

Urban livability issue

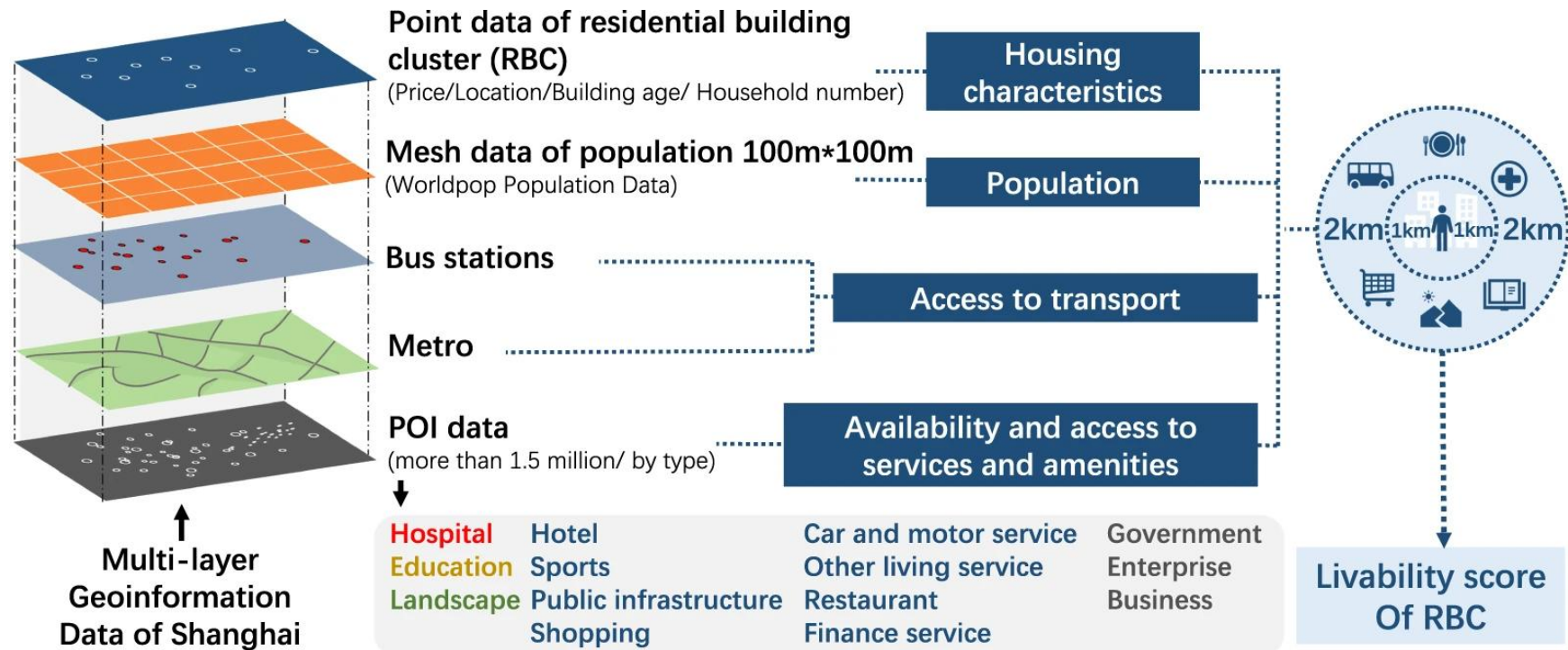
Assessing urban livability in Shanghai through an open-source data-driven approach



