



UNGEONOW 2024
首届联合国地信周



Practice of Comprehensive Evaluation of Land Use Change Survey Data in Zhejiang

Zhejiang Natural Resources Strategy Research Center
Chong Lin

October 22nd, 2024



01

Background

02

Practices

03

Achievements

Contents

The background features several overlapping, semi-transparent geometric shapes in shades of green and blue. These shapes are primarily trapezoidal and triangular, creating a layered, modern aesthetic. The colors range from light, airy greens to vibrant, saturated blues and greens.

PART ONE

BACKGROUND

The inevitable requirement for promoting high-quality development in the era of big data



UNGEONOW 2024
首届联合国地信周



2019.11

The country listed data as a "factor of production" for the first time.

2020.04

The country promoted the open sharing of government data to enhance the value of social data resources.

2022.12

The country proposed to coordinate the promotion of data property rights, circulation and trading, income distribution, and security governance, and to accelerate the construction of a data infrastructure system.

Key tasks of the construction of a unified survey, evaluation and monitoring system for natural resources



UNGEONOW 2024
首届联合国地信周



中华人民共和国中央人民政府
www.gov.cn

自然资源部关于印发《自然资源调查监测体系构建总体方案》的通知

自然资发〔2020〕15号

各省、自治区、直辖市及计划单列市自然资源主管部门，新疆生产建设兵团自然资源主管部门，国家林业和草原局，中国地质调查局及其他直属单位，各派出机构，部机关各司局：

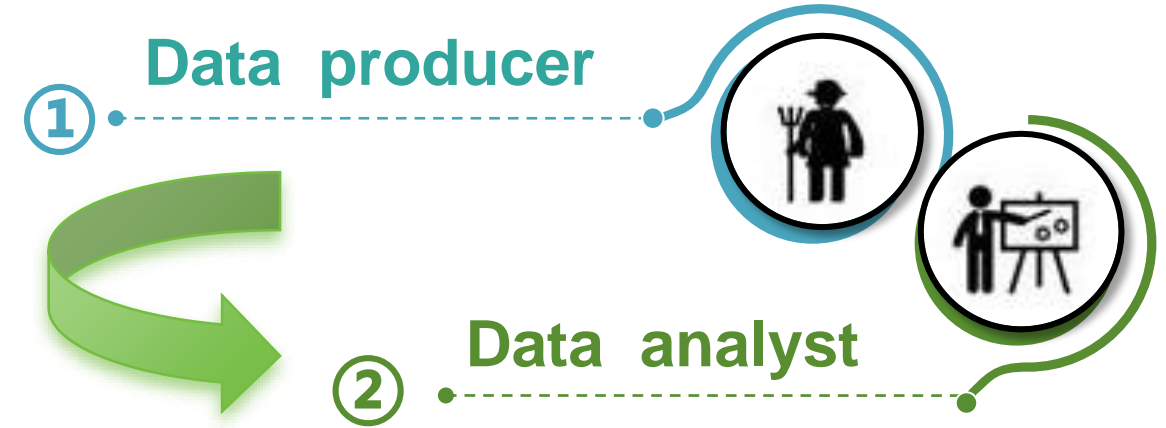
《自然资源调查监测体系构建总体方案》已经部审定，现印发给你们，请结合实际，认真贯彻落实。

自然资源部

2020年1月17日

自然资源调查监测体系构建 总体方案

自然资源部
二〇二〇年一月



- Accelerate the establishment of a unified survey, evaluation and monitoring system for natural resources.
- Collect and summarize natural resources survey and monitoring data, establish scientific natural resources evaluation indicators, conduct comprehensive analysis and systematic evaluation, and provide a basis for scientific decision-making and strict management.

The internal requirements for the construction of a pioneer province in digital reform



UNGEONOW 2024
首届联合国地信周



- The Provincial Party Committee and the Provincial Government of Zhejiang have clearly proposed to **"comprehensively promote the modernization of territorial spatial governance"** and **"promote high-level digital reform and create a highland of digital transformation"**.



PART TWO
PRACTICES

Main Process



UNGEONOW 2024
首届联合国地信周



01

Establish a set of work system:
Goal + Organization

02

Consolidate one data base:
Annual changes + Daily changes

03

Build a set of indicator system:
Comprehensive system +
Highlighting key points

04

Adopt a series of research methods:
Statistical analysis + Spatial analysis

05

Establish a set of iterative update mechanism:
Continuous improvement +
Efficiency improvement

Establish a set of work system: Goal + Organization



UNGEONOW 2024
首届联合国地信周



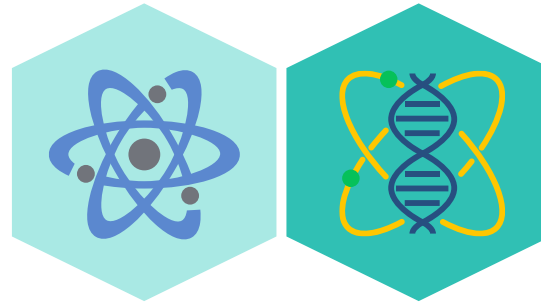
Goal System

Grasp the current situation

Understand the laws

Predict and warn

Evaluate performance



Organization System

System coordination

Departmental collaboration

Expert advice

Consolidate one data base: Annual changes + Daily changes

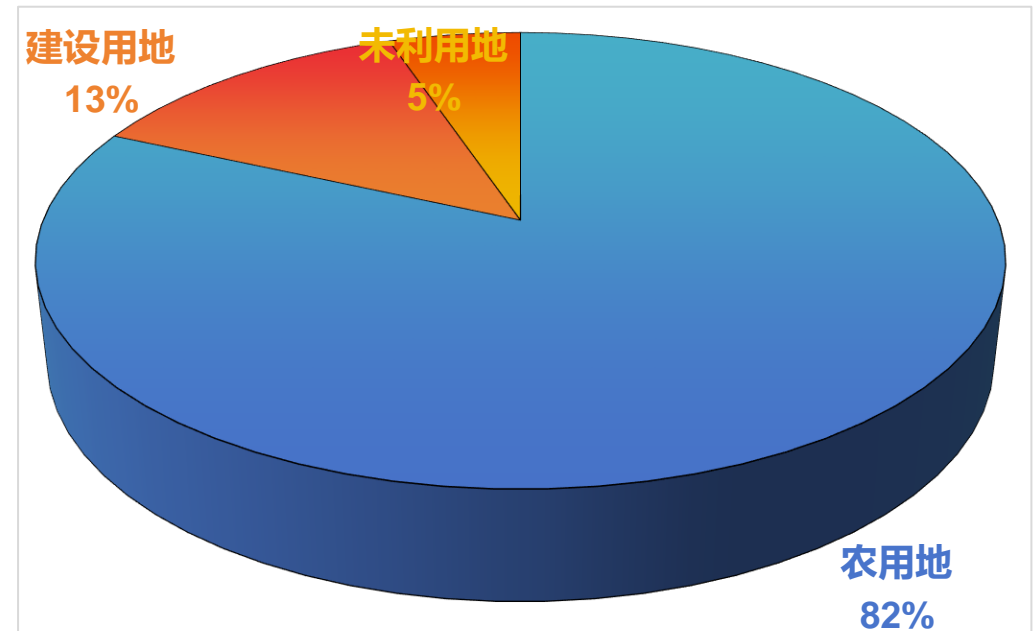
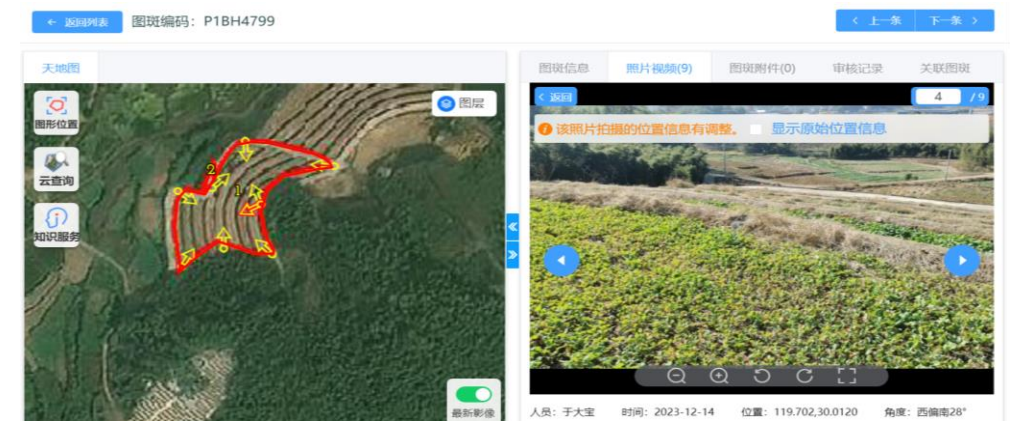
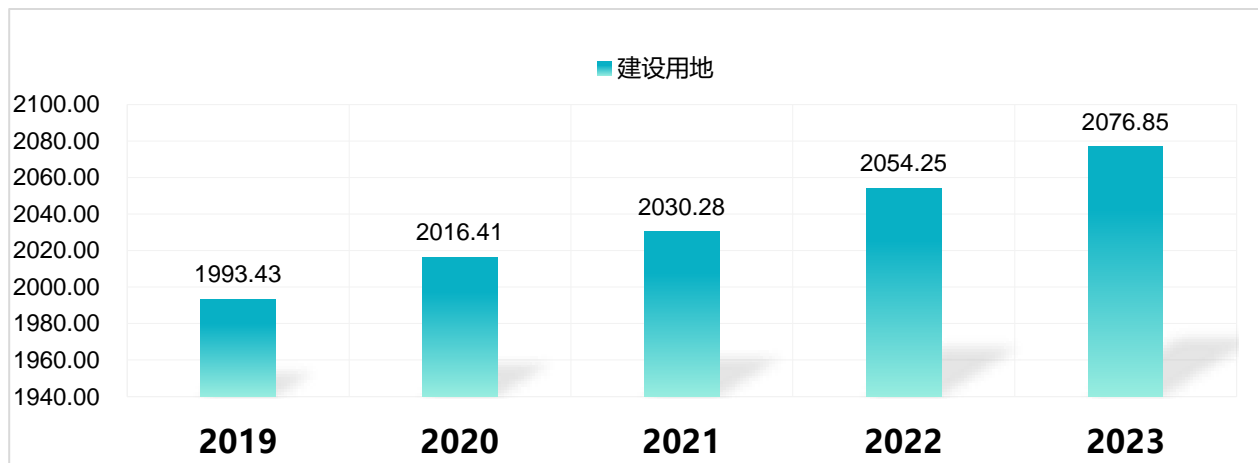


