Abstract

[Project Information]

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The study overview is presented as follows. 1. Following the System of Environmental-Economic Accounting (SEEA) as international standards, we established a statistical framework for the physical and monetary evaluation of a circular economy and decarbonized society context. The framework aligns with the United Nations' Sustainable Development Goals (SDGs) while considering material and energy stocks and flows. Based on sector-specific environmental data (greenhouse gas emissions, energy inputs, and waste emissions), we establish SEEA accounts for air emissions, energy, and material flows corresponding to SNA Supply and Use tables. 2. This study developed SEEA Energy and Material Flow accounts, compiled Supply and Uses tables to analyze a circular economy and decarbonized society framework. Following the conversion methods proposed by the UN, which are used internationally, we converted these tables into Environmentally Extended Input-Output tables and conducted static scenario analysis. 3. Based on the SEEA, we compiled Environmentally Extended Social Accounting Matrixes to develop a dynamic SDGs/CGE analysis models. These models are used to perform a dynamic extension of capital formation. We incorporated each material as a variable to conduct a scenario analysis of a circular economy and decarbonized society framework that aligns with the SDG goals. 4. We established a models of circular economy and decarbonized society for the target regions, and quantitatively evaluated recycling and waste reduction. Using insights from regional economic statistics and environmental data, we compiled SEEAs for the target regions, which are converted into a regional Environmental Extended Input-Output tables. We developed pilot models to conduct scenario analysis of a circular economy and a decarbonized society in regional communities.

The SEEA is widely used across EU countries, providing knowledge on policies related to circular economy, climate change, and green development strategies. Similar statistical frameworks can be

harnessed to establish various indicators of international environmental policies. SEEA-related indicators have been integrated into Japan's Green Growth Strategy; their use is expected to significantly positively impact environmental policys. These indicators can provide a foundation for policy formation on resource flow and climate change countermeasures. These efforts can encompass government plans, including the Basic Plan for the Promotion of a Circular Economy and the Global Warming Countermeasures Plan. By participating in global endeavors to establish empirical evidence regarding resource circulation and climate change, as other advanced countries are doing, Japan can enhance its international presence.

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