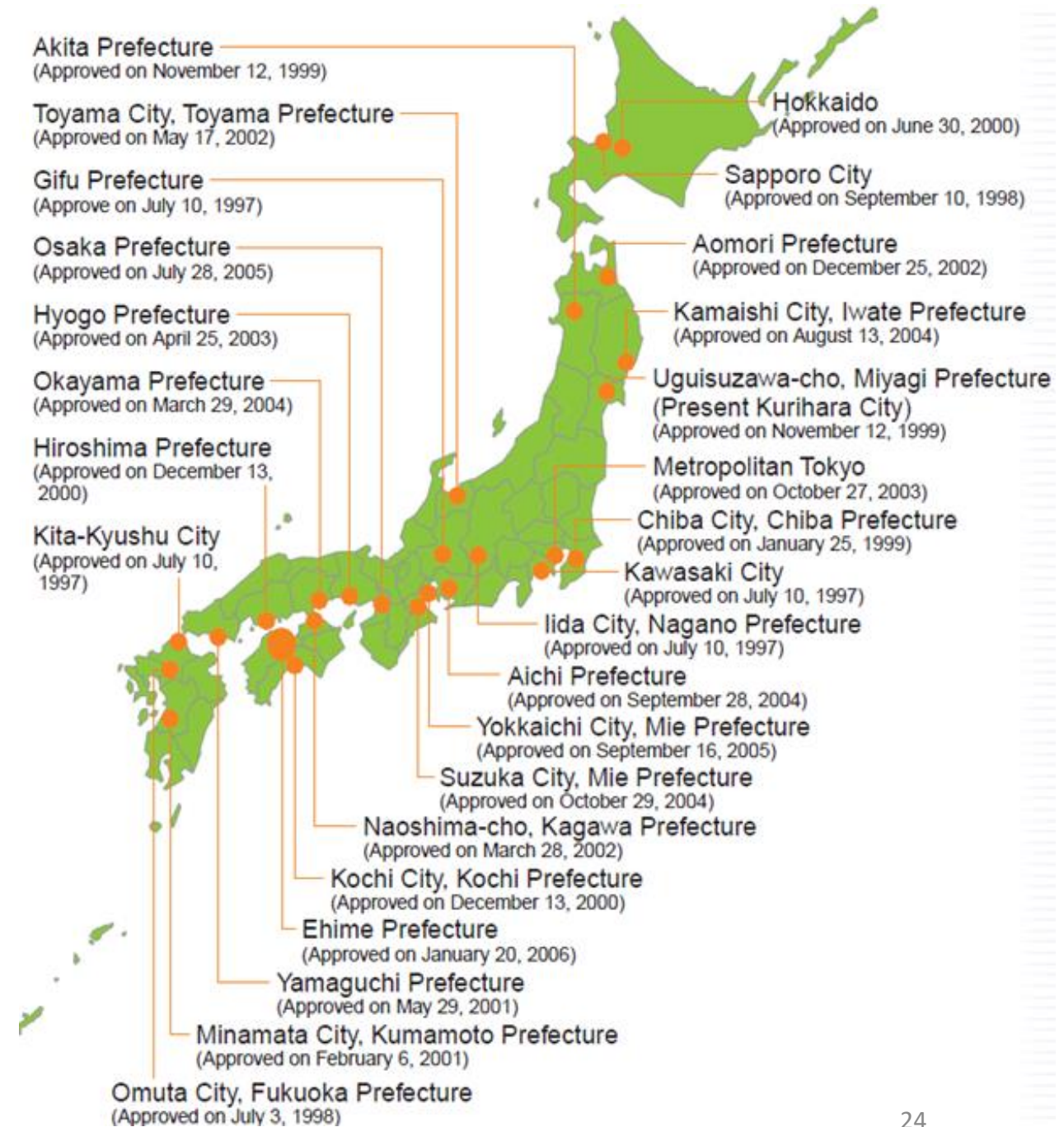


Eco-towns in Japan

- A key SMCS program, **26 eco-towns** approved in 1997-2005
- Objectives:
 - Integrated waste management sites
 - **Revitalization of local industries** by developing **innovative recycling**

