Summary

Climate change is one of the most significant global issues. LCS has been studying Japan's policy for achieving a balance between economic growth and overcoming climate change, from the four viewpoints described in the BOX below. In 2014, we first proposed an international framework for climate change mitigation, the *Integrated Contribution Approach (ICA)*, which focused on the dissemination and promotion of energy and environmental technologies. By visualizing and quantifying the contribution to climate change mitigation, it can be expected that various advantages and opportunities will be delivered to both developed and developing countries. The objective of the ICA is the substantial reduction of greenhouse gases which contribute to global warming with the help of technological innovation and technology transfer and cooperation. This is also consistent with the direction of the climate framework confirmed in the 2015 Paris Agreement adopted by the UNFCCC. In the proposal published in 2015, taking photovoltaic (PV) power generation as an example to estimate and evaluate the potential for regional CO_2 reductions, suggestions were obtained related to 1.technology development, 2.technology transfer, 3.quantification of reduction and 4. finance schemes for project promotion. In this paper, we carried out a value chain analysis in order to extensively evaluate the economic effect of manufacture and use of technology in the world. Specifically, to evaluate the economic effect, we took the PV system as an example. Considering cells, modules and facilities such as inverters, we quantitatively analyzed the various flows in manufacturing and installation related to Japan, and estimated the induced economic effects of the value chain in Japan as well as in other developed and developing countries. The results showed that the economic effects of PV production by Japanese companies and increased domestic use are 1.6 trillion yen worldwide, of which 62% is brought to Japan, 8% to other developed countries, and 30% to developing countries. Costs of material, equipment, labor, utility, transportation and business operation were studied in detail at different stages of manufacturing and installation. International strategy related to the ICA for technology transfer and climate change mitigation through future technology use was obtained.

Four basic viewpoints of the LCS future climate change framework

- Fair and effective mechanism for a substantial global GHG reduction
- Mechanism to promote private investments incentive and utilize various business opportunities in the economic development of a developing country
- Strategy for domestic efforts on climate change and international technology transfer, based on sectoral evaluation and improvement of energy efficiency and emission factors
- Mechanism to contribute to sustainable development at the national and global level, by strengthening domestic policies and measures.