Towards a Sustainable Earth
(TaSE)
「河川流域を「リビングラボ」として、国と地域レベルの SDGs 達成に向けた研究」
課題終了報告書

１．研究課題：「河川流域を「リビングラボ」として、国と地域レベルの SDGs 達成に向けた研究」
２．研究期間：2019 年 2 月～2021 年 9 月
３．主な参加研究者名：

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４．研究の目的

The Sustainable Development Goals (SDG) with 17 goals and 169 targets adopted by the United Nations in 2015 are driving many development policies globally. However, trade-offs between goals and targets at the sub-national scale may create inequalities between segments of society in terms of achieving the SDGs. For example, reservoirs built for irrigation purposes and flood prevention downstream (synergies) can also increase the risk of droughts and salinity intrusion downstream if poorly managed (trade-offs). The aim of the research is to provide scientifically-grounded and policy-relevant information on the synergies and trade-offs between relevant SDGs at the sub-national scale. China's Luanhe River Basin was used as a case study. The research aims at providing policy recommendations to remove or mitigate the trade-offs and helping achieve equal development across the river basin.

５．研究・交流の成果

５－１　研究の成果

This research developed an integrated and interdisciplinary approach by linking land use change, flood risk, ecosystem services, and social-economic factors into an SDG interlinkages analysis. The Interactive SDG Tool for River Basins (https://sdginterlinkages.iges.jp/luanhe/index.html), a free online tool, was developed for the visualisation of the interlinkages among relevant SDGs at the basin scale. The tool was selected as one of ten good practices and success stories of SDG implementation for exhibition at the 2020 United Nations High Level Political Forum (HLPF) Exhibition, July 7-16th, 2020 (https://sustainabledevelopment.un.org/hlpf/2020#exhibit). The research outputs and the Special Feature of Sustainability Science have contributed to the SDG interlinkages analysis in the area of sustainability research.

５－２　人的交流の成果

Through the collaborative research, an integrated and interdisciplinary approach was applied which helped widen the research scope and perspectives. Through project monthly meetings, jointly organised workshops and field campaign, knowledge from various disciplines were exchanged sufficiently.

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	・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	Zhao, J., Chen, H., Liang, Q., Xia, X., Xu, J., Hoey, T., Barrett, B., Renaud, F. G., Bosher, L., & Zhou, X. (2021). Large-scale flood risk assessment under different development strategies: the Luanhe River	