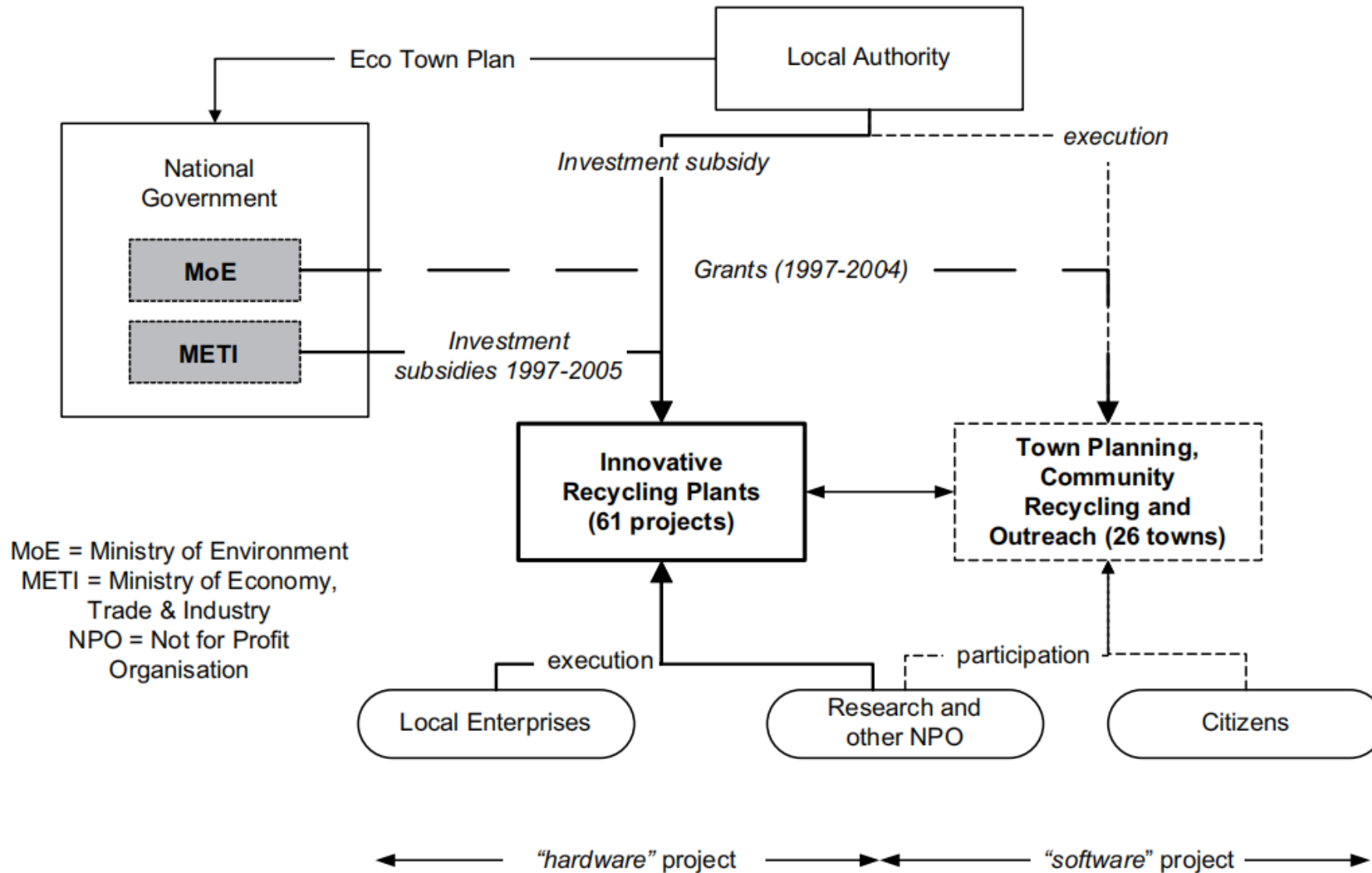


Source: GEC, 2005

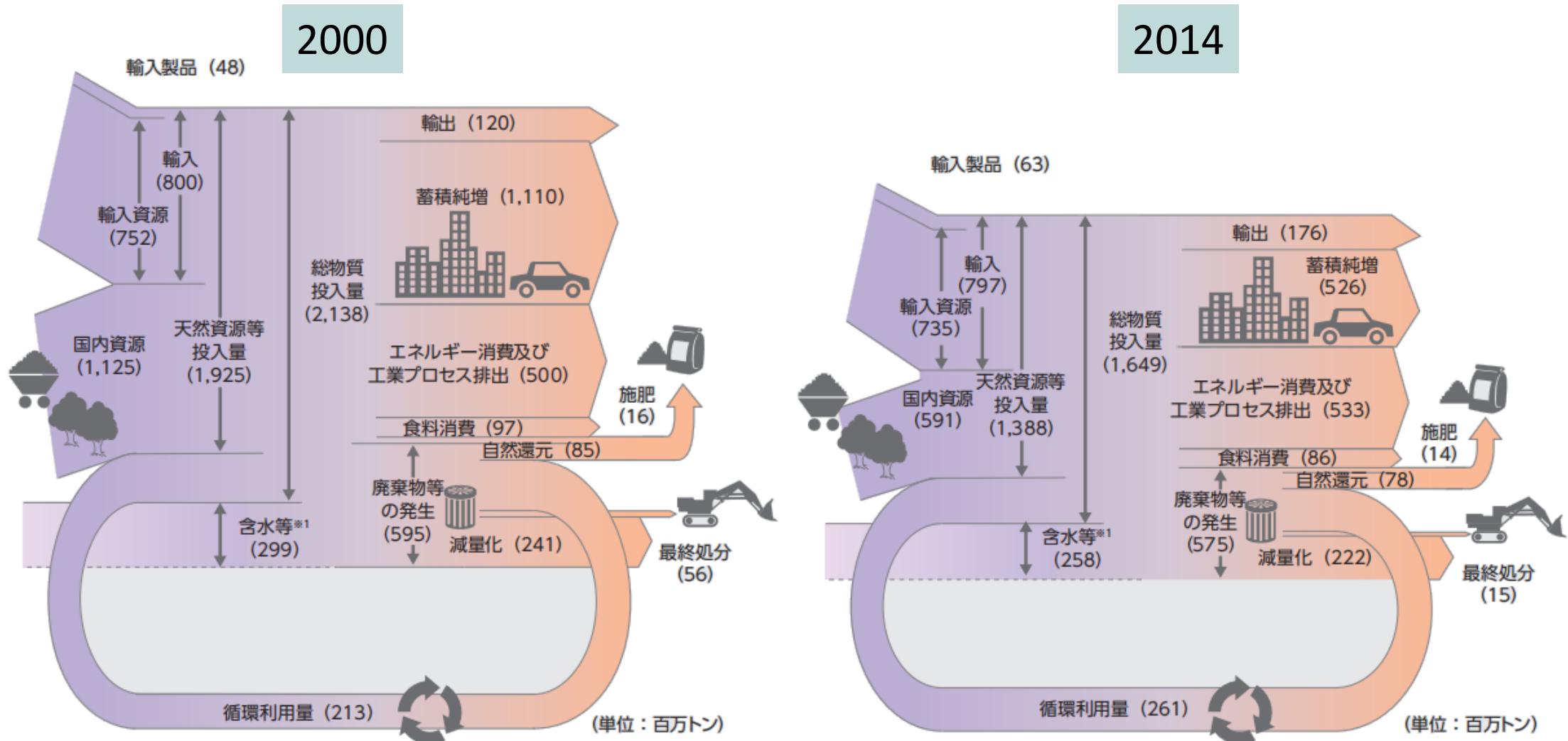


Source: METI, 2006

Operation of eco-towns in Japan



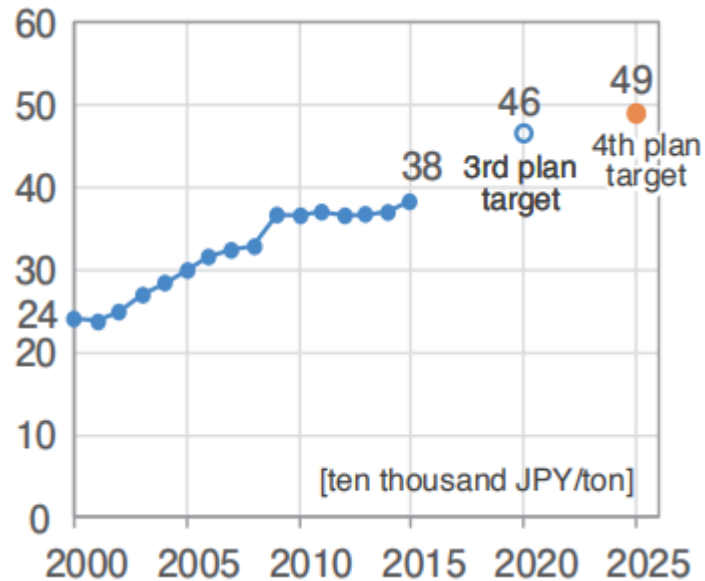
SMCS performance: Material flow accounting



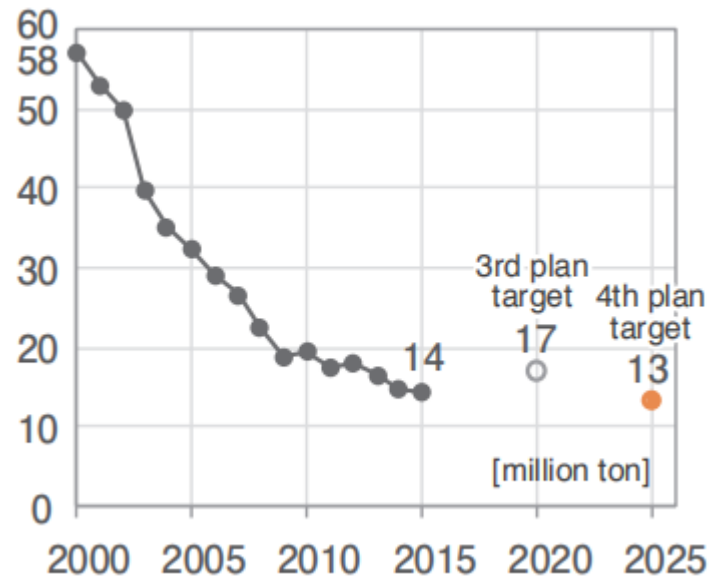