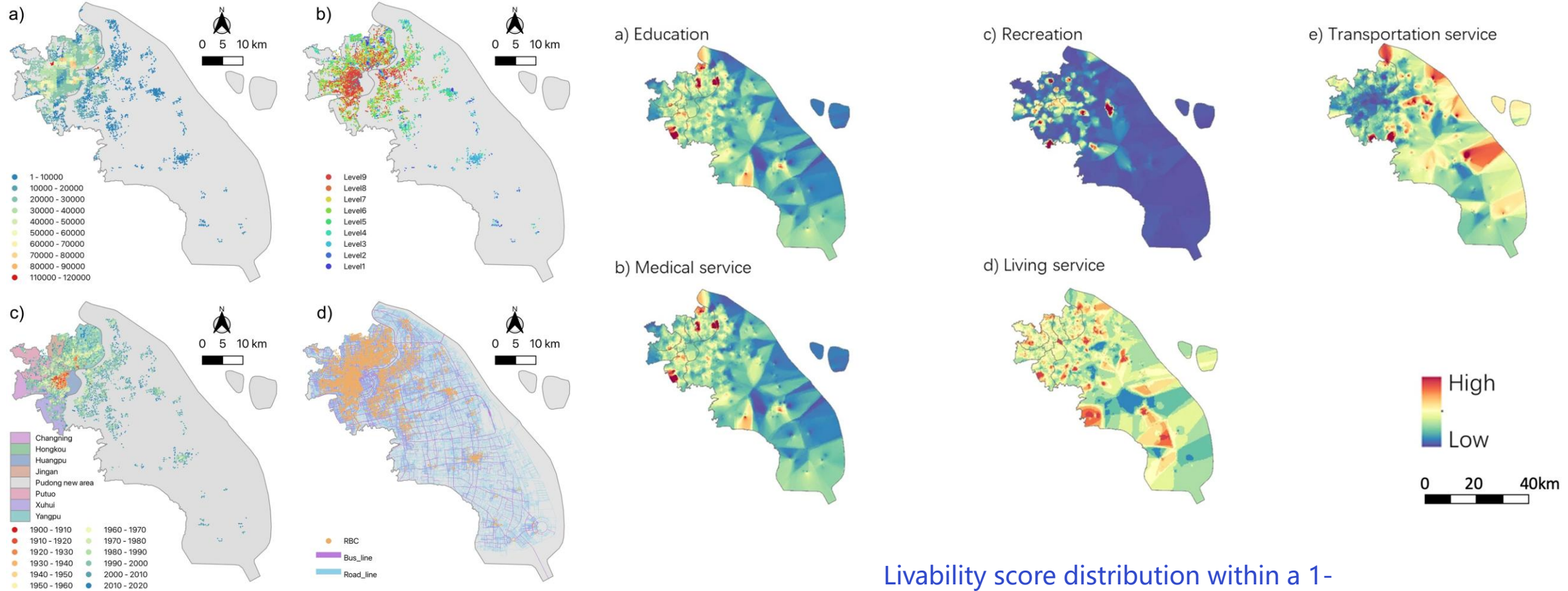
**Sustainable
Development
Goal 11:
"sustainable
cities and
communities"**

Data: Residential Building Clusters (RBCs) in Shanghai, population distribution, transportation networks, and POI data for various urban facilities.

Methods: After normalizing factor scores, we calculate the livability score of each RBC based on the distribution and weighting of POIs. Spatial patterns of livability are examined using Standard Deviation Ellipse (SDE) and Inverse Distance Weighting (IDW) interpolation.



Results



Spatial distribution and characteristics of Residential Building Clusters (RBCs) in Shanghai