	Basin in China. Sustainability Science. https://doi.org/10.1007/S11625-021-01034-6	
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論文	Xu, J., Renaud, F. G., & Barrett, B. (2021). Modelling land system evolution and dynamics of terrestrial carbon stocks in the Luanhe River Basin, China: a scenario analysis of trade-offs and synergies between sustainable development goals. Sustainability Science 2021, 1, 1–23. https://doi.org/10.1007/S11625-021-01004-Y	
論文	Xu, J., Renaud, F. G., & Barrett, B. (in press) Ecosystem services and disservices in the Luanhe River Basin in China under past, current and future land uses: implications for the Sustainable Development Goals. Sustainability Science. inable Development Goals. Sustainability Science.	
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論文	Baffoe, G., Zhou, X., Moinuddin, M., Somanje, A. N., Kuriyama, A., Mohan, G., Saito, O., & Takeuchi, K. (2021). Urban–rural linkages: effective solutions for achieving sustainable development in Ghana from an SDG interlinkage perspective. Sustainability Science, 1, 3. https://doi.org/10.1007/s11625-021-00929-8 bility Science, 1, 3. https://doi.org/10.1007/s11625-021-00929-8	
論文	Albert Novas Somanje, Geetha Mohan, Julia Lopes, Adelina Mensah, Christopher Gordon, Xin Zhou, Mustafa Moinuddin, Osamu Saito, and Kazuhiko Takeuchi, 2020. Challenges and Potential Solutions for Sustainable Urban-Rural Linkages in a Ghanaian Context. Sustainability 2020, 12 (2), 507-525. https://www.mdpi.com/2071-1050/12/2/507	
本の章	Zhou, X., & Moinuddin, M. (2021). Chapter 24 Impacts and implications of the COVID-19 crisis and its recovery for achieving Sustainable Development Goals in Asia: A review from an SDG interlinkage perspective. In A. Ramanathan, S. Chidambaram, M. P. Jonathan, M. V. Prasanna, P. Kumar, & F. M. Arriola (Eds.), Scenarios of Environmental Resilience and Transformation in Times of Climate Change: Effects and Lessons from the COVID-19. Elsevier. https://doi.org/10.1016/B978-0-323-85512-9.00018-8 an SDG interlinkage perspective. In A. Ramanathan, S. Chidambaram, M. P. Jonathan, M. V. Prasanna, P. Kumar, & F. M. Arriola (Eds.), Scenarios of Environmental Resilience and Transformation in Times of Climate Change: Effects and Lessons from the COVID-19. Elsevier. https://doi.org/10.1016/B978-0-323-85512-9.00018-8	
開発したウェブツール	Zhou, X., Moinuddin, M., Renaud, F. Barrett, B., Xu, J., Liang, Q., Zhao, J., Xia, X., Bosher, L., Huang, S., Hoey, T. (2021) Interactive SDG Tool for River Basins. https://sdginterlinkages.iges.jp/luanhe/index.html linkages.iges.jp/luanhe/index.html	
リサーチブリーフ	“Luanhe Living Lab” Project Team. (2021). Research Brief: Lessons learnt from synergies and trade-offs between SDGs at the sub-national scale. https://sdginterlinkages.iges.jp/luanhe/index.html	
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学術誌の特集	Renaud, R., Zhou. X., Bosher, L., Barrett, B. Huang, S. (Eds, 2021). Special Feature: Synergies and Trade-offs between Sustainable Development Goals and Targets. Sustainability Science. https://link.springer.com/journal/11625/topicalCollection/AC_b8bc6d10db81e9db53d86ccb7e4b25d7	
学会での発表	Xin Zhou, Mustafa Moinuddin, "The SDG interlinkages in the context of achieving sustainable development at the river basin level in China", presented by Xin Zhou at the Project Meeting on river basins as 'living laboratories' for achieving sustainable development goals across national and sub-national scales", Nankai University, Tianjin, 7-9 May 2019. s' for achieving sustainable development goals across national and sub-national scales", Nankai University, Tianjin, 7-9 May 2019.	
学会での発表	Xin Zhou, "Climate actions and SDGs: Synergies and trade-offs from an interlinkage perspective", Plenary Session 3, International Forum for Sustainable Asia and the Pacific (ISRP) 2019, Yokohama, Japan, 31 July 2019.	
学会での発表	Fabrice Renaud, Trevor Hoey, Brian Barrett, Jiren Xu Suiliang Huang, Qiuhua Liang, Lee Bosher, Xilin Xia, Jiaheng Zhao, Xin Zhou, Mustafa Moinuddin, “River basins as 'living laboratories' for achieving sustainable development goals across national and sub-national scales”, presented by Fabrice Renaud at the 2019 Annual Conference of the British Geographical Society, Scotland, 28 August 2019. y Fabrice Renaud at the 2019 Annual Conference of the British Geographical Society, Scotland, 28 August 2019.	
学会での発表	Xin Zhou, "Analysis of the interlinkages of the environmental SDGs: A case study for Cambodia", presented by Xin Zhou at the Workshop on Cambodia’s Environmental Challenges and the SDGs, co-organized by the Korea Environment Institute (KEI) and the Royal Academy of Cambodia (RAC), Phnom Penh, Cambodia, 19 September 2019.	
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学会での発表	Fabrice Renaud, Brian Barrett, Jiren Xu, Xin Zhou, Qiuhua Liang, Trevor Hoey, Suiliang Huang, Lee Bosher, Xilin Xia, Jiaheng Zhao, Mustafa	