Indicators of SMCS in Japan

- Three indicators to monitoring the progress since 1st SMCS Plan
- Cyclical rate (waste base) indicator newly added

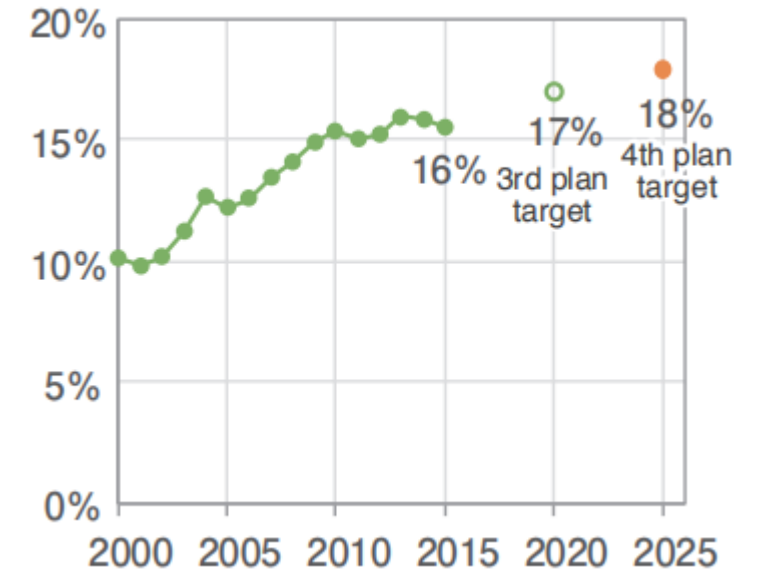
Resource productivity



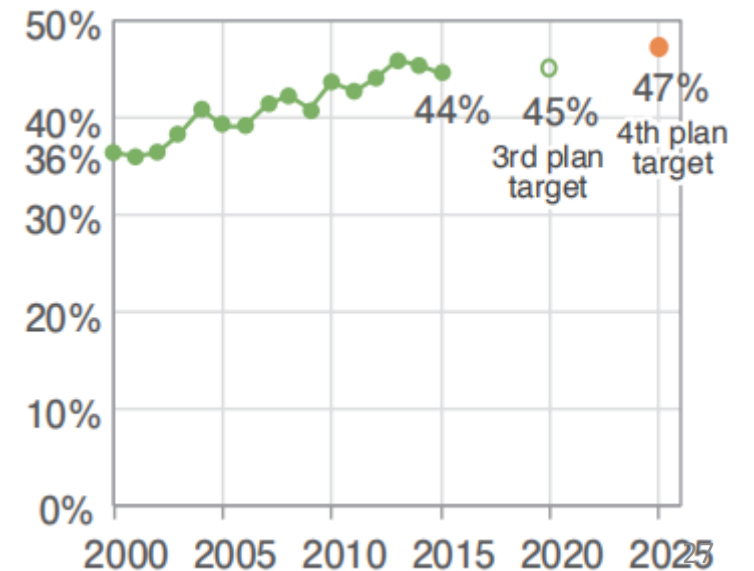
Final disposal



Cyclical use rate (resource base)