Livability score distribution within a 1-km walking radius of each RBC

Background



Affordable Urban Livability

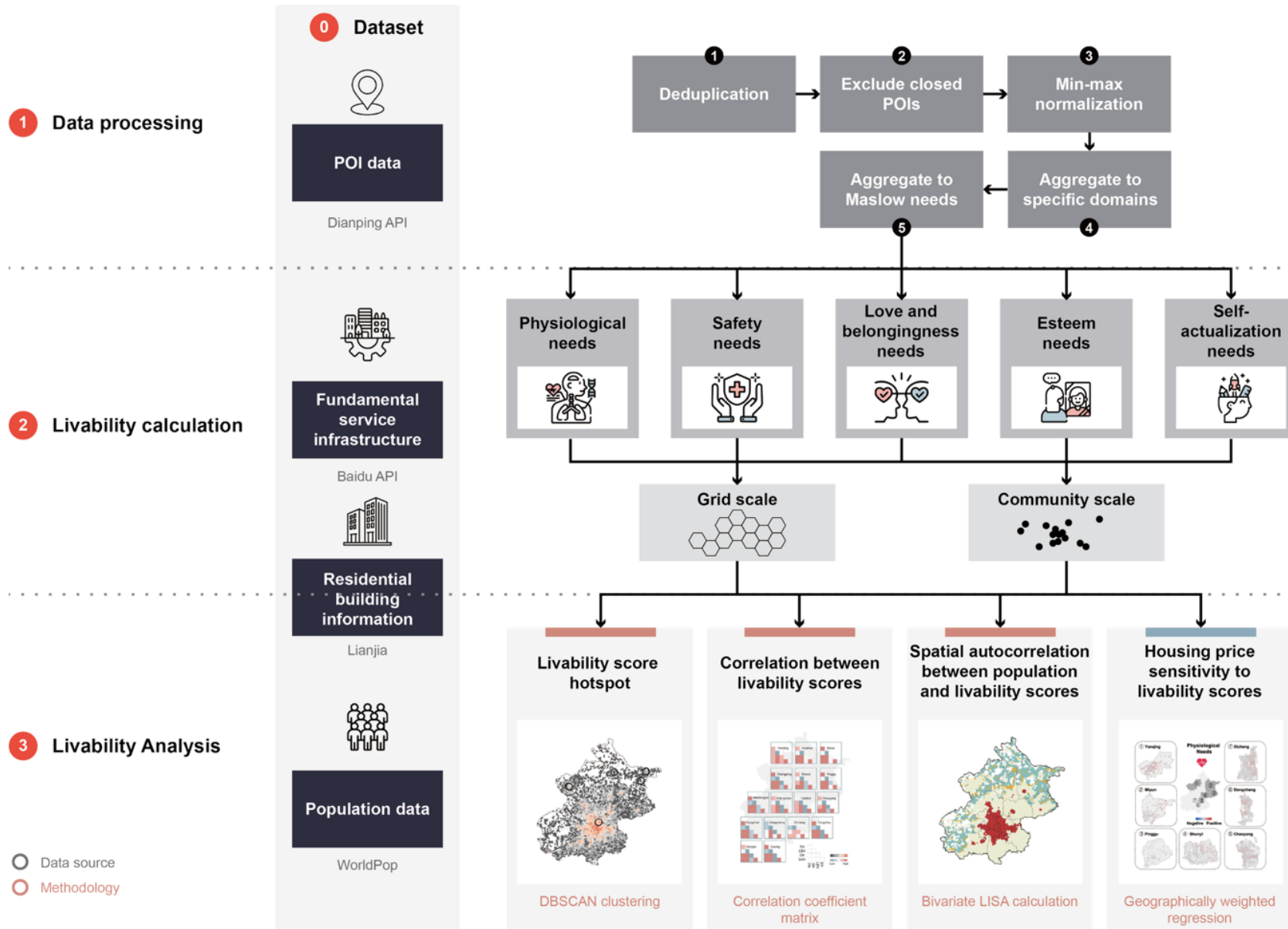


Spatial Mismatch of Livability



SDG11:
Sustainable Cities and Communities

Framework



Results

Core-Periphery Livability Dichotomy

Heterogeneous Livability-Population Clustering

Housing Affordability Fault Line

A multiscale livability-sustainability assessment framework considering population preferences

Background

Building cities that are both *livable* and *sustainable* has become increasingly important. In Japan, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) proposed the concept of a “**sustainable and livable society**” in 2021. However, limited understanding of the potential trade-offs and synergies between these two goals has constrained efforts to integrate them effectively in practice.