UNGEONOW 2024
首届联合国地信周



► We have continued to carry out annual and daily land use change surveys, involving about **6 million** change parcels and about **24 million** evidential photos.

► Our center has assembled the land use status of all **90 counties** in Zhejiang from 2019 to 2023, totaling **13** primary land classes and **56** secondary classes, and comprehensively grasped the spatial distribution, quantity, quality and current status as well as the trend of change of land resources.



Build a set of indicator system:

Comprehensive system + Highlighting key points



UNGEONOW 2024
首届联合国地信周



Evaluation index system for natural resources survey and monitoring data

Index system for overall national spatial planning

Comprehensive evaluation index system for land use change survey data

Urban physical examination evaluation index system

Natural resources development planning

Selection principle

Relevance principle

Principle of effectiveness and reliability

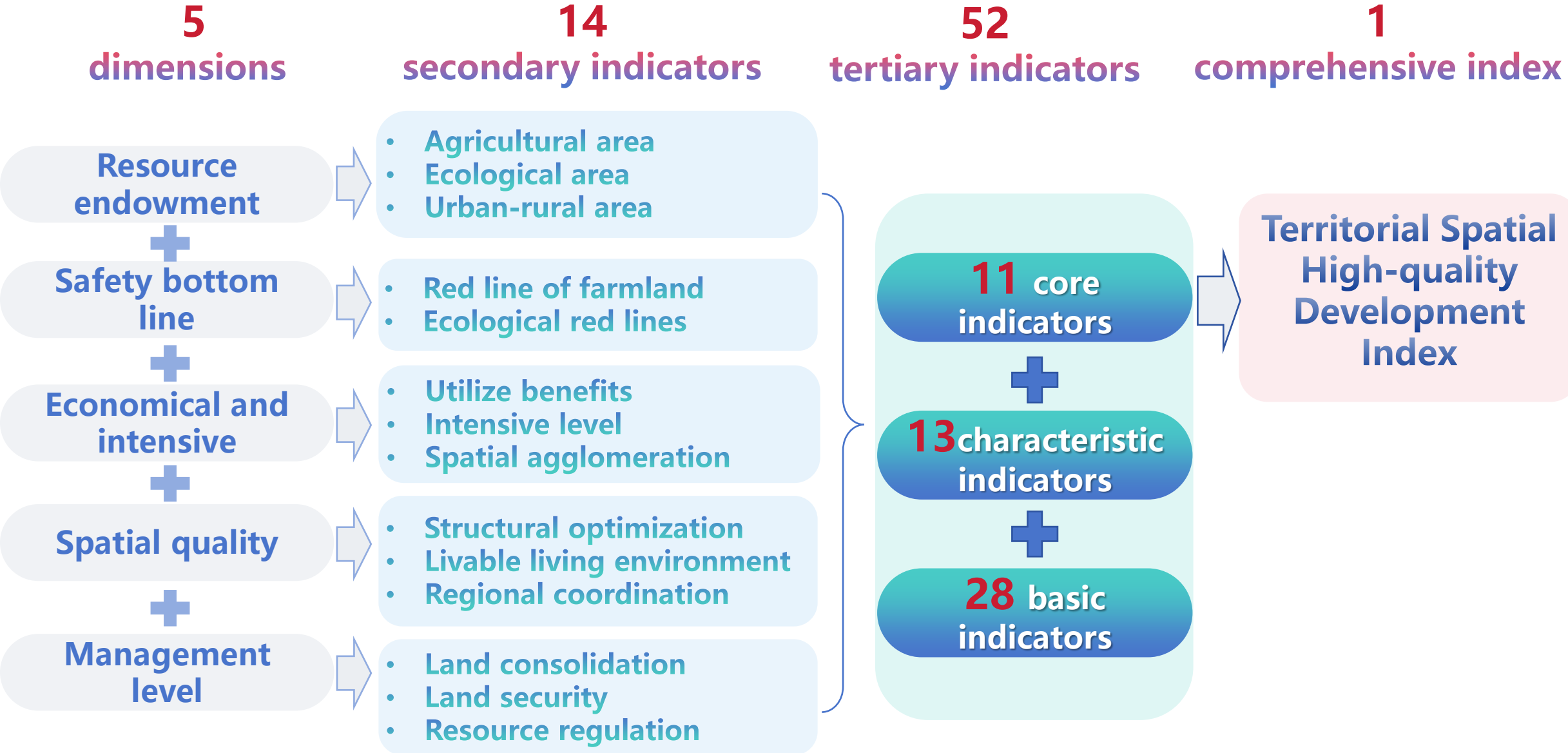
Hierarchical principle

Principle of Fairness

Principle of universal recognition

Continuity principle

Indicator system framework

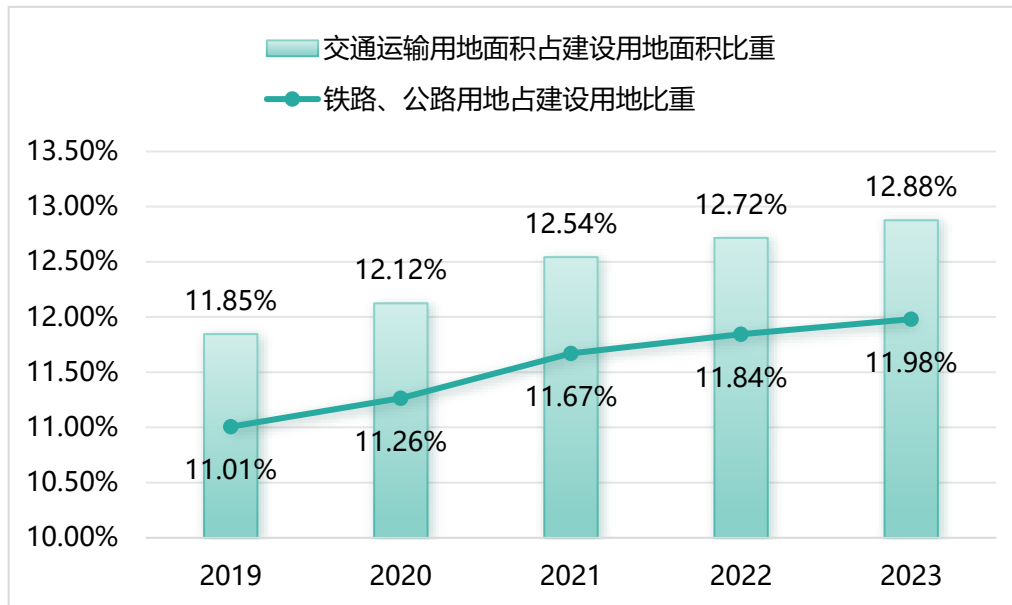


Adopt a series of research methods: Statistical analysis + Spatial analysis