Cyclical use rate (waste base)



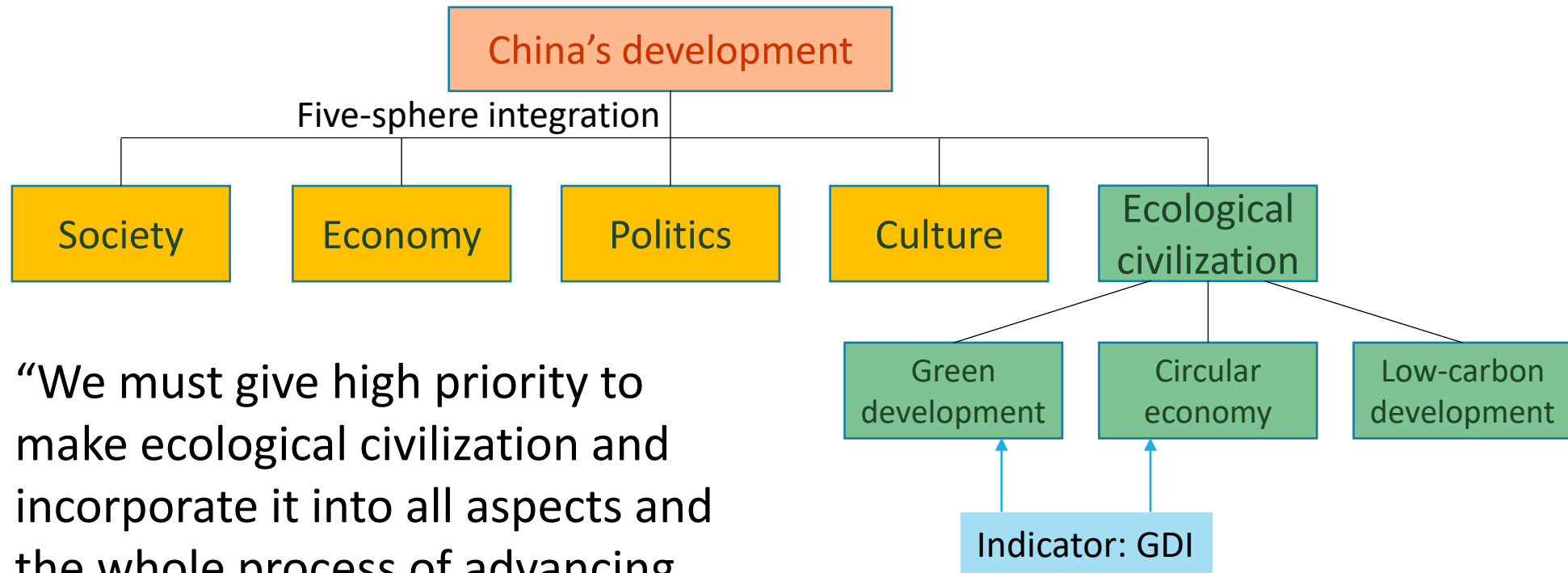
Definition of CE in China

- *Circular Economy Promotion Law, 2009*

CE is an umbrella term for **3R activities** during production, circulation and consumption:

- Reduce refers to **reducing resource consumption and waste creation** during production, circulation and consumption
- Reuse refers to **using waste as products** directly or after being repaired, renewed and remanufactured, or using the whole or part of the waste as parts of other products
- Recycle refers to using waste directly **as raw materials or waste recycling**

