Findings of integrated assessment model simulations towards Sustainability

Shunsuke Mori
Tokyo University of Science, Yamasaki 2641, Noda-shi, Chiba 278-8510, Japan

While the world understands the potential threat of the climate changes, the effective action towards the mitigation of greenhouse gas mitigation tends to be postponed. Since “sustainability” is not a single dimension matter, united nations proposed seventeen Sustainability Development Goals (SDGs). We should also keep in mind that how both the climate changes and mitigation actions could negatively impact the sustainability of the society. For instance, IPCC pointed out the need for the negative emissions of greenhouse gases to keep the atmospheric temperature below two degree from pre-industry level. Although BECCS, bio energy with carbon storage, is expected to achieve this target, there can be a conflict between food and energy crop production. We have to avoid the dangerous impacts of climate changes minimizing the effects on the societal sustainability. In order to explore the well balanced, or at least second better actions, some quantitative future simulation models are needed even if large uncertainties are left. From this view, the author has developed some integrated assessment models. In this paper, the author firstly shows some findings given the Integrated Climate Assessment – Risks, Uncertainties, and Society (ICA-RUS) by National Institute for Environmental Studies. Four integrated assessment models gathered and provided results under same future socio-economic scenarios. Even if these models are developed in the different contexts, the results show consistent relationships. Second, some results on the tradeoffs between the low carbon energy technologies including BECCS and food production based on an integrated assessment model MARIA developed by the author.

Biography
Shunsuke Mori is a Professor at Department of Industrial Administration, Tokyo University of Science and Research Director and Center for Low Carbon Society Strategy, Japan Science and Technology Agency. He received Dr, Engineering degree from Tokyo University in 1981. He joined IPCC activities in Special Report of Emission Scenarios and the Third Assessment Report of WG-III as lead author. He published more than 90 academic papers and 27 books and book chapters. President of Japan Society of Energy and Resources, Senior member of The Institute of Electrical Engineers of Japan.

sh_mori@rs.noda.tus.ac.jp