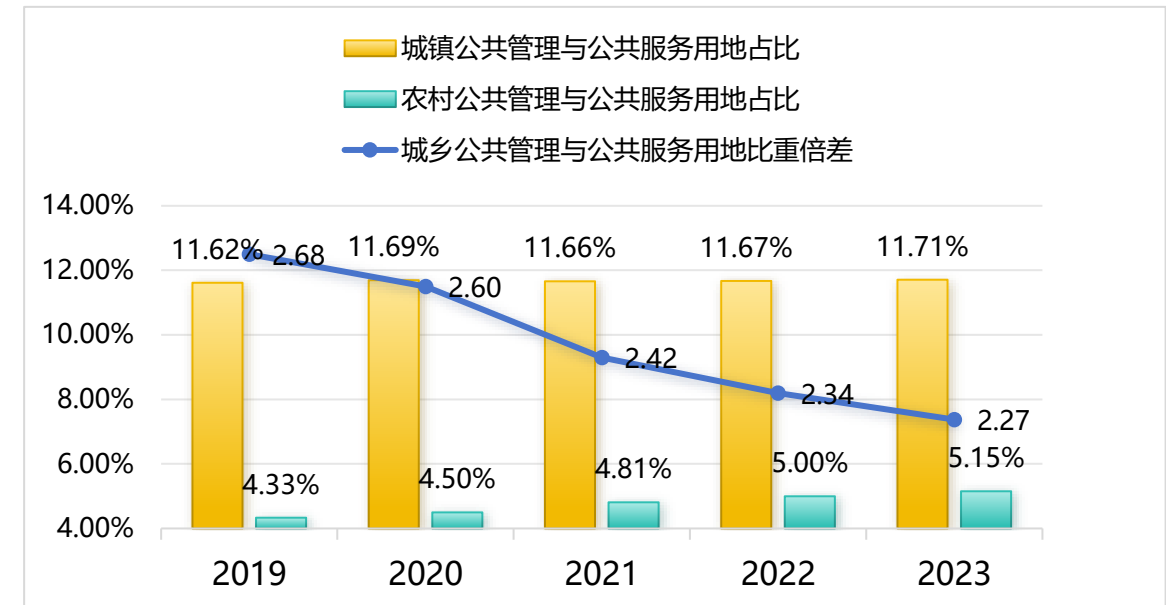


1. Time series analysis method

Comparative analysis of long-time-series data from 2019 to 2023.



Proportion of transportation land, railway and highway land to construction land in Zhejiang from 2019 to 2023



Proportion of urban and rural administration and public services land in Zhejiang from 2019 to 2023

Over the past five years, the proportion of transportation land in Zhejiang has steadily increased, and the per capita gap between urban and rural administration and public services land has continued to narrow.

Adopt a series of research methods: Statistical analysis + Spatial analysis

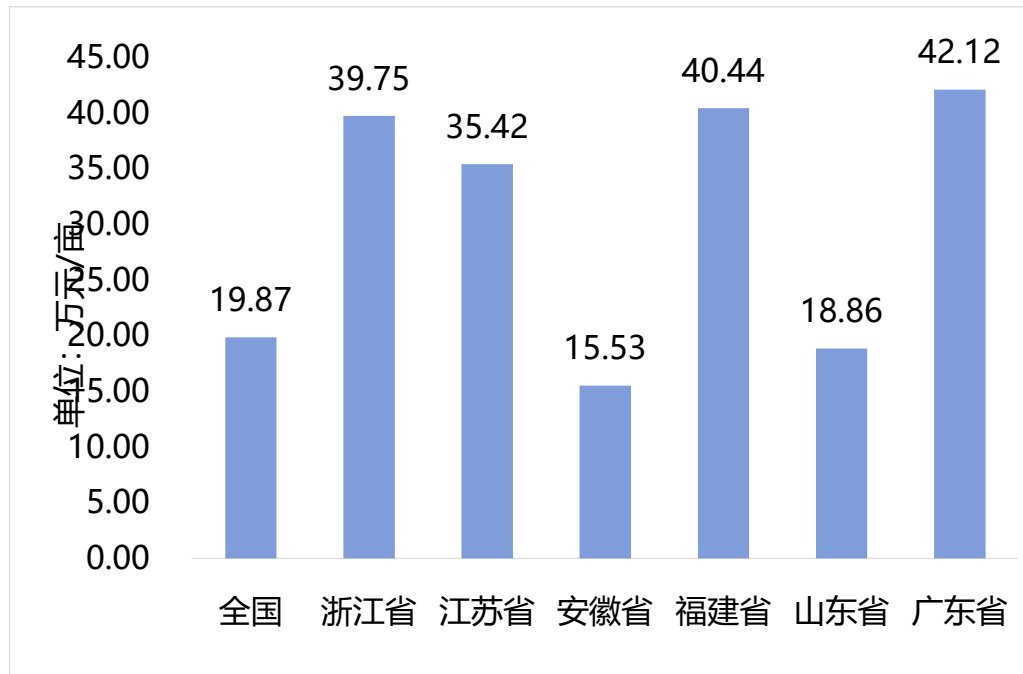


UNGEONOW 2024
首届联合国地信周

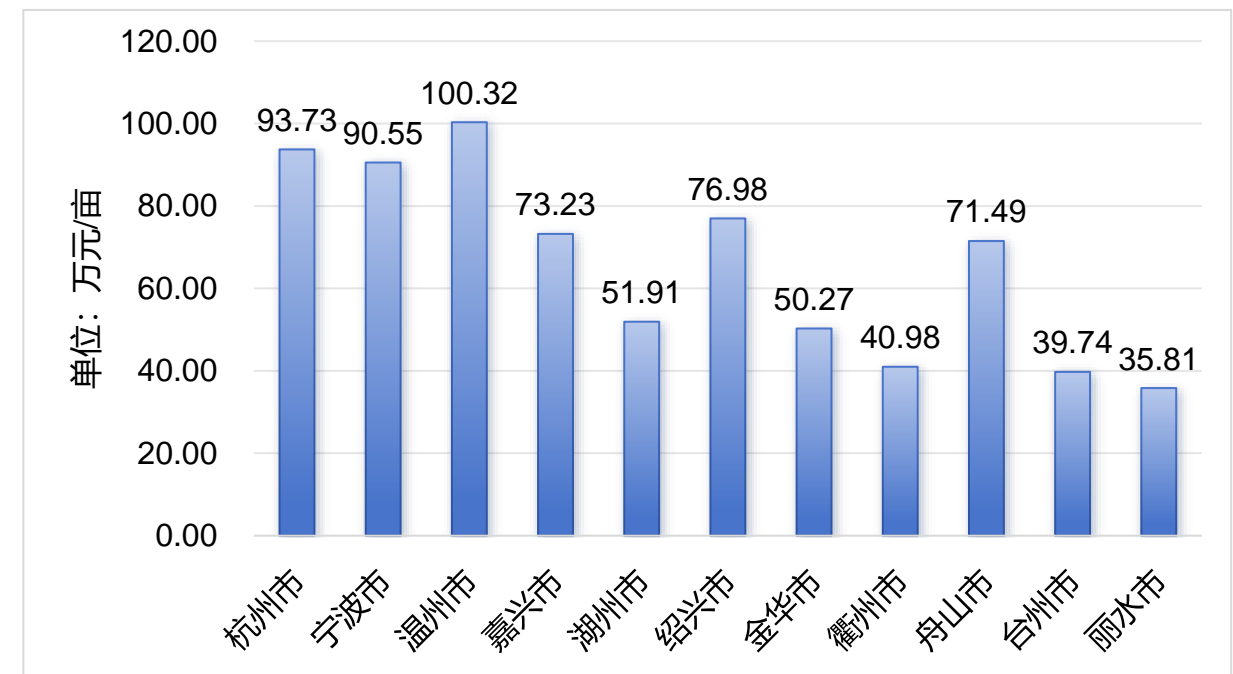


2. Comparative analysis method

Measure the differences and changes of various indicators in different regions.



Comparative analysis of GDP per unit of construction land in six provinces in 2023



Average added value per unit of industrial land in various cities of Zhejiang in 2023

The GDP per unit of construction land in Zhejiang ranks among the top, but there is still a gap compared to advanced standards. The average added value per unit of industrial land in Wenzhou is relatively high.