CE in China's national development strategies

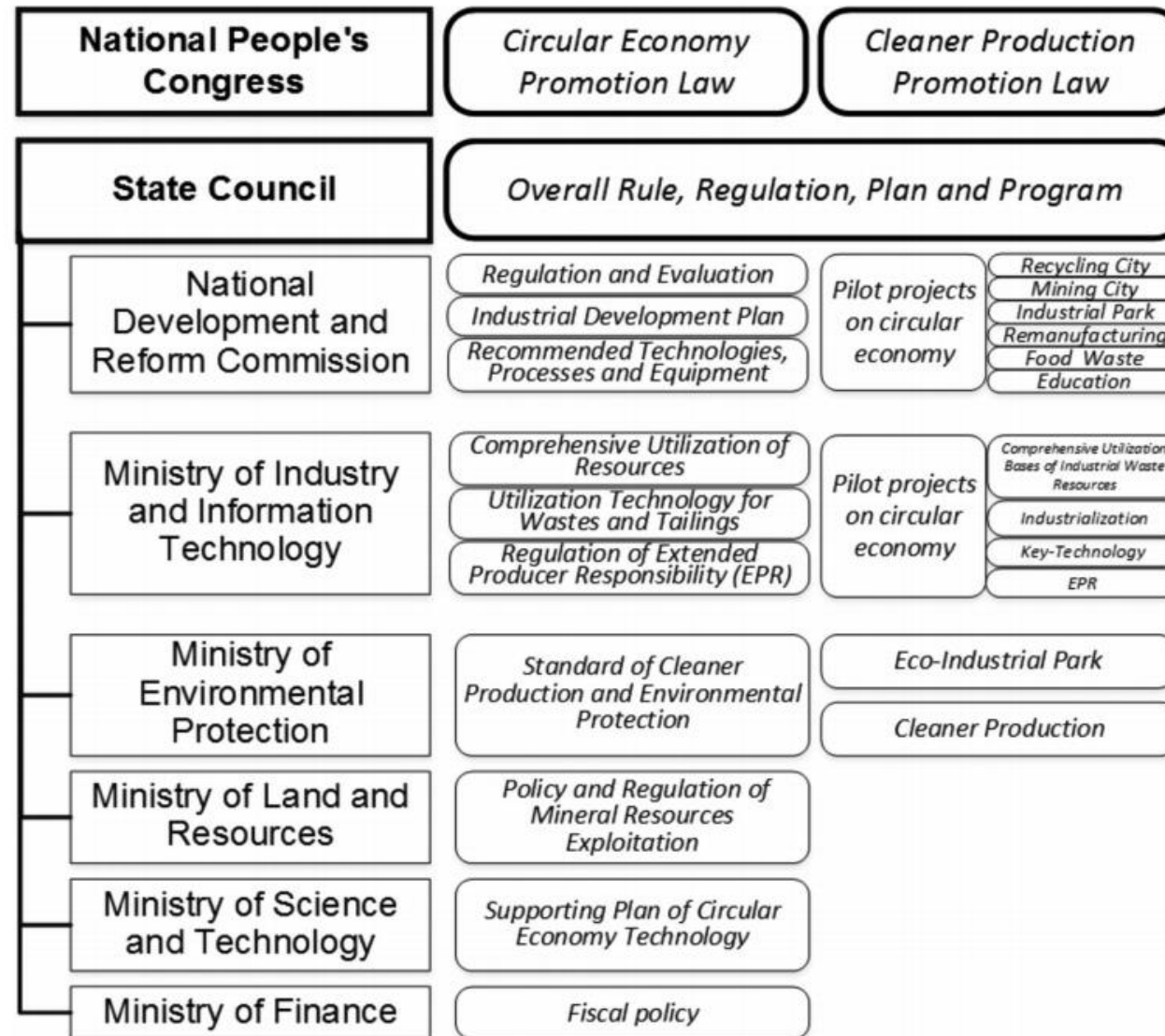


“We must give high priority to make ecological civilization and incorporate it into all aspects and the whole process of advancing economic, political, cultural, and social development”

Development of CE in China

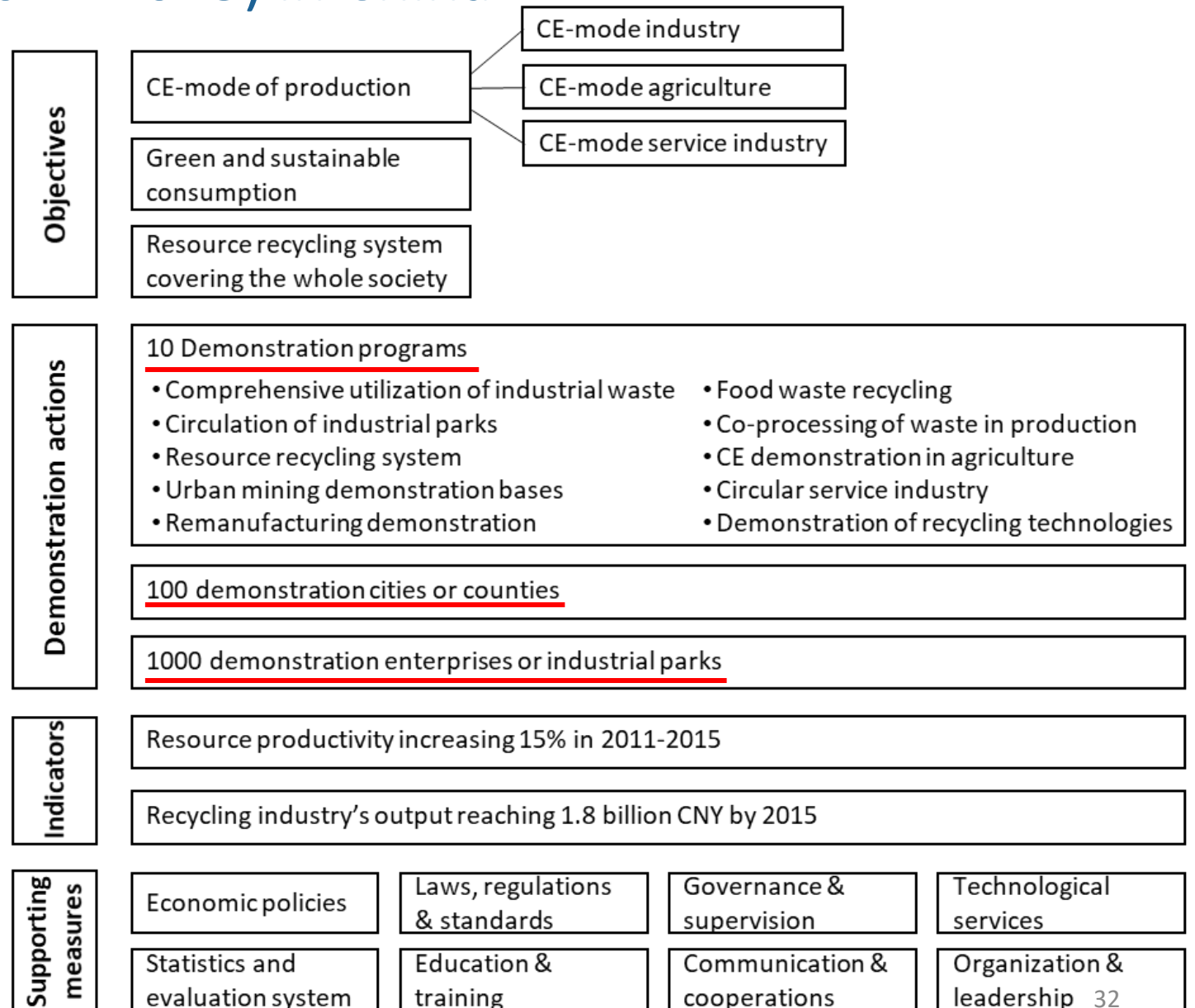
- 2005, CE Division established in National Development and Reform Commission (NDRC), a dominant macroeconomic management agency
- 2009, *Circular Economy Promotion Law*
- 11th FYP (2006-2010). *Several Opinions on Accelerating CE* by the State Council, 192 demonstration CE projects covering enterprises, industrial parks, cities, and provinces
- 12th FYP (2011-2015). *CE Development Strategies and Recent Action Plan* by the State Council, 10 major CE programs, 100 demonstration cities and 1000 demonstration enterprises
- 13th FYP (2016-2020). *Leading Action Plan for CE Development* by NDRC. 10 major actions and 40 tasks

