

Environmental Goods and Service Sector in Japan: Classification and mapping with national input-output table for green economy assessment

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Outline

- Japan's national strategies related to green economy
- EGSS and environmental industries in Japan
- Mapping EGSS with the Japan's 2005 national input-output table
- Application of national IO for GE assessment
- Future work

Japan's national strategies related to green economy

- Year 2007: Japan's Strategy for a Sustainable Society - Becoming a leading environment nation in the 21st century.
- Year 2008: "Toward a Low Carbon Society"
- Year 2010: "New Growth Strategy" (green innovation; life innovation; Asian economic strategy; and tourism)
- Year 2011: "Japan's input to the Rio+20 documents".
- Year 2012: "Innovative Strategy for Energy and Environment".

EGSS and Environmental Industries in Japan (1)

- **Green innovation** aims to create over **JPY 50 trillion** in new environment-related markets and **1.4 million** new environment sector jobs and contribute to reduce global GHG emissions by at least **1.3 billion tons of CO₂**.
- Starting from year 2010, the Ministry of the Environment of Japan (MOEJ) started yearly surveys for the estimation of the market size of environmental industries.
- Main purposes: (i) making policies for the development of the environmental industries; and (ii) promoting investment in the environmental industries to help achieve the New Growth Strategy.

EGSS and environmental industries in Japan (2)

- In the 2010 survey of environmental industries, MOEJ followed the 1999 OECD's EGSS classification.
- From 2011, MOEJ re-classified Japan's EGSS to reflect both the latest development and specific situation of environmental industries in Japan.
- Japan's EGSS has four major categories:
 - ✓ Environmental pollution prevention
 - ✓ Measures against global warming
 - ✓ Waste disposal and effective utilization of resources
 - ✓ Conservation of natural environment

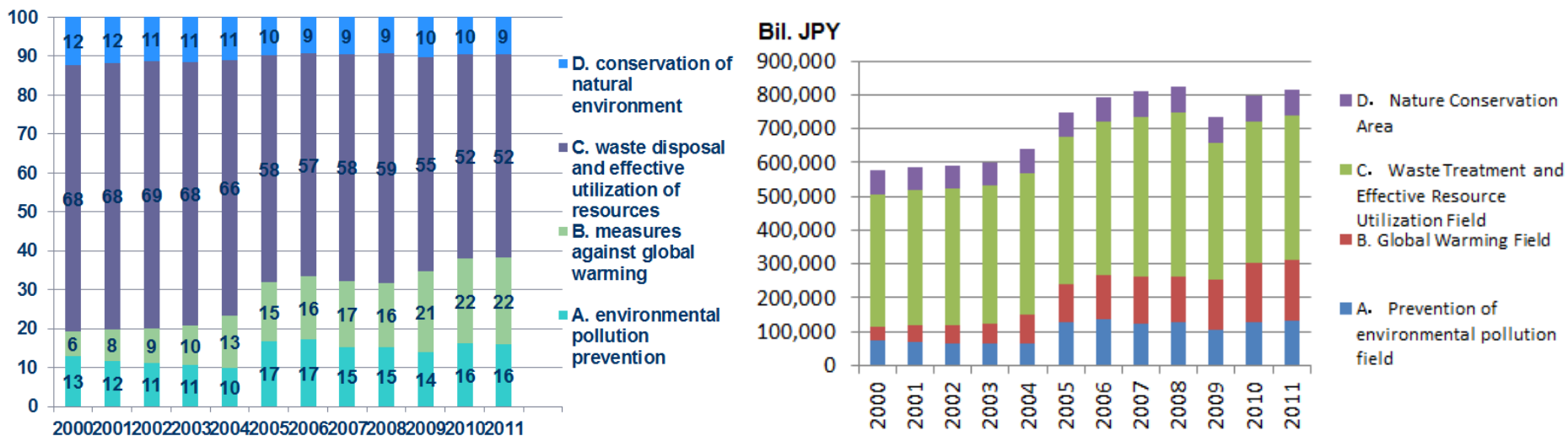
Table 1: Four categories of EGSS or environmental industries in Japan

	EGSS category 1	EGSS category 2	EGSS category 3	EGSS category 4
No	Environmental Pollution Prevention	Measures against Global Warming	Waste disposal and effective utilization of resources	Conservation of natural environment
1	Air pollution control equipment and facilities	Renewable Energy	Waste treatment and effective use of resources	Water resource use
2	Sewage, waste water treatment equipment and facilities	Energy-saving vehicles	Waste disposal and recycling services	Sustainable forestry
3	Soil, water purification equipment and facilities	Energy-saving appliances	Reform or renovation	Sustainable agriculture and fisheries
4	Noise, device for vibration prevention and facilities	High efficiency water heater	Lease and rental	Biodiversity, eco tourism and others
5	Environmental measurement, analysis, monitoring equipment and facilities	Saving energy consulting	Used and reuse goods	
6	Other environmental pollution prevention products, equipment and facilities	Others	Recycled materials	
7	Sewage, waste water treatment services		Others	
8	Soil, water purification services			
9	Environmental analysis. Measurement, monitoring and assessment			
10	Environmental education, environmental finance and consulting, etc			