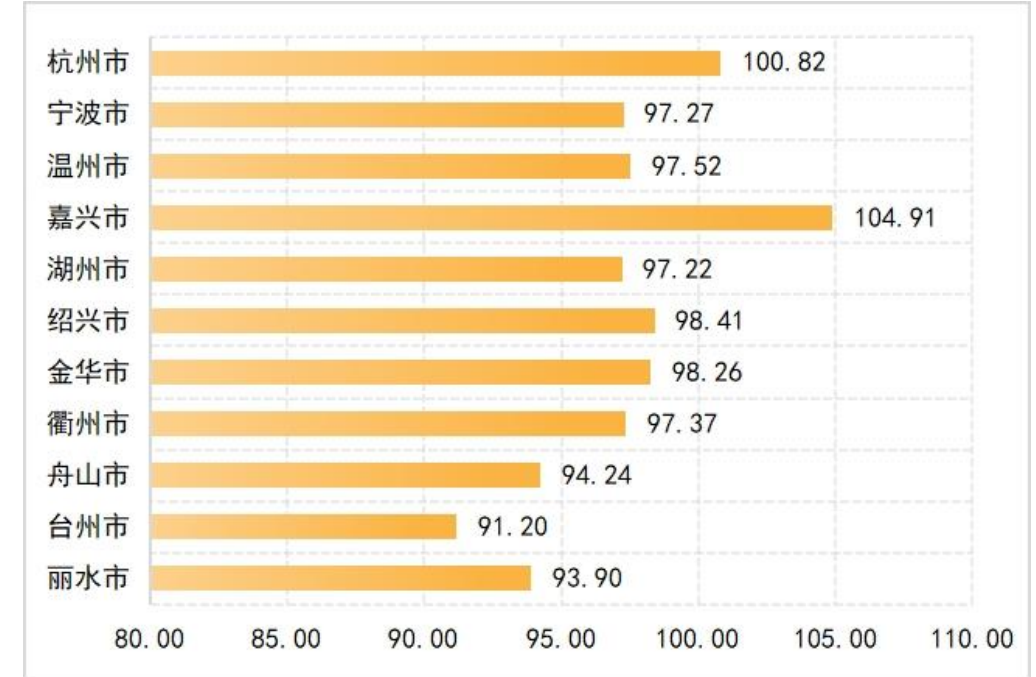
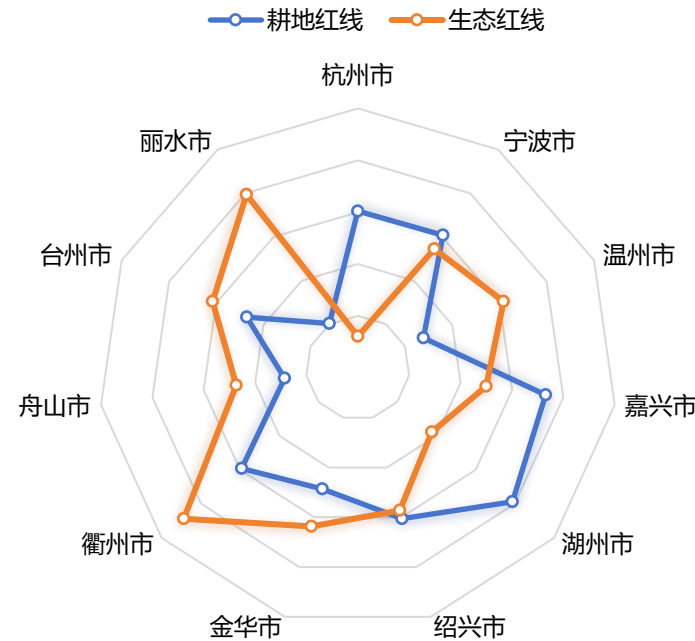
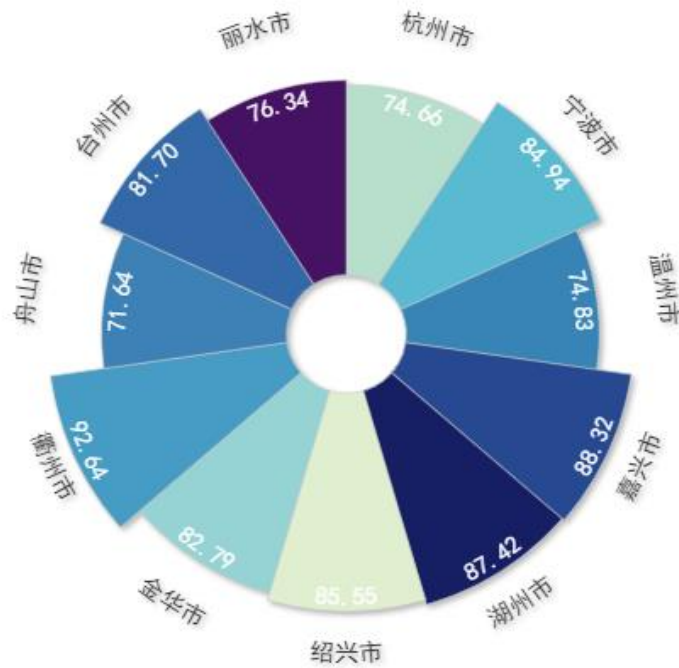
Adopt a series of research methods: Statistical analysis + Spatial analysis



UNGEONOW 2024
首届联合国地信周



3. Comprehensive evaluation method



Comprehensive analysis results of secondary indicators of safety bottom line in 11 cities in 2023

Territorial Spatial High-quality Development Index in 11 cities in 2023

Convert multiple indicators into a measurement value that reflects the overall situation for evaluation, and comprehensively measure and rank **11 cities**.