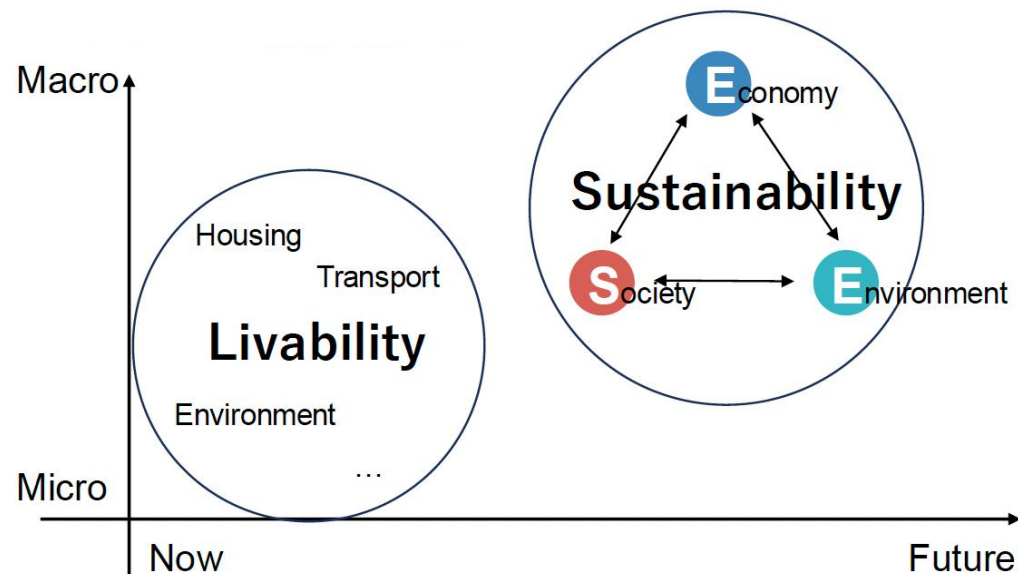


Figure. Concept of livability and sustainability

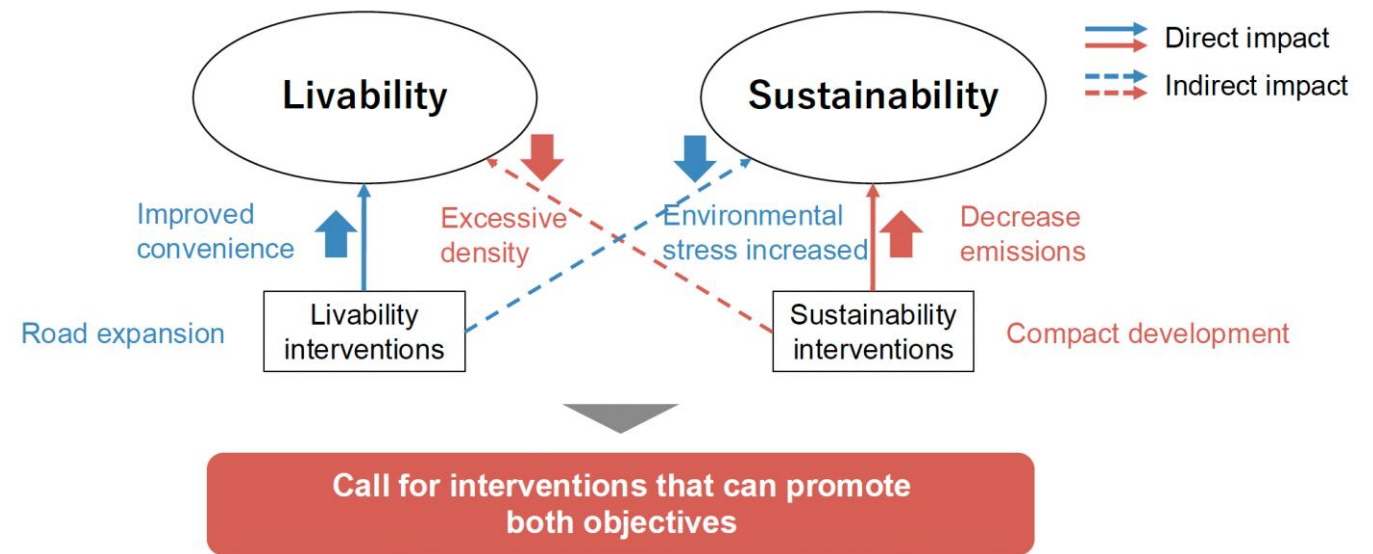
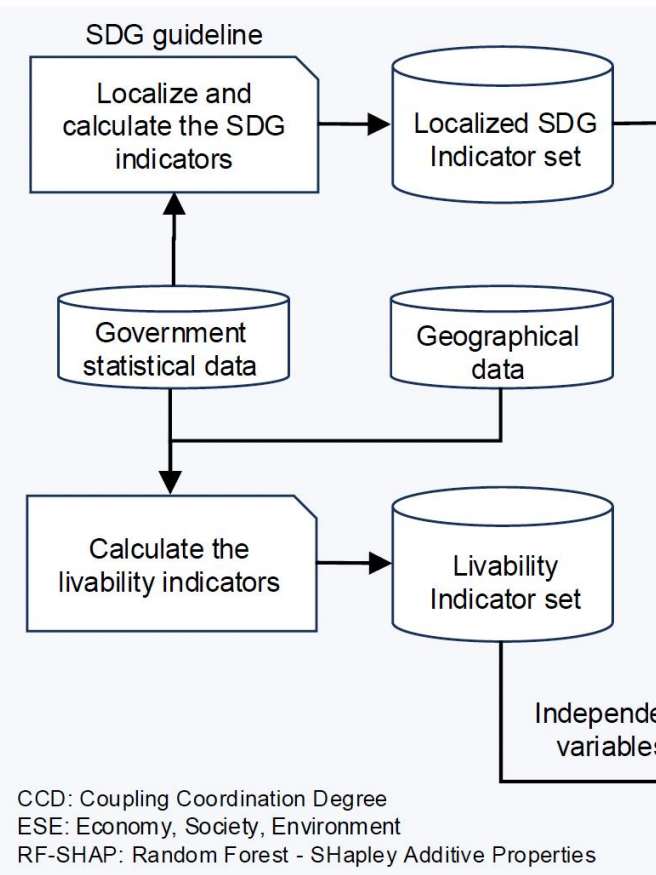


