

Towards a Sustainable Earth
(TaSE)

「都市化する中国における持続可能な公衆衛生問題への体系的アプローチ (SASSI)」
課題終了報告書

1. 研究課題：「都市化する中国における持続可能な公衆衛生問題への体系的アプローチ (SASSI)」

2. 研究期間：2019年4月～ 2021年9月

3. 主な参加研究者名：

日本側チーム

	氏名	所属	役職
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研究者	LONG Yin	東京大学・未来ビジョン研究 センタ・プロジェクト研究者	Project Assistant Professor
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研究期間中の全参加研究者数		5 名	

相手側チーム

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研究期間中の全参加研究者数		10 名	

4. 研究の目的

The overall aim of SASSI is to enhance our understanding of the complex interactions related to sanitation systems, and their sustainability. We focused on Shanghai, which is an ideal case as it is a rapidly urbanizing megacity that contains radically different urban areas

with access to different sanitation systems. SASSI has four interlinked objectives:

- To understand the components of (and their interaction within) different types of sanitation systems as well as how sanitation systems interact with other social, technical and environmental systems;
- To reveal the interactions between different sanitation systems and sustainable development;
- To co-develop models and tools to support informed decision-making in sanitation towards sustainable development;
- To build transdisciplinary capacity in sanitation research, design, planning, implementation, management and maintenance.

5. 研究・交流の成果

5 – 1 研究の成果

The research of the Japanese team relied on the modelling of open-source Big Data extracted from the internet. This allowed not only for the identification of differentiated access to sanitation options across Shanghai, but to also estimate other aspects of urban livability. In particular we estimated the urban livability of Residential Building Clusters (RBCs) throughout the entire city across the following dimensions: (a) age and price of buildings in RBCs; (b) density of population around RBCs; (c) accessibility of RBCs to transport options; (d) comfortability and convenience of RBCs in terms of access to Points-of-Interest (POIs)

Overall the analysis identifies hotspots and coldspots of urban livability across Shanghai. It provides valuable information about areas of Shanghai having reduced livability, including access to sanitation, in order to guide urban planning actions. On a more academic level the research manifested that it is possible to extract and utilize efficiently open-source Big Data as a means of understanding livability patterns within rapidly urbanizing cities. This is particularly useful in contexts that geospatial and spatially differentiated socioeconomic and demographic data is not open to the public.

5 – 2 人的交流の成果

The planned research exchange activities were geared around the: (a) visits of researchers and students in partner countries, (b) development of joint symposia, and (c) training of students. Prior to the COVID-19 pandemic researchers and students from the Japan team visited both the UK and China for talks in the Healthy Cities 2019 event co-organised by SASSI (Manchester, May 2019), partner project meeting (Manchester), and site visits to identify study sites in Shanghai. From the second year onwards all in person travel was not possible due to the pandemic. In order to compensate for this all planned project meetings happened online. Furthermore, partners from the three countries jointly coordinated a special session during the Biannual Conference of the International Society of Ecological Economics (ISEE2021, July 2021) and organized over several months a series of ten online symposia and research matchmaking sessions under the banner of “INFRA+: Infrastructure for fragmented cities”. Beyond the research partners from China, Japan and the UK, this transdisciplinary event series connected the research team with scholars from Mongolia, Bangladesh, India, Malawi, Ghana, and Brazil (<https://susinfra.com/infra%2B-2021>).

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	Iossifova, D, Gasparatos, A., Zavos, S., Gamal, Y., Long, Y., (Eds.) Urban Infrastructuring: reconfigurations, transformations and sustainability in cities of the Global South. Springer, Berlin. (2022)	Edited Book
論文	Jarzebski, M.P., Elmqvist, T., Gasparatos, A., Fukushi, K., Eckersten, S., Haase, D., Goodness, J., Khoshkar, S., Saito, S., Takeuchi, K., Theorell, T., Dong, N., Kasuga, F., Watanabe, R., Sioen, G.B., Yokohari, M., Pu, P. Ageing and population shrinking: Implications for sustainability in the Urban Century. npj Urban Sustainability, 1: 17 (2021)	Journal paper
論文	Long, Y., Guan, D., Kanemoto, K., Gasparatos, A. Negligible impacts of early COVID-19 confinement on household carbon footprints in Japan. <i>One Earth</i> , 4, 553-564 (2021)	Journal paper
論文	Shrestha, S., Yoshinaga, E., Chapagain, S., Mohan, G., Gasparatos, A., Fukushi, K. Wastewater-based epidemiology for cost-effective mass surveillance of COVID-19 in low- and middle-income countries: challenges and opportunities. <i>Water</i> , 13: 2897 (2021)	Journal paper
論文	Hong, H., Gasparatos, A. Eco-industrial parks in China: key institutional aspects, sustainability impacts, and implementation gaps. <i>Journal of Cleaner Production</i> , 274: 122853 (2020)	Journal paper