Adopt a series of research methods: Statistical analysis + Spatial analysis

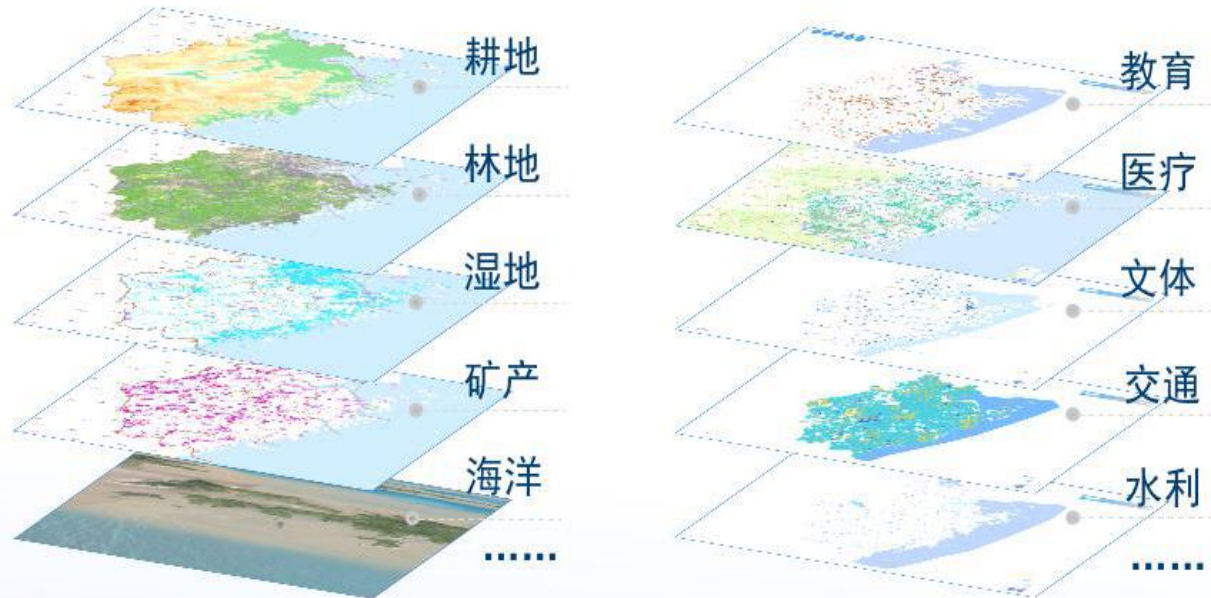


UNGEONOW 2024
首届联合国地信周

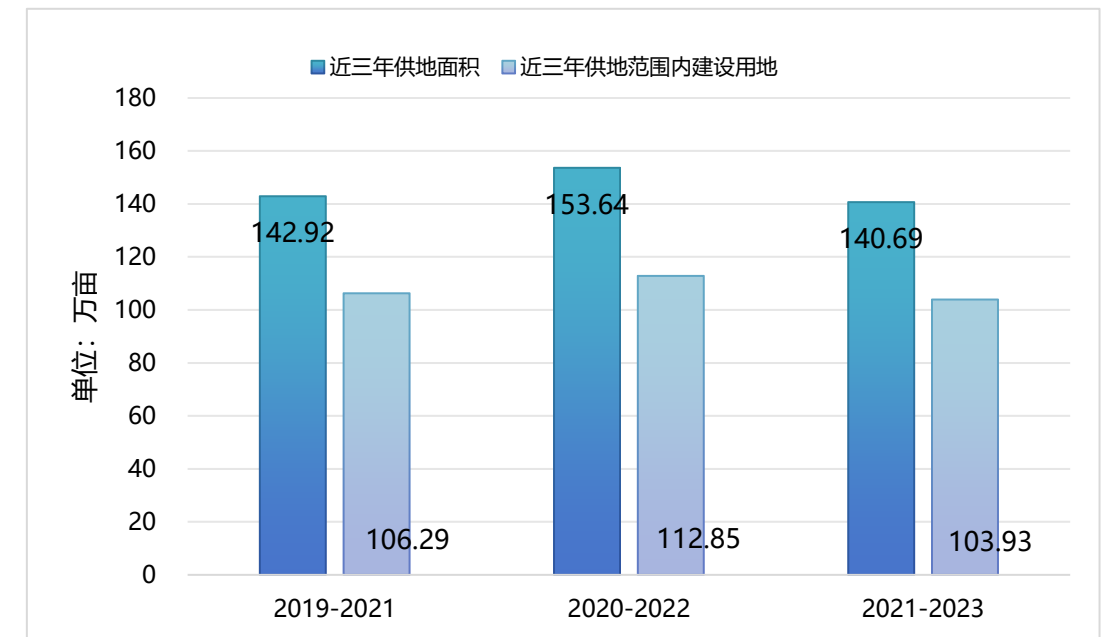


4. Overlay analysis method

Overlay spatial data of two different geographical features in the same region and perform set operations.



Combine land management information data with land use change survey data, and conduct statistical analysis of specific indicators.



Changes in the construction of land already supplied in Zhejiang in the past 3 years

Adopt a series of research methods: Statistical analysis + Spatial analysis



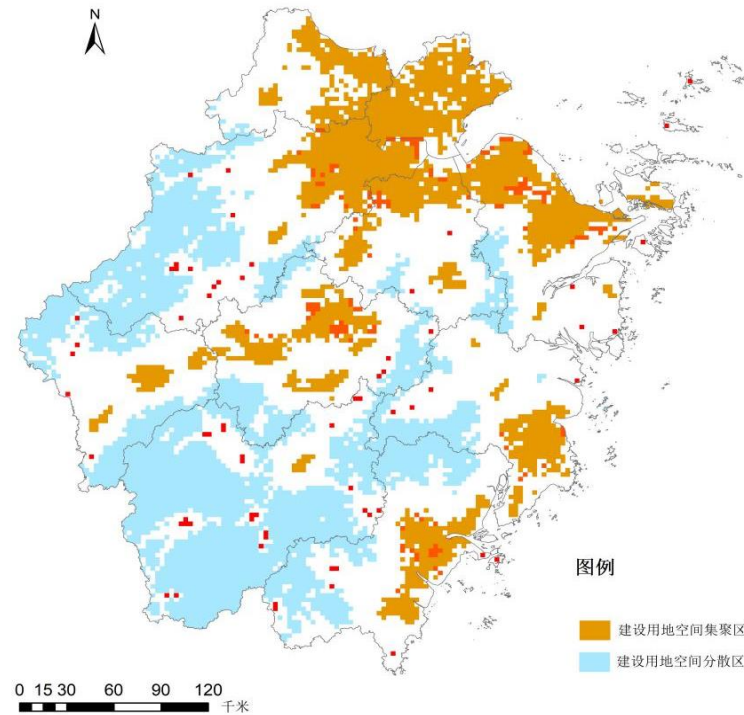
UNGEONOW 2024
首届联合国地信周



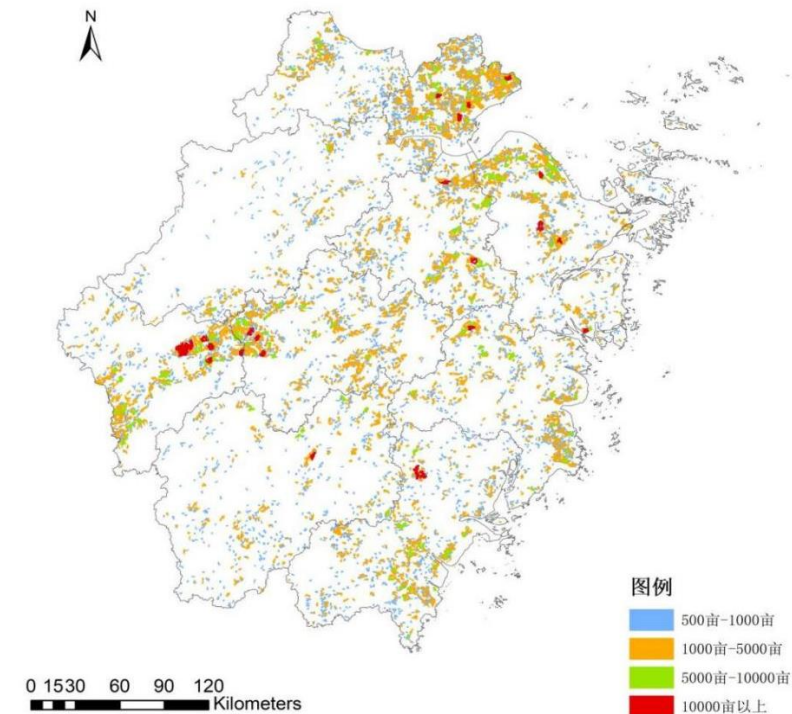
5. Spatial analysis method

- The construction land in Zhejiang is clustered along the Hangzhou Bay, Wentai, and Jinyi areas.

- In 2023, the contiguous farmland of over 10000 acres in Zhejiang has increased compared to 2022.



Self correlation analysis chart of construction land space in 2023



Distribution map of concentrated contiguous farmland in 2023

Establish a set of iterative update mechanism: Continuous improvement + Efficiency improvement



UNGEONOW 2024
首届联合国地信周



Focus more on the development, utilization, protection and management of national resources, highlight key and hot work, and explore the construction of the Territorial Space High-quality Development Index.

The comprehensive evaluation index system of "five-dimensional and three-level" in 2023

Resource
endowment

Safety bottom
line

Economical
and intensive

Spatial
quality

Management
level

2023

The comprehensive evaluation index system of "four-dimensional and three-level" in 2022

Maintain the rights
and interests of
resource assets

Promote green
and low-carbon
development

Optimize the spatial
pattern of the
national territory

Strictly adhere to
the bottom line of
resource security

2022

The comprehensive evaluation index system of "five-dimensional and three-level" in 2021

Endowment

Protection

Utilization

Quality

Management

2021

Establish a set of iterative update mechanism: Continuous improvement + Efficiency improvement



UNGEONOW 2024
首届联合国地信周



Carry out comprehensive evaluation scenario construction, develop basic data statistical models, and achieve rapid data output.



PART THREE
ACHIEVEMENTS

Research outputs: Data statistics + Comprehensive evaluation + Thematic research



UNGEONOW 2024
首届联合国地信周



Data Statistics Report

Statistics on basic data and key data of Land Use Change Survey.

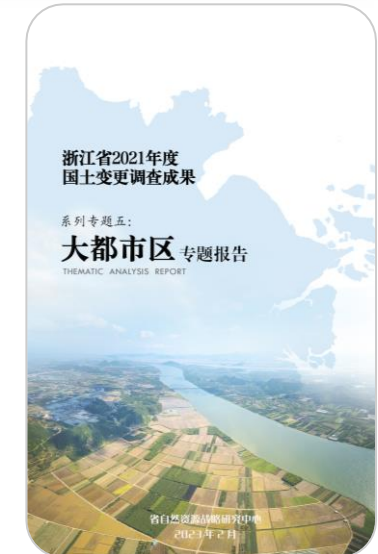
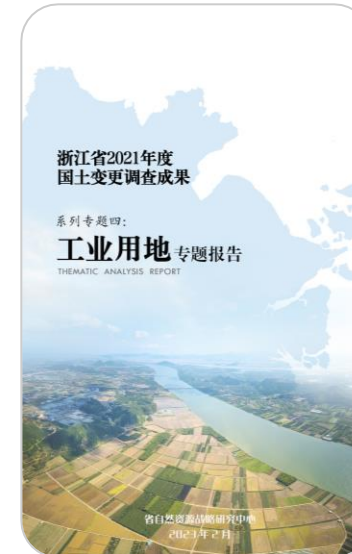
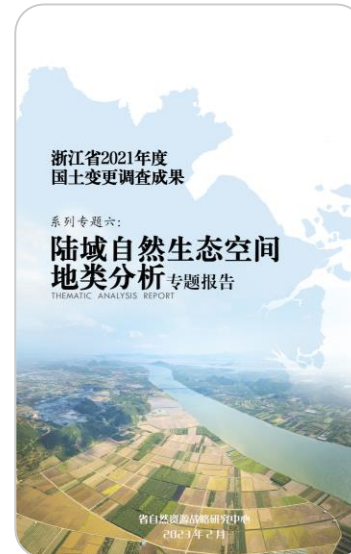
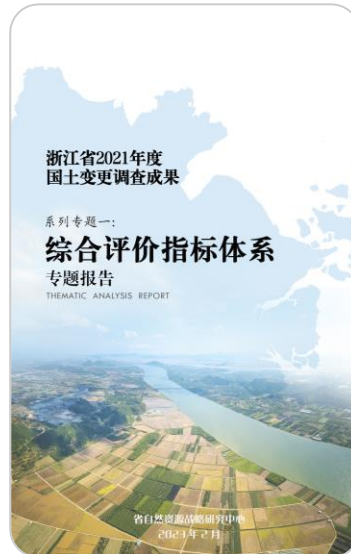
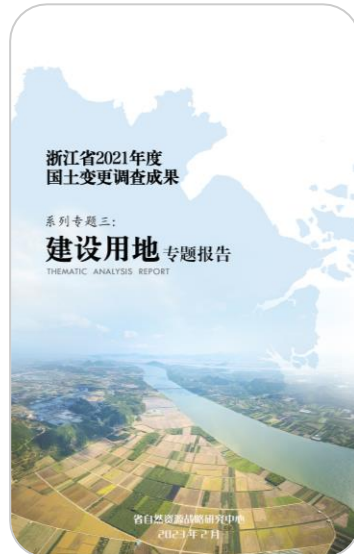
Comprehensive Evaluation Report

