

**Towards a Sustainable Earth
(TaSE)**

「気候変動の緩和と持続的開発に関する研究」 課題終了報告書

1. 研究課題：「気候変動の緩和と持続的開発に関する研究」
2. 研究期間：2019年4月～2022年3月

3. 主な参加研究者名：
日本側チーム

	氏名	所属	役職
研究代表者	Miguel Esteban	早稲田大学	教授
研究者	Kristina Knupfer	早稲田大学	PhD Student
研究期間中の全参加研究者数 2 名			

相手側チーム

	氏名	所属	役職
研究代表者	Raphael Slade	Imperial College (UK)	Professor
研究者	Darshini Mohadevia	CEPT University (India)	Professor
研究者	Lars Nilsson	Lund University (Sweden)	Professor
研究期間中の全参加研究者数 3 名			

4. 研究の目的

The purpose of this research is to address the challenge of how we can make sure that rapid and extensive action to mitigate climate change is leveraged to deliver both Agenda 2030 and a well below 1.5° C world. Specifically, the Japanese team will examine the role of the Japanese energy sector in this transition. The project partners will analyse sectors such as industry, transport, and food that are expected to undergo rapid and extensive change as climate mitigation efforts intensify. Collaborative research by the four teams at University of Waseda (Japan), University of Lund (Sweden), Imperial College London (UK) and CEPT University (India) is expected to improve the understanding on how systemic knowledge of the interactions between climate mitigation and the Agenda 2030 can be used to develop action in policy and practice to address potential trade-offs and exploit synergies.

5. 研究・交流の成果

- 5-1 研究の成果

The project successfully developed a computer simulation methodology that can realistically simulate the entirety of the Japanese electricity grid at the country level. This is the first time that such a simulation has been developed, and this should greatly help in attempting to develop an energy grid that does not emit any greenhouse gas emissions.

- 5-2 人的交流の成果

Despite the challenges brought about by the covid-19 pandemic, the project helped to foster collaboration between the various teams, building a network of professionals that seek ways in which societies around the planet can achieve the SDGs targets.

6. 本研究交流による主な論文発表・主要学会での発表・特許出願

論文 or 特許	<ul style="list-style-type: none"> ・論文の場合：著者名、タイトル、掲載誌名、巻、号、ページ、発行年、DOI ・特許の場合：知的財産権の種類、発明等の名称、出願国、出願日、出願番号、出願人、発明者等 	特記 事項
論文	Knupfer K, Mall M, Esteban M, Shibayama T. (2021). Review of mixed-technology vehicle fleet evolution and representation in modelling studies: Policy contexts of Germany and Japan. <i>Energy Policy</i> , doi: 10.1016/j.enpol.2021.112287	
論文	Knupfer K, Dumlao S, Esteban M, Shibayama T, Ishihara K. (2021). Analysis of PV Subsidy Schemes, Installed Capacity and Their Electricity Generation in Japan. <i>Energies</i> , (8), doi: 10.3390/en14082128	
論文	Knuepfer, K., Rogalski N, Knuepfer A, Esteban M, Shibayama T. (None/Unknown). <i>A reliable energy system for Japan with merit order dispatch, high variable renewable share and no nuclear power.</i> applied energy (submitted).	
論文	Clora F, Yu W, Baudry G, Costa L. (2021). Impacts of supply-side climate change mitigation practices and trade policy regimes under dietary transition: the case of European agriculture. <i>Environmental Research Letters</i> , (12), doi: 10.1088/1748-9326/ac39bd	
論文	Costa L, Moreau V, Thurm B, Yu W, Clora F, Baudry G, ... Kropp J. (2021). The decarbonisation of Europe powered by lifestyle changes. <i>Environmental Research Letters</i> , (4), doi: 10.1088/1748-9326/abe890	