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Comprehensive Research Design for Integrative Evaluation of Sustainable Development Goals

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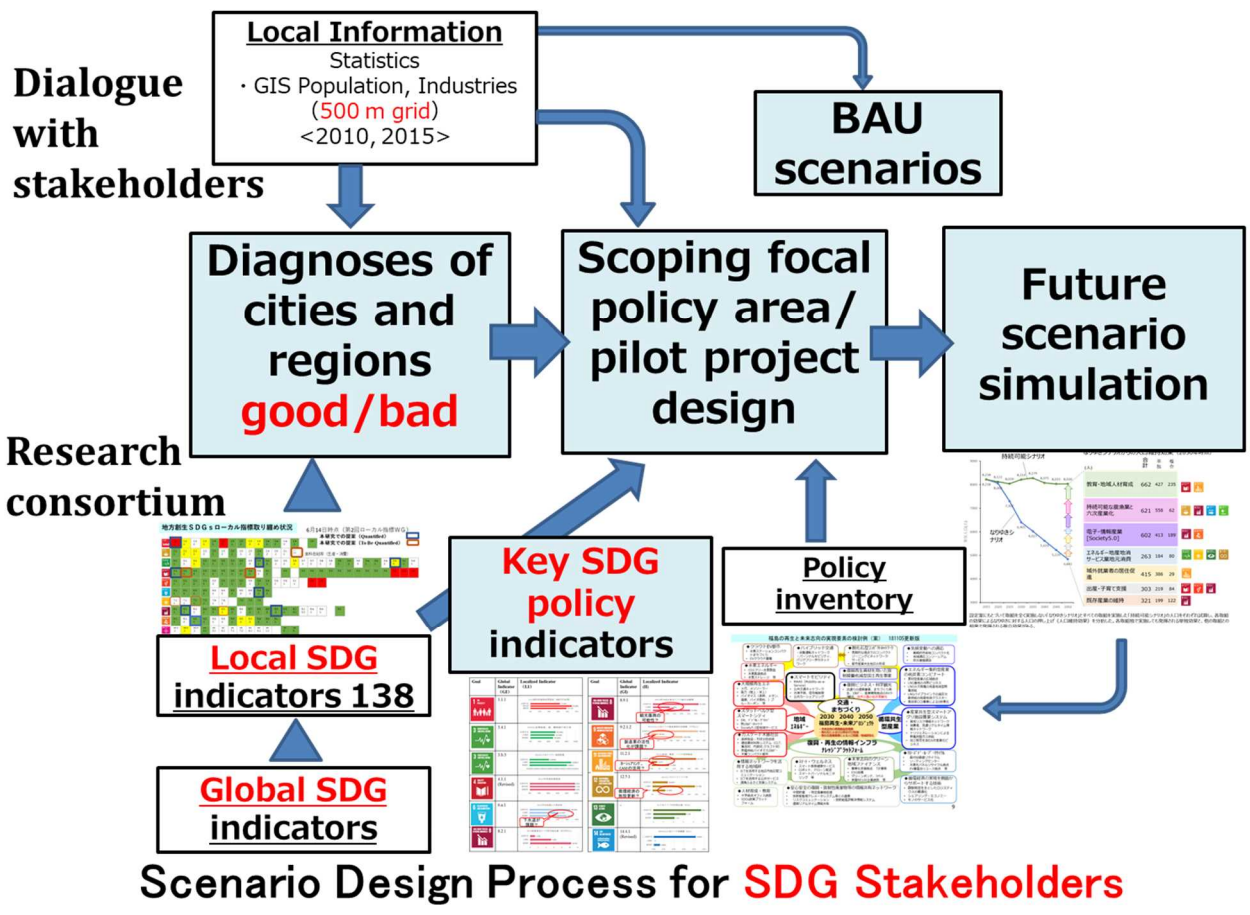
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As climate change will necessitate more comprehensive and structural transformation for urban and industrial society in the near future, the academic community has initiated great efforts in a wide range of research challenges for sustainable targets and feasible pathways through the framework of the Sustainable Development Goals (SDGs). These will be localized and customized by urban and regional features according to scientific observation and analysis and will also feature techno-social system innovation for a decarbonized future so that policy and business stakeholders, civil society and the international community, can create a better environment for pursuing a sustainable future.

This research project has aimed to meet the integrative research challenges for a sustainable future. Firstly, the development of integrative models for projecting the nation's equilibrium future targets was reviewed. Addressed in particular was model research collaboration among national research institutes and leading universities to integrate climate change impact assessment models, economic production models and technology optimization models. Scientific implementation of the SDGs to respond to the complicated socio-environmental landscape including local energy systems, local transportation systems, regional circular economy systems and strategic land use management systems was investigated and sustainable future scenarios such as varied economic, social and environmental impacts were analyzed.

Secondly, a scientific process was developed to design feasible SDGs for public governments at the city/regional and national levels. Database and knowledge platforms can provide alternative pathways for local stakeholders that are consistent with macroscopic future decarbonizing targets. Thus an integrative assessment system for the SDGs was discussed to incorporate technology innovation as well as smart information and communication network systems.

Finally, based upon technology innovation research, the SDGs were applied to corporate governance to help design optimal future targets for business and future societal contribution to identify effective roadmaps with optimal combination of technologies and social systems. The results were applied while considering the design of suitable business patterns for marketing and product design structures in the long run, helping initiate key demonstration projects for the SDGs. A policy-making approach among engineers, professors and stakeholders was also discussed regarding the SDGs for public stakeholders, as were demonstration research projects in Japan and the Asia Pacific Region. Possible research outcomes include strategic technology assessment, adaptive city and regional planning, as well as policy instruments for social transition toward a climate-change-resilient Asia and Pacific Region.



Research Framework

