

Environmental Goods and Services Sector: Economic and Employment Impact Assessment Using Input-Output Analysis for Japan

Topic: A Global Focus on the Service Sector

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The Rio+20 United Nations Conference on Sustainable Development has identified green economy as one of the important tools for achieving sustainable development, which can provide a significant opportunity to the shift to a new global economic paradigm. Mobilising investments at the economy-wide level towards green sectors and to the greening of brown sectors is vital for the transition towards a green economy. In Japan, green economy was defined by the Japanese Government (in 2011) as “an economic system which promotes sustainable growth while improving human welfare through pursuing economic growth and conserving the environment at the same time, as well as utilizing natural resources and ecosystem services properly”. Technological innovation and the role of environmental industry as new engine for economic growth have been stressed as priority areas for green economy. The Environmental Goods and Services Sector (GESS) is thus a key element for addressing such priorities. Assessing the economic and employment impacts of EGSS can be considered as an effective way of measuring the progress on “greening” the economy.

The EGSS framework developed by the Eurostat (2009) and embedded in the System of Environmental-Economic Accounting (SEEA) Central Framework (UNEP, 2014) provides descriptions and specifications of activities to be counted as environmental activities. It can be used for estimating the “share of green economic activities” and thus demonstrating the benefits in terms of revenue, value-added, employment and exports. The EGSS framework is being used in many EU countries and several developing countries. In Japan, statistics on EGSS, the environmental industry, started from 2000 based on the OECD definition and methodology on three broad categories of environmental goods and services industry, i.e. pollution management, cleaner technologies and production and resource management (OECD, 1999). However, in 2010 Japan revised the classification on environmental industry to reflect recent trend in combating climate change and special characteristics of solid waste management, in particular the 3Rs (reduce, reuse and recycling). Statistics were also updated for the period from 2000 to 2012 in terms of the market size, employment, value added, imports and exports.

The purpose of this study is to assess the trend of environmental industry development in Japan and the direct and indirect impacts on economy and employment. We used detailed Japanese statistics on environmental industry (2000-2012) and Japan’s input-output tables (2000, 2005, 2010, 2011 and 2012, respectively). This was conducted first by mapping the EGSS (207 project/sectors) with IO sectors (104 sectors for 2000 IO table, 108 sectors for 2005 IO table and 80 sectors for 2010-2012 IO tables). Then the total impacts (both direct and indirect) in terms of economic outputs and employment were estimated based on the multiplier analysis. Using the employment matrix in terms of occupation categories, we also analysed the impacts on skill and occupation in Japan. Results indicated the economic and employment benefits of the investment in environmental industries which originally aim at reducing GHG emissions, enhancing energy security and industrial competitiveness. Among 80 sectors in 2012, the construction sector benefited the most from the investment in environmental industry in terms of sectoral outputs (about 19 trillion JPY), while investing in environmental goods from automobile sector contributed the most to economy-wide benefits.