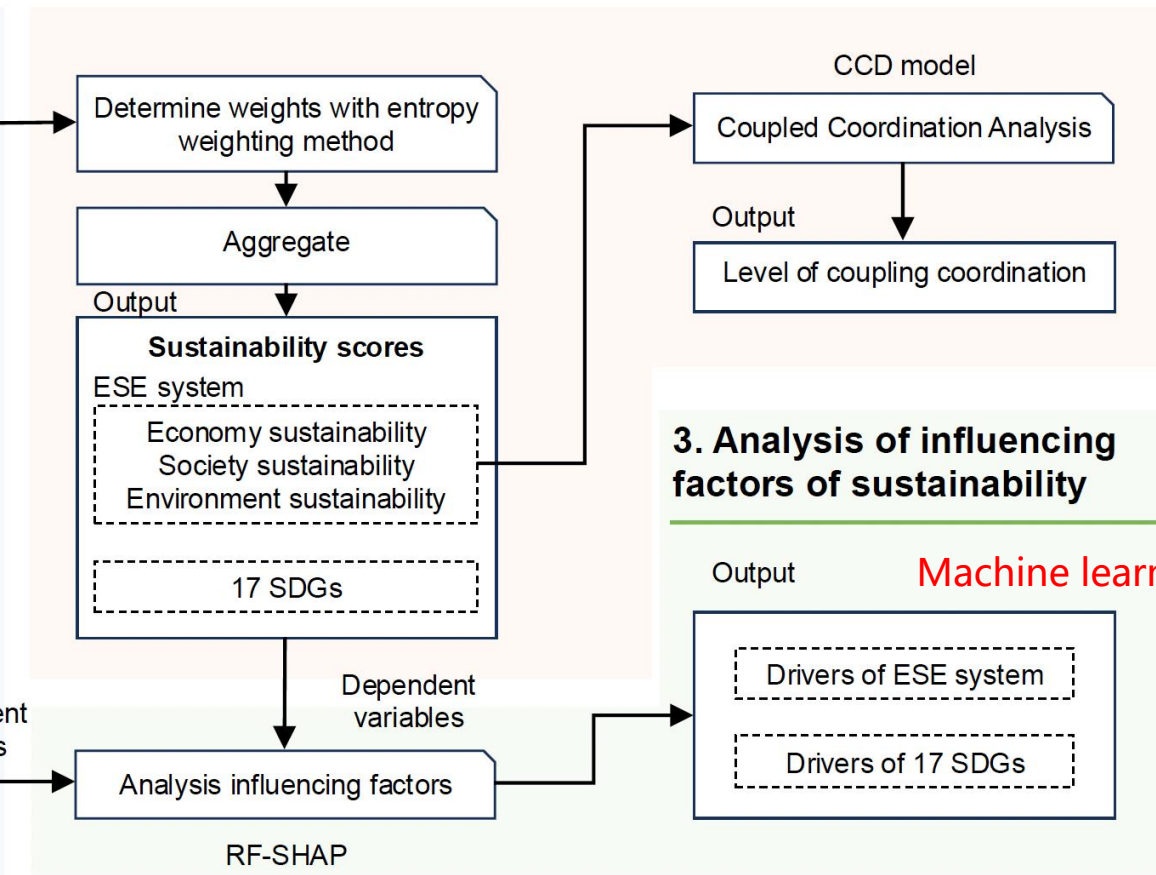
Figure. Dilemma between the two concepts