Types of CE policies and relevant governmental agencies in China



Circular Economy Development Strategies and Recent Action Plan in the 12th FYP (2011-2015) in China

- Comprehensive policy package
- More than waste management and recycling
- New policy instrument to **enhance industrial development and urbanization** in China



Program of circular transformation of industrial parks

- >2500 national and provincial industrial parks, 75% national parks and 50% provincial parks to be transformed by 2020
- 129 parks supported by NDRC and MOF in 2011–2017
- **Seven tasks** on spatial planning, industrial structures, circular industrial chains, efficient resource utilization, centralized pollutant disposal, green infrastructure, and advanced management



Program of resource recycling base

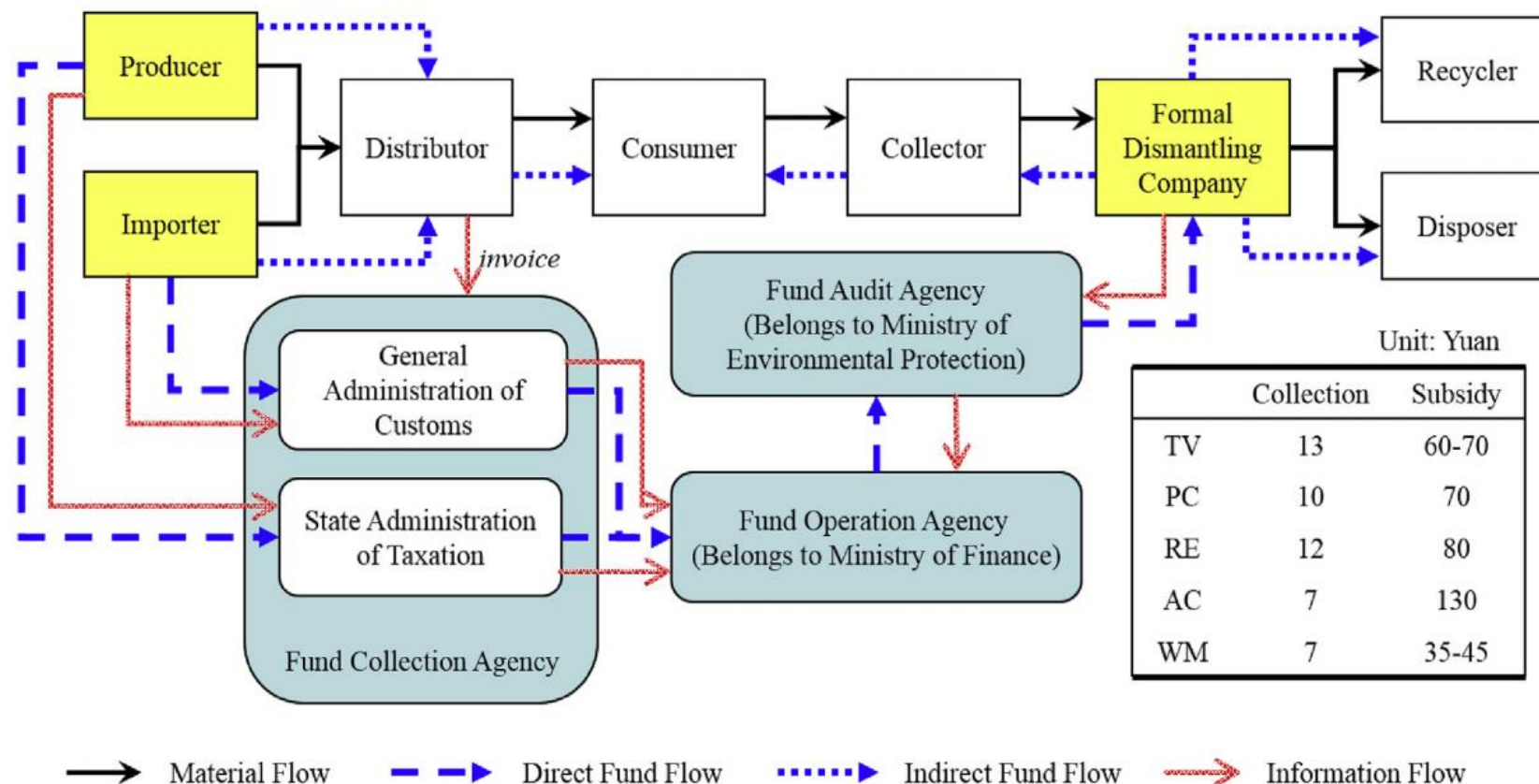
- Specific industrial parks/zones to handle **urban waste** (including MSW, food waste, C&D, sewage sludge, etc.) and to recover recyclable resources
- First 50 bases approved by NDRC in September 2018



EPR in China: WEEE fund

- WEEE fund system launched in 2012, handling TVs, personal computers, air conditioners, refrigerators and washing machines
- **Formal dismantling** and recycling of WEEE increasing to nearly **50%** by 2015
- Challenges:

- **Deficit**, 90% of the fund from governmental budget
- >1 year dismantling enterprises waiting to receive the fund