Source:

http://www.env.go.jp/policy/keizai_portal/B_industry/1-1.bunruikaitei.pdf

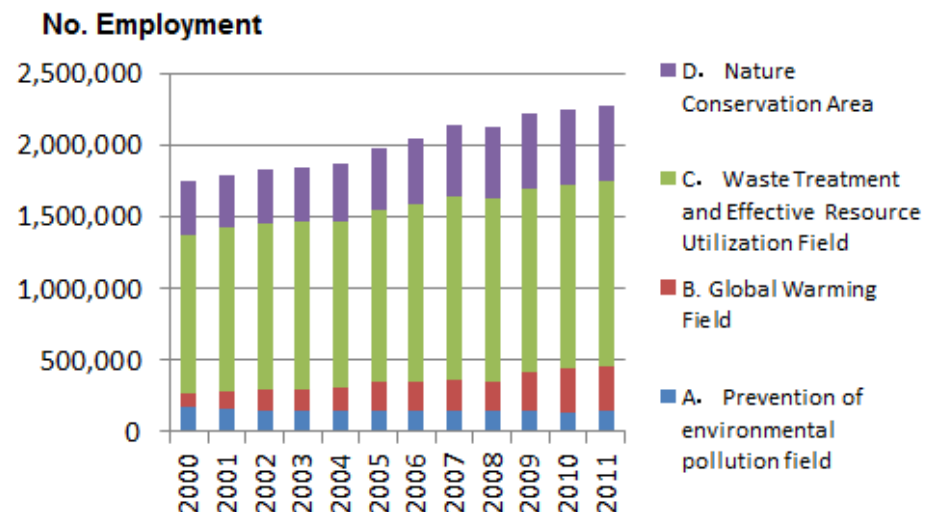
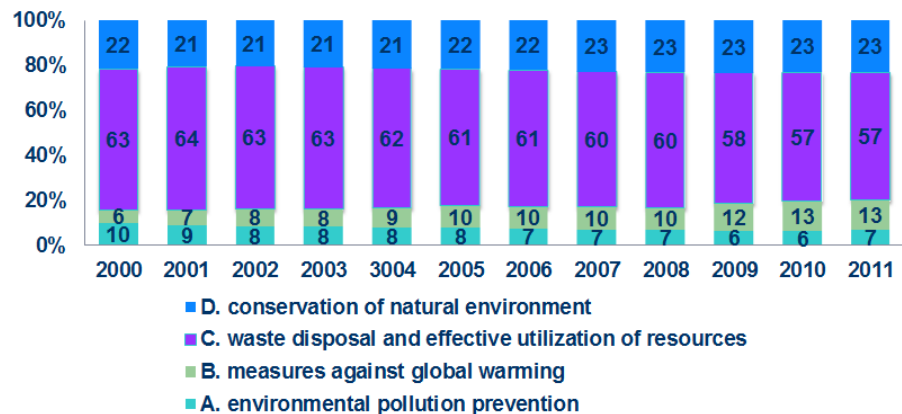
Figure 1: Market size of environmental industries in Japan (%)



In 2012, the market size of environmental industries in Japan valued JPY 86 trillion, equivalent to 17% of GDP. Estimated value-added is about JPY 37 trillion, account 7.8% of nominal GDP 2012. Imports: JPY 2 trillion; Exports: JPY 9 trillion.

Source: Author compilation based on statistical data of Ministry of Environment (2014)

Figure2: Employment effects of environmental industries in Japan (%)



In 2012, the employment size is 2.43 million.

Source: Author compilation based on statistical data of Ministry of Environment (2014)

Mapping EGSS classification of the Ministry of Environment of Japan with the 2005 Japan National I-O table (1)

Three categories by the Bureau of Statistics of Japan:

- **Japan standard industrial classification (JSIC):** Rev. 11, March 2002, corresponding with the ISIC Rev 3.1. Four levels: 20 divisions, 99 major groups, 999 groups and 1,455 industries.
- **Japan standard commodity classification (JSCS):** Six levels: 10 sections, 97 divisions (2 digits), 678 divisions (3 digits), 3643 divisions (4 digits), 11400 divisions (5 digits), and 13757 divisions (6 digits).
- **Japan standard occupational classification (JSOC)** has two following versions: Rev. 4, Dec 1997 and Rev. 5, Dec 2009

Mapping EGSS classification of the Ministry of Environment of Japan with the 2005 Japan National I-O table (2)

- **The 2005 Japan National Input-Output table is categorized based on sector classification. It has four versions of sector classifications:**
 - 1) the basic sector classification (520 rows x 407 columns)
 - 2) the 190 sector classification
 - 3) the 108 sector classification
 - 4) the aggregated 34 sector classification

- There is a link or corresponding table between the 2005 Japan national I-O table sector classification with the Japan standard industrial classification Rev. 11, March 2002 and the ISIC Rev 3.1 which is provided by Bureau of Statistics of Japan.
- Therefore, the process to mapping the EGSS sectors or environmental industries of the MOE with the 2005 Japan national I-O table is as following:



Application of national IO for GE assessment

- Disaggregation of IO sectors into subsectors regarding the EGSS and EGSS, in particular for renewable energy for electricity generation.
- Cost structure related to sector disaggregation and industrial survey data.
- Multiplier analysis for green investment and green jobs.

5) Future works

- There is a need to look in more detailed on cost structure data for each of sub-categories of EGSS sectors in Japan through either field survey or interviews with the major companies.
- The Japan environmental input-output table may be used to complement the Japan Standard Industrial Classification for more detailed mapping of EGSS sectors with the Japan 2005 National I-O table. Currently, the Ministry of Environment of Japan is in preparation process for the table.

Thank you for your attention!

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