At the provincial level, analyze the trends and evolution patterns of changes. At the municipal level, comprehensively evaluate the regional differences in national resources and the effectiveness of relevant policy promotion.



Thematic Research Report

Make up for the lack of in-depth analysis of important regions and key areas in the comprehensive evaluation report.



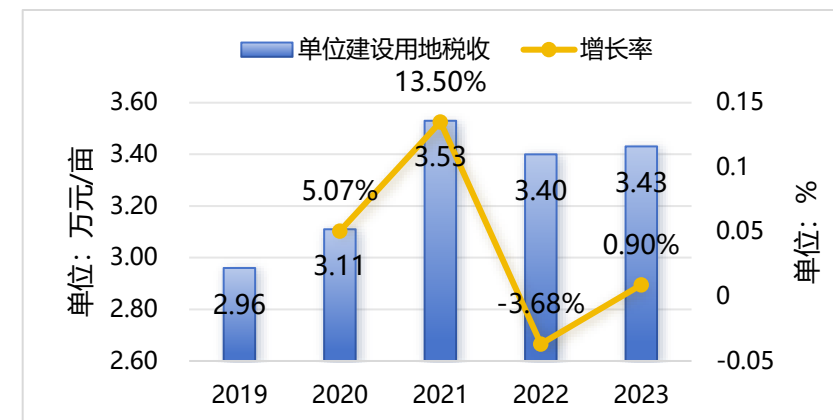
Support the implementation of natural resources management responsibilities



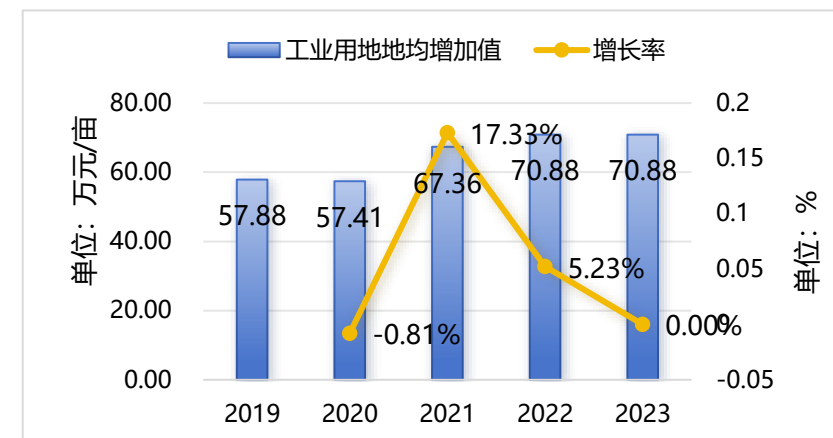
UNGEONOW 2024
首届联合国地信周



- Carry out research on the comprehensive evaluation of land use change survey data
- Transform the land use change survey data into the language of economic and social development
- Promote the improvement of the unified survey, evaluation and monitoring system for natural resources



Tax revenue per unit of construction land in Zhejiang from 2019 to 2023



Average added value per unit of industrial land in Zhejiang from 2019 to 2023

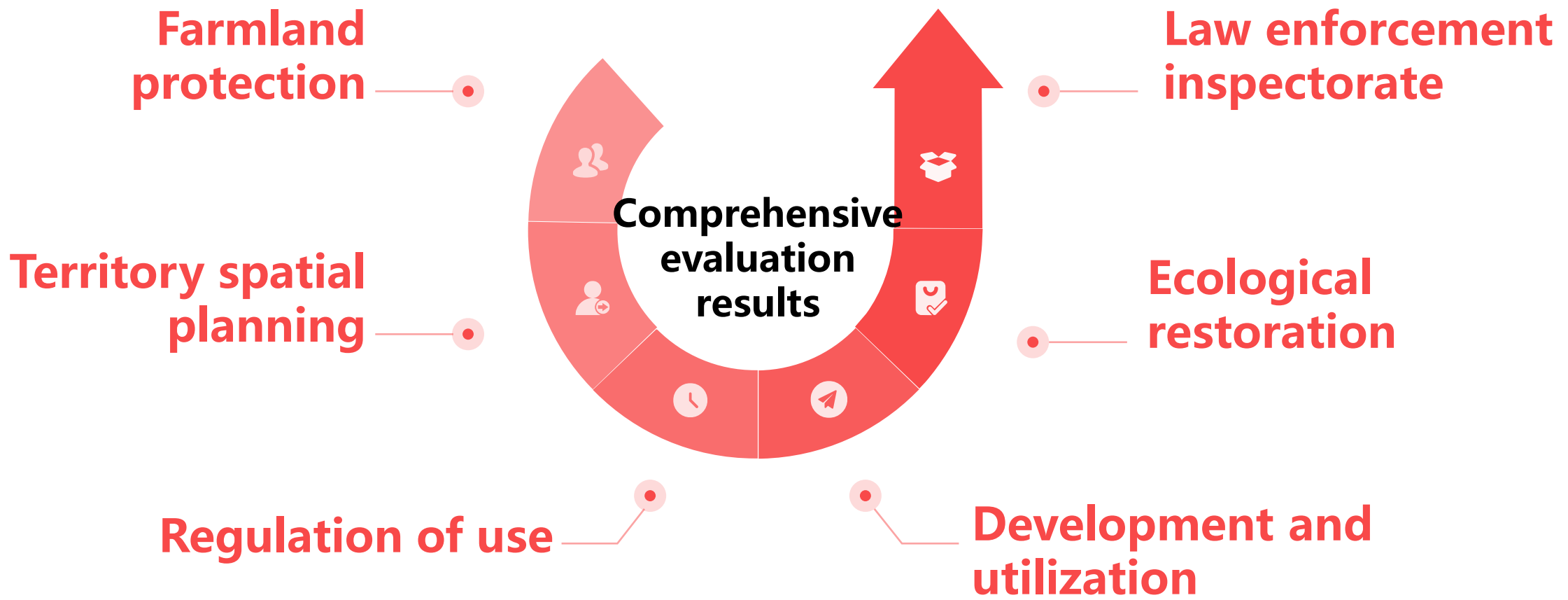
Promote deep collaboration in core business of territorial spatial governance



UNGEONOW 2024
首届联合国地信周



Promote collaborative governance across levels, regions, systems, departments and businesses.