New Action Plan for Promotion of EPR

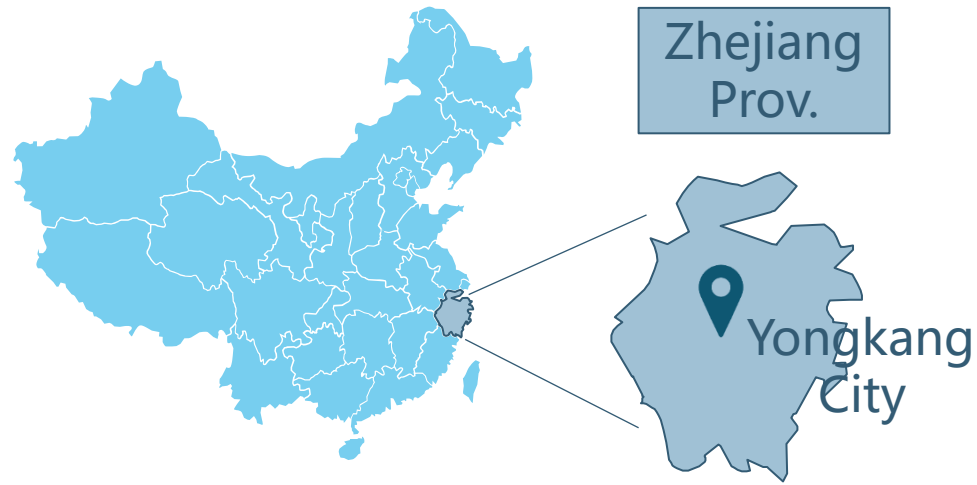
- *Action Plan for Promotion of Extended Producer Responsibility* issued by the General Office of the State Council in 2017
- Objectives: Four targeted products, 40% of the targeted products to be formally recycled by 2020, 50% recycled by 2025
- WEEE
 - Adjustment of product catalogue
 - Reform and improved management of the existing fund
 - Stricter criteria for recycling enterprises
- ELV
 - Formulation of policy guidance
 - Promotion of remanufacturing
- Lead-acid batteries and beverage packaging
 - Target-oriented responsibility system
 - Recycling alliance
 - Lifecycle tracking

Index of green development in China

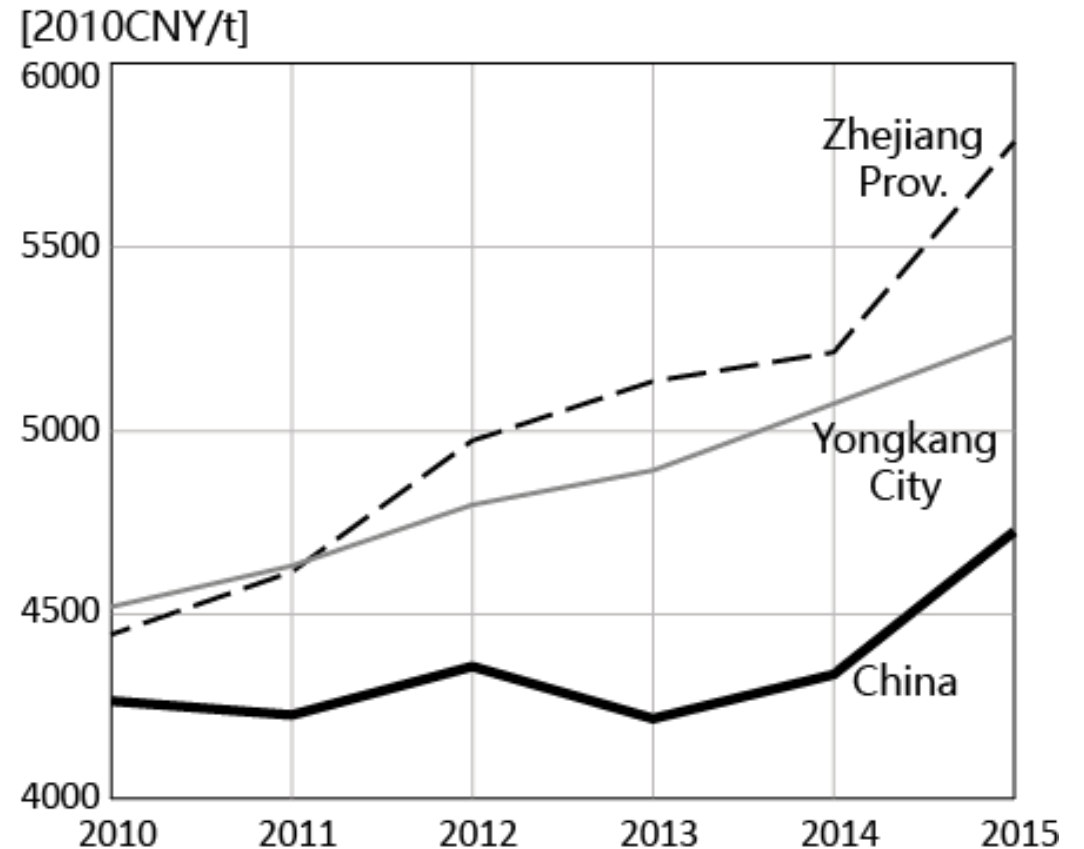
| | |
|--------------------------------|--|
| Resource use (weight 29.3%) | Total use of energy, water, land Efficiency: Resource productivity , Energy use per GDP, Carbon emissions per GDP, Water use per GDP, Land use per GDP Utilization of irrigation water, industrial waste, agricultural waste, non-fossil fuels |
| Environmental improvement | ... |
| Environmental quality | ... |
| Ecological conservation | ... |
| Quality of development | ... |
| Green living | ... |
| Contentment survey | ... |

- 56 indicators, provinces assessed annually by central government
- City-level performance assessed by provincial government