	Moinuddin, “Sustainable Development Goals interlinkages analysis: adapting a tool for sub-national assessment in China” (slightly modified version from the above), presented by Fabrice Renaud at an invited Seminar at Aalto University, Finland, 20 February 2020.	
学会での発表	Renaud, F., Barrett, B., Xu, J., Zhou, X., Liang, Q., Hoey, T., Huang, S., Bosher, L., Xia, X., Zhao, J., Moinuddin, M. (2020). Understanding SDG synergies and trade-offs for sustainable, resilient and inclusive development. Presented by Fabrice Renaud at the International Forum for Sustainable Asia and the Pacific (ISAP) 2020, online, 10 November 2020. (https://isap.iges.or.jp/2020/en/tt4.html) J., Moinuddin, M. (2020). Understanding SDG synergies and trade-offs for sustainable, resilient and inclusive development. Presented by Fabrice Renaud at the International Forum for Sustainable Asia and the Pacific (ISAP) 2020, online, 10 November 2020. (https://isap.iges.or.jp/2020/en/tt4.html)	
学会での発表	Zhou, X., Moinuddin, M. (2020). Addressing SDG synergies and trade-offs from an interlinkage perspective: The SDG Interlinkages Tool and its application. Presented at the International Forum for Sustainable Asia and the Pacific (ISAP) 2020, online, 10 November 2020. (https://isap.iges.or.jp/2020/en/tt4.html) e Asia and the Pacific (ISAP) 2020, online, 10 November 2020. (https://isap.iges.or.jp/2020/en/tt4.html)	
学会での発表	Fabrice Renaud, Brian Barrett, Jiren Xu, Xin Zhou, Qiuhua Liang, Trevor Hoey, Suiliang Huang, Lee Bosher, Xilin Xia, Jiaheng Zhao, Mustafa Moinuddin (2021) River basins as 'living laboratories' for achieving sustainable development goals across national and sub-national scales. Presented by Fabrice Renaud at TaSE Project Final Workshop: River basins as 'living laboratories' for achieving sustainable development goals across national and sub-national scales, 1 September 2021, held online. able development goals across national and sub-national scales, 1 September 2021, held online.	
学会での発表	Zhou, X. on behalf of the project team (2021). Interactive SDG Tool for River Basins: A case study for China’s Luanhe River Basin. Presented by Xin Zhou at the TaSE Project Final Workshop: River basins as 'living laboratories' for achieving sustainable development goals across national and sub-national scales, 1 September 2021, held online.	
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国連専門家グループ会議で	Xin Zhou, Mustafa Moinuddin, "Prioritisation of SDGs in the national development plans using the IGES SDG Interlinkages Tool: Case studies in Lao PDR, Ethiopia and Tanzania", invited presentation by Xin Zhou at the Technical Workshop on Analytical Tools for Capacity Building on Quantitative Methods for SDG Interactions and Integration in National	

の招待講演	Development Strategies and Integrated Planning, organised by the United Nations Department of Economic and Social Affairs, Addis Ababa, Ethiopia, 18-19 December 2019.	
国連会議での招待講演	Xin Zhou, "Prioritisation of SDGs in national development planning using IGES SDG Interlinkages Tool", invited presentation at the UNDESA's Webinar on "Integrating the 2030 Agenda into national plans and strategies: Considering COVID-19 response and recovery", organised by the United Nations Department of Economic and Social Affairs (UNDESA), New York, 14 May 2020.	
国連会議での発表	Zhou, X., Moinuddin, M., Renaud, F. Barrett, B., Xu, J., Liang, Q., Zhao, J., Xia, X., Bosher, L., Huang, S., Hoey, T. (2020) SDG Interlinkages Analysis & Visualisation Tool. Presented at by Xin Zhou at the 2020 United Nations High Level Political Forum Exhibition (online), July 7-16th., 2020. https://sustainabledevelopment.un.org/hlpf/2020#exhibit	