Framework

1. Data preparation

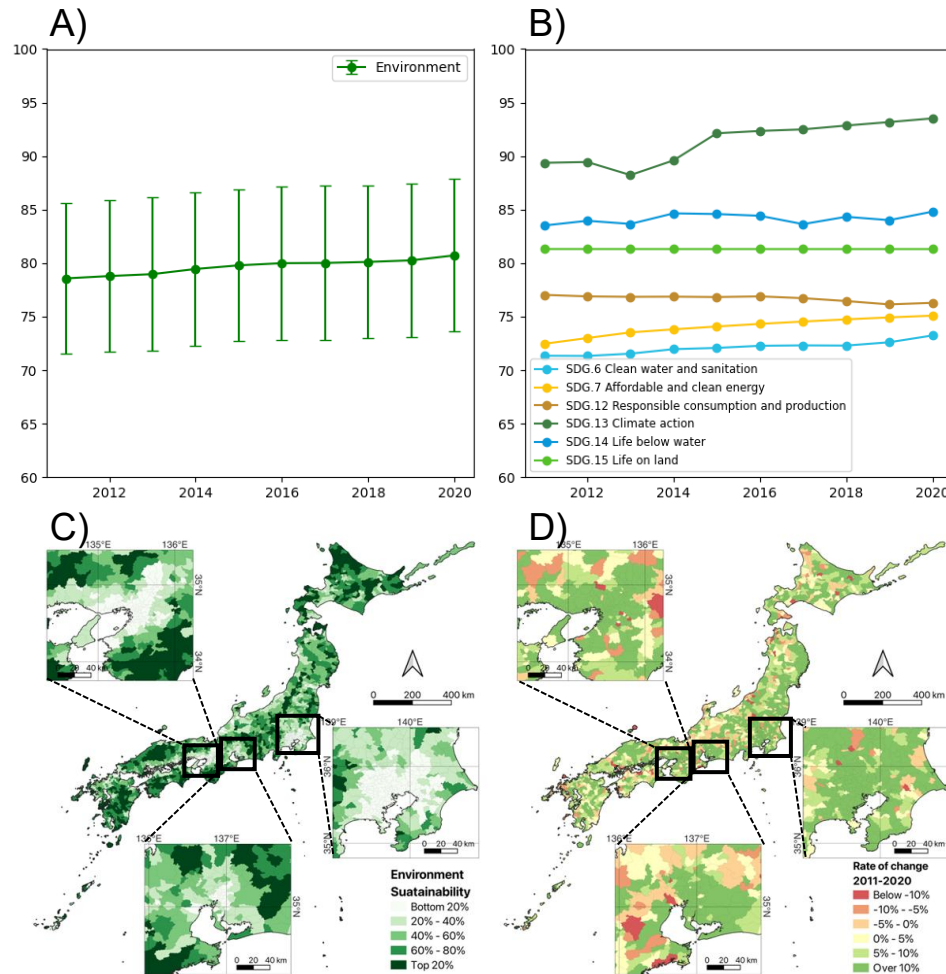


2. Localization evaluation of SDG



Data preparation and development of context-sensitive sustainability indicators

Results

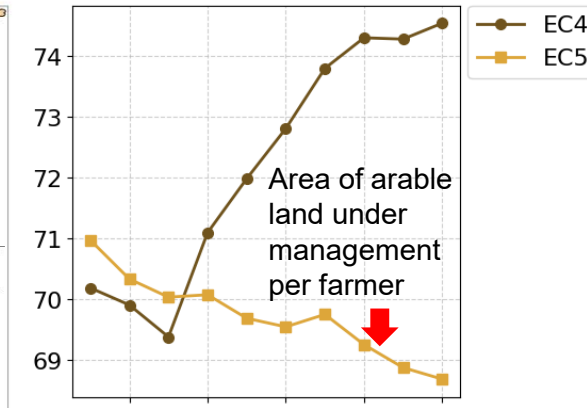
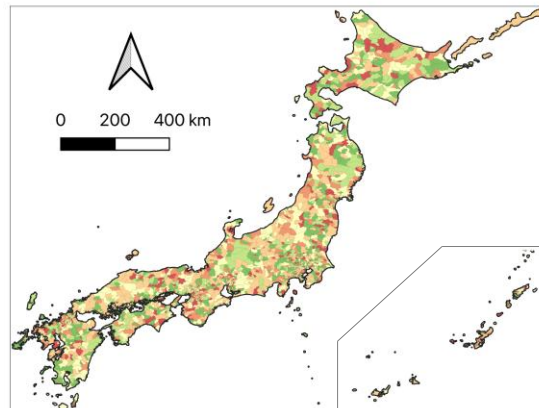
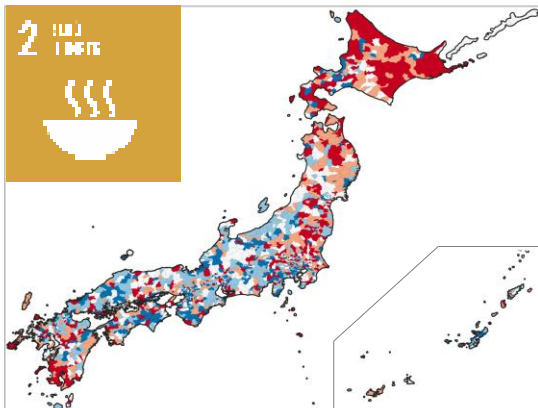
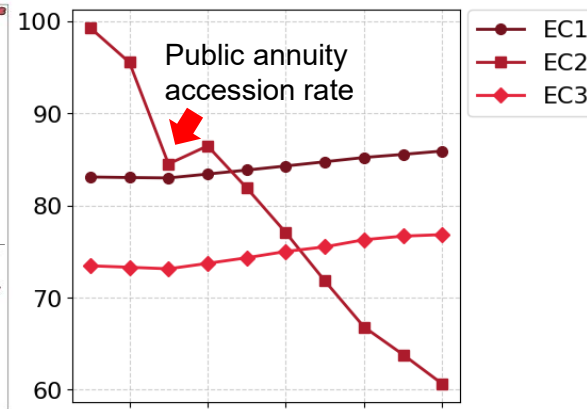
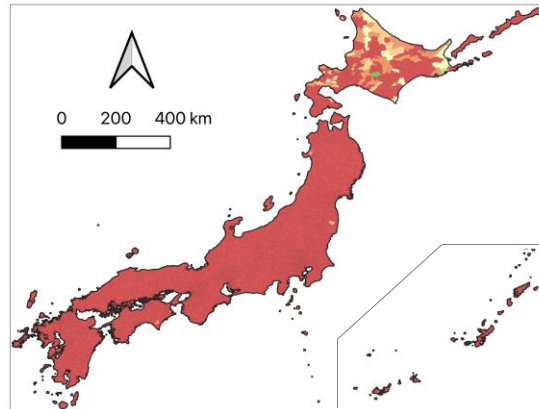
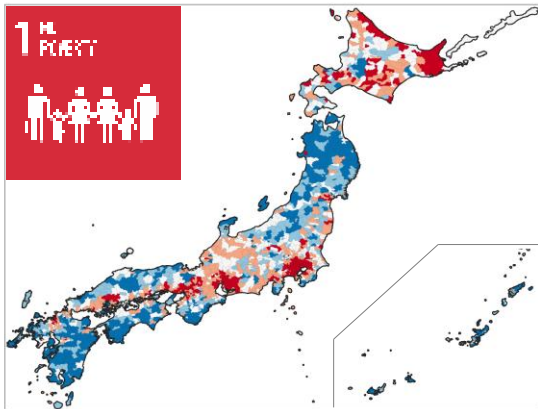


Environmental sustainability is slowly improving, but spatial gaps are still evident.

- Environmental-related Sustainable Development Goals (SDGs) have remained stable or shown slight improvement.
- Metropolitan areas continue to lag behind, performing worse than rural regions.

Figure. Scores in the Environment system and related SDGs of cities in 2020 and the change rate over 10 years

Results



1. Concerns about pensions and economic security in elderly

Public distrust in the pension system may affect the financial well-being of the next generation. Worries over future pension levels and insurance premium burdens undermine confidence in the public pension scheme and may jeopardize the economic security of future older adults.

2. Hidden sustainability risks in the agricultural system

Agricultural sector is shifting toward intensification and higher efficiency, yet underlying sustainability risks persist. The agricultural population has decreased by 22% within five years, resulting in abandoned farmland and a decline in total production.