Multilevel resource productivity assessment in China



- China: 1.3B pop., 9.6M km²
- Zhejiang: 5.5M, 104k km²
- Yongkang: 740k, 1047 km²
- 15% increase in RP required in 12th and 13th FYP



Comparison between Japan and China

| | Japan | China |
|----------------|---|---|
| Terminology | Sound Material-Cycle Society (循環型社会) | Circular Economy (循环经济) |
| History | SMCS Committee (1990) Basic Act on SMCS (2000) First Fundamental Plan (2003) | CE Division (2005) First national framework plan (2005) CE Promotion Law (2009) |
| Objectives | Clear since beginning, focused on efficient resource use and waste management and recycling | Evolving, more than waste management and have broader goals on industrial and urban development |
| Legislation | Comprehensive system of laws and regulations | Mainly CE Promotion Law |
| National plan | Fundamental SMCS Plan (2003, 2008, 2013, 2018) | Plan without consistent name (2005, 2013, 2017) |
| Leading agency | Ministry of Environment | National Development and Reform Commission |
| Indicators | 4 indicators, including RP, final disposal amount, cyclical use rate | A set of green development indicators |
| Enforcement | Relying on laws and regulations | Driving by action plans |

Summary

- Policy matters for CE
- Policy scales: International, regional, national, local, ...
- Policy types: Mainstreaming plans, laws and regulations, EPR, GPP, ...
- Comparative analysis of Japan and China

Review questions

- Are there any national policies on CE/SCP in your home country?
- What are impacts of CE/SCP policies onto your field?
- What are the main differences of CE policies in Japan vs. China?

Thanks!
Limited resources
Long-lasting recycling



Tao Wang

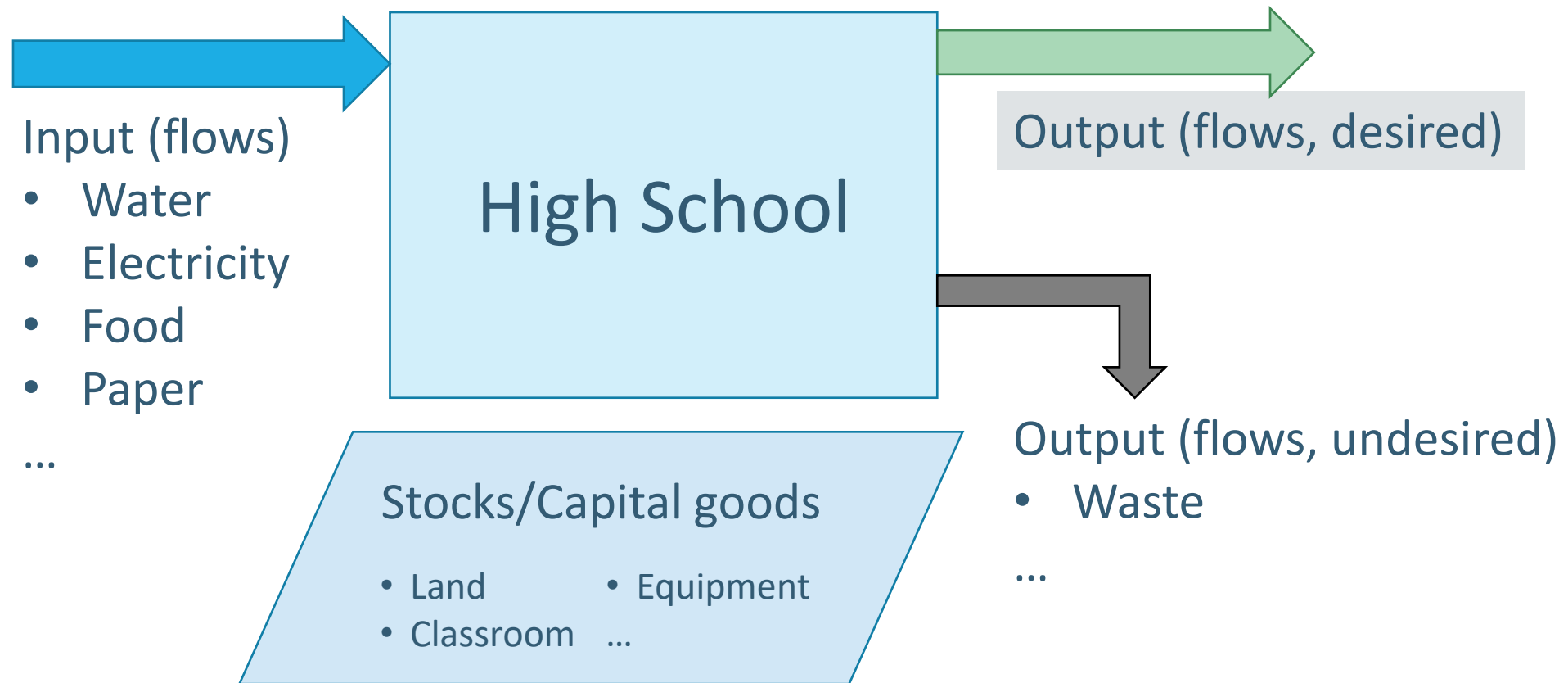
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Exercise: Resource efficiency of a high school

- How to measure the resource efficiency
- What policies to improve the resource efficiency



Improve resource efficiency: $\frac{A}{\text{ResIn} + \text{WasteOut}}$

- 5 groups x 5-minute presentation
- Design at least two policies, present at least one

| Objective | Policy | Policy-maker | Policy-taker | Target | Implementation | Monitoring & evaluation |
|---|--------|---|-------------------------------|------------------------------|----------------|-------------------------|
| Improving high school RE - subobjective - | | Government, school administrator, ... | Teachers, students, ... | In-flow Out-flow Stock | | |
| | | | | | | |
| | | | | | | |