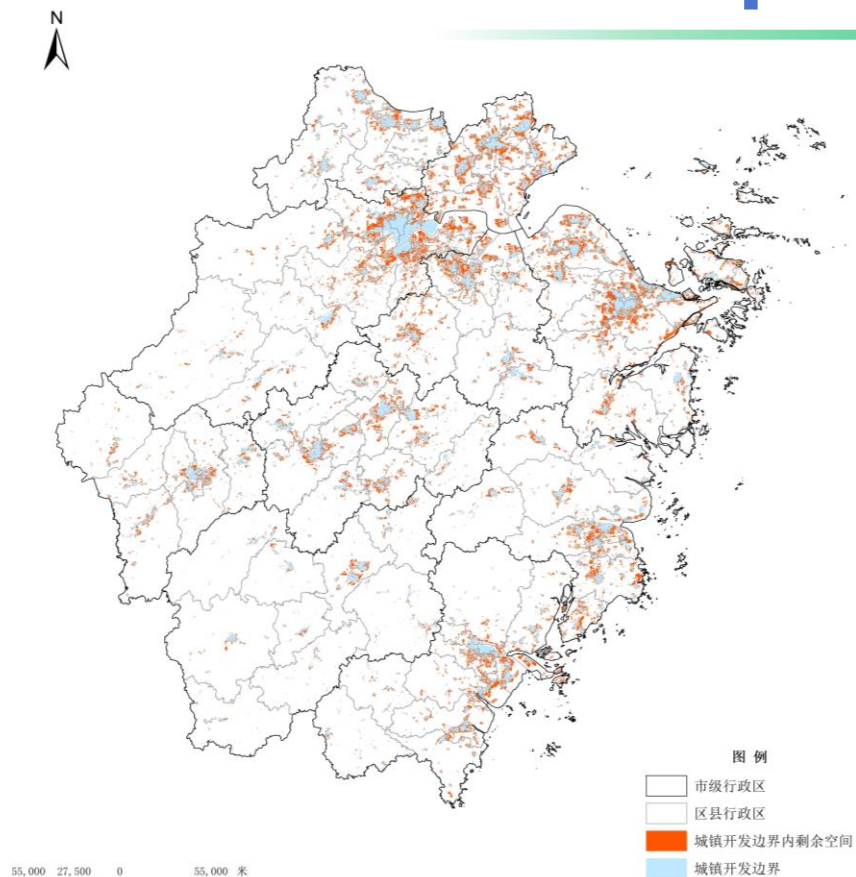


The system of territorial spatial governance

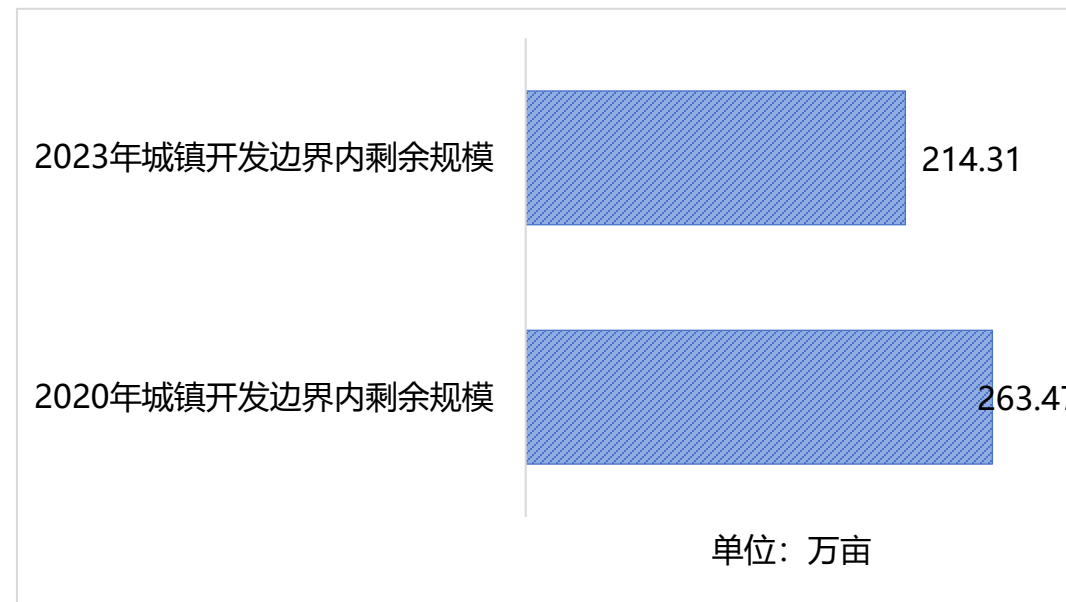
Four main sections + Land use change survey + Spatial
comprehensive evaluation = Closed loop spatial governance



Spatial planning



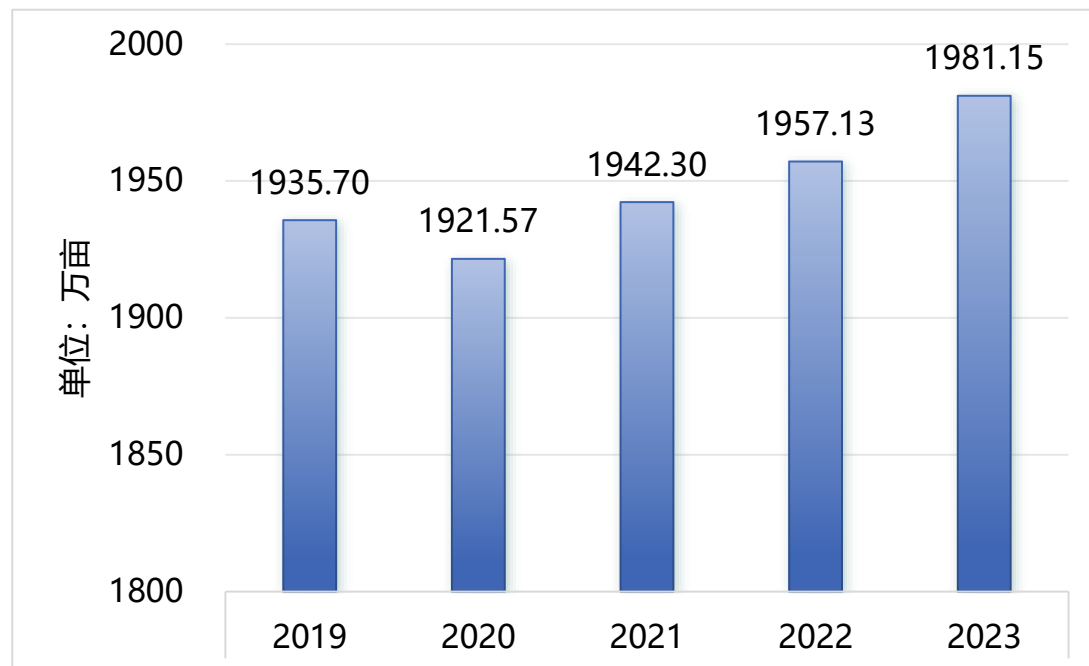
Distribution map of remaining space within the urban development boundaries in 2023



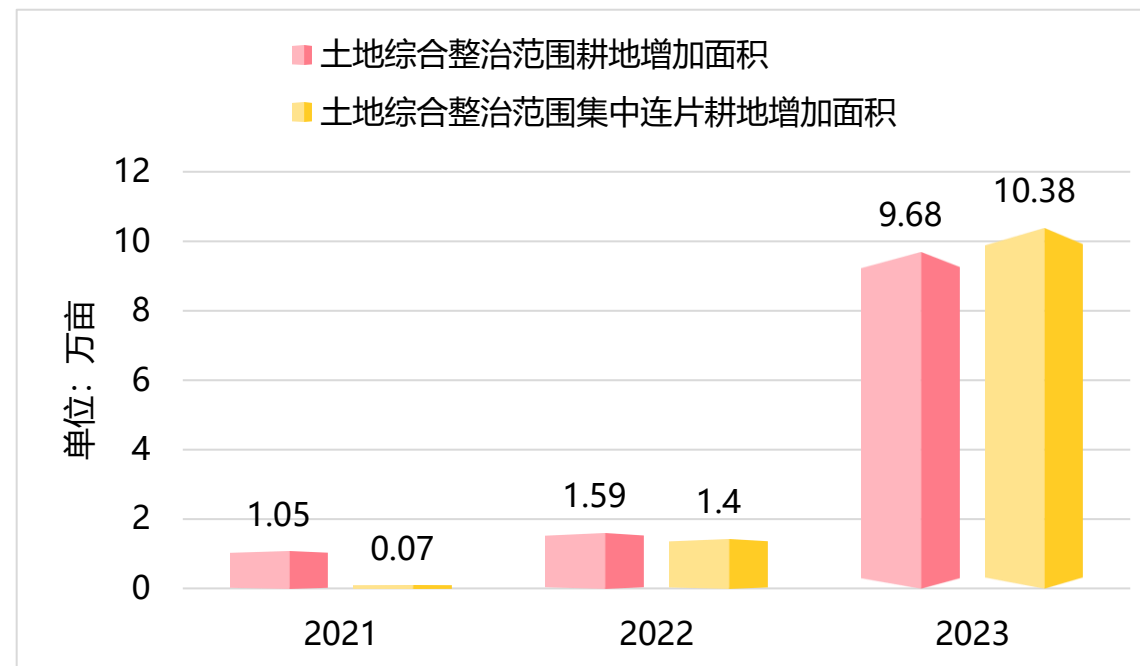
The total and remaining incremental scale of urban development boundaries during the planning period

Spatial protection

The farmland in the province has been increasing year by year.



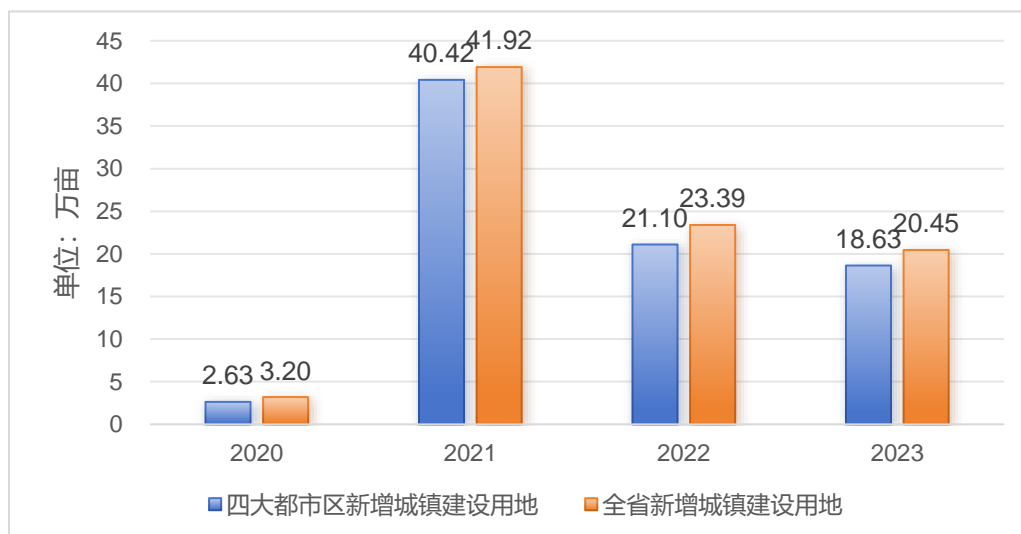
Farmland area in Zhejiang from 2019 to 2023



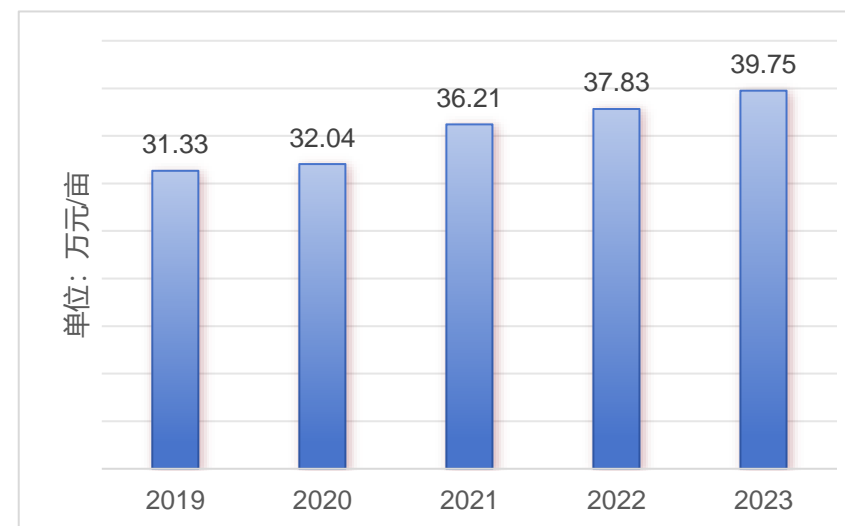
Net increase of farmland within the scope of comprehensive land consolidation from 2021 to 2023

Spatial utilization

Through the analysis of output efficiency and intensive efficiency of land use, we can grasp the level of saving and intensive use of land resources in the province, and provide strong support for the excavation of spatial utilization potential.



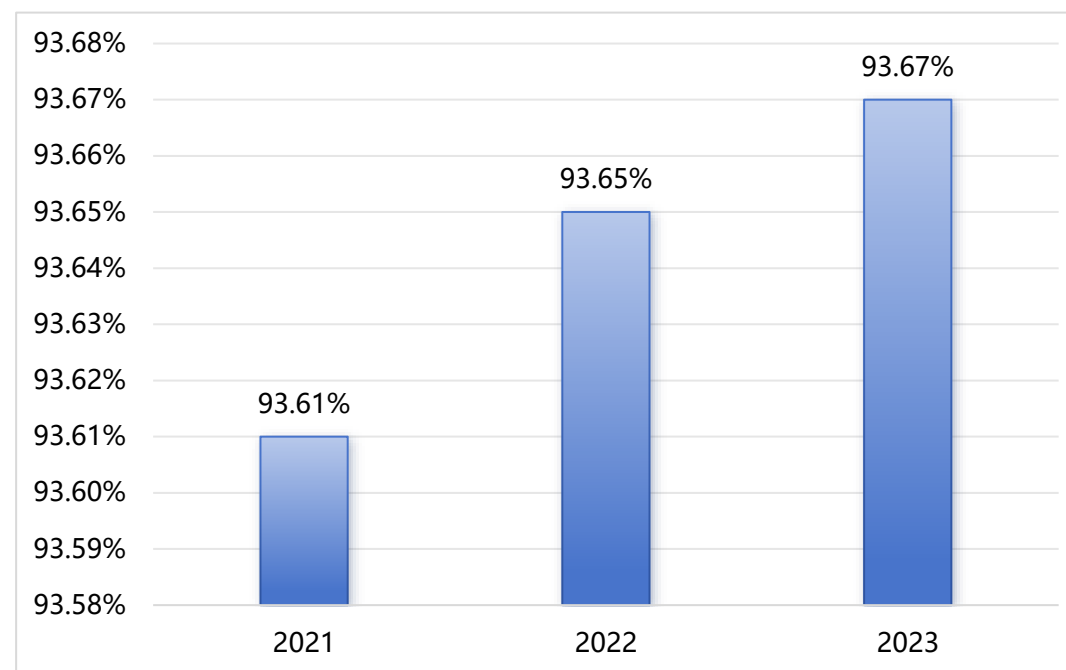
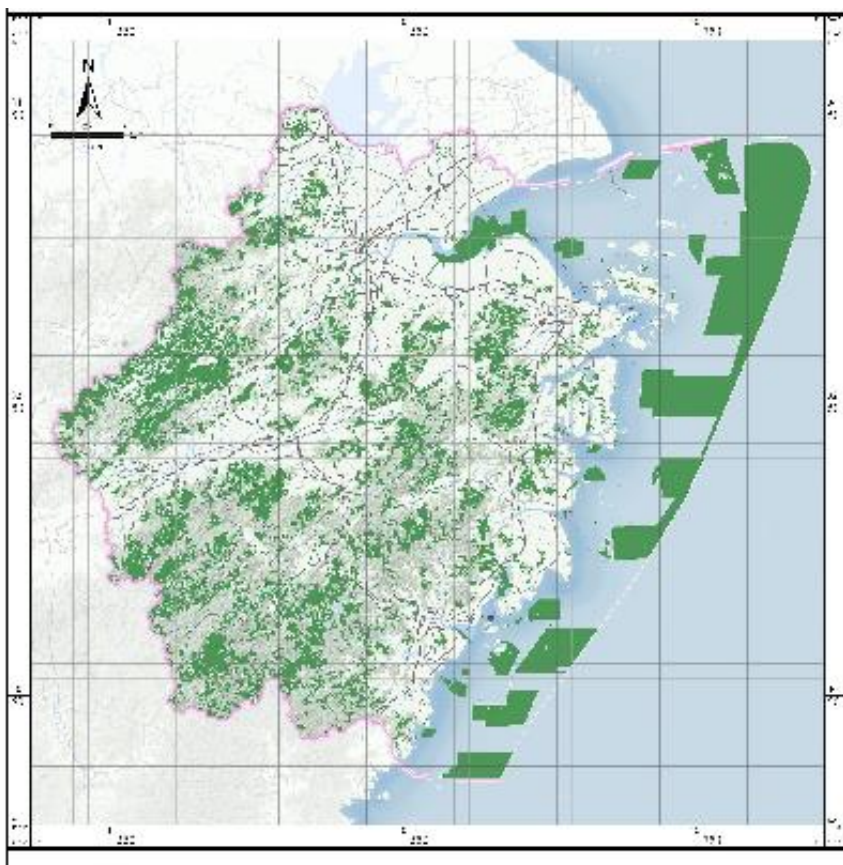
Changes in newly added urban construction land in the four major metropolitan areas from 2021 to 2023



GDP per unit of construction land in Zhejiang from 2019 to 2023

Spatial security

The red line of ecological protection has basically remained stable.



Proportion of ecological land types within
the red line of ecological protection in
Zhejiang from 2021 to 2023



UNGEONOW 2024
首届联合国地信周



THANK YOU