

Gross Ecosystem Product (GEP) Accounting and Applications in China

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GDP

The
World's
Most
Powerful
Formula
and
Why
it Must
Now
Change

'After reading it you'll never be
able to treat GDP seriously again'
SYDNEY MORNING HERALD

“A joint US-China team of researchers have been involved in implementing a concept called Gross Ecosystem Product, in which the value of the natural world is quantified in dollars and cents, so that the world knows what it is losing each time something like a forest or a wetland is cleared to make way for industrial activity.”

– *GDP: The World's Most Powerful Formula and Why It Must Now Change*, by Ehsan Masood

Growing international recognition for GEP



Special Report FT Business School Insights

The next focus is integrating the biosphere of living systems. Progress is under way. The EU taxonomy for sustainable activities, the Chinese [gross ecosystem product](#) accounting system for nature, the Kunming-Montreal Global Biodiversity Framework and the High Seas Treaty adopted in March show how biological systems are entering the political mainstream. These initiatives are generating incentives for corporations in the food, transport and energy sectors as well as banks, investors, insurance companies and credit rating agencies.

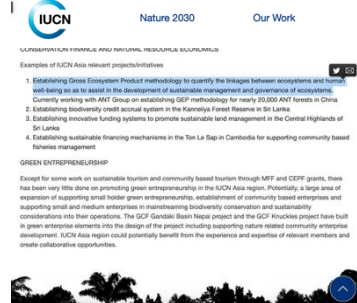


MoFs might consider using alternative measures to GDP to drive policy making and planning, as many environmentally destructive activities contribute positively to GDP,⁹⁹⁹ and its use can create perverse incentives. Alternatives include Bhutan's Gross National Happiness (GNH) Index,⁹⁹⁸ OECD's Better Life Index,¹⁰⁰ IUCN's [Gross Ecosystem Product](#),¹⁰⁵ the Genuine Progress Indicator,¹⁰⁶ the Sustainable Development



Managing natural resources scientifically can help improve global biodiversity governance. Here's how

To halt and reverse global biodiversity loss, we need to value nature: ensuring that governments and businesses comprehensively recognize nature's value in economic decision-making means recognizing the many values of nature and biodiversity using economic, socio-cultural and biophysical indicators. One such option is through expanding the use of natural capital and ecosystem service valuation in decision-making. There are already mechanisms to do this, like using [Inclusive Wealth](#) or [gross ecosystem product](#) to measure economic success.



Examples of IUCN Asia relevant projects/initiatives

1. Establishing Gross Ecosystem Product methodology to quantify the linkages between ecosystems and human well-being so as to assist in the development of sustainable management and governance of ecosystems.
2. Currently working with ADB Group on establishing GEP methodologies for nearly 20,000 AWD forests in China
3. Establishing biodiversity credit accrual system in the Katalovya Forest Reserve in Sri Lanka
4. Establishing innovative funding systems to promote sustainable land management in the Central Highlands of Sri Lanka
5. Establishing sustainable financing mechanisms in the Ton Le Sap in Cambodia for supporting community based fisheries management

GREEN ENTREPRENEURSHIP

Except for some work on sustainable tourism and community based tourism through MFF and GEPF grants, there has been very little done on promoting green entrepreneurship in the IUCN Asia region. Potentially, a large area of expansion of supporting small holder green entrepreneurship, establishment of community based enterprises and supporting small and medium enterprises in mainstreaming biodiversity conservation and sustainability considerations into their operations. The GCF Gaudavai Basin Hesi project and the GCF Kroule project have both in green enterprise elements into the design of the project including supporting nature related community enterprise development. IUCN Asia region could potentially benefit from the experience and expertise of relevant members and create collaborative opportunities.

France



Though the green GDP project was cancelled in 2009, China promised in 2013 to abandon a 'growth at all costs' model and said GDP would no longer be the sole criteria on which officials would be assessed.

Some provinces have recently resumed efforts to create new indicators reflecting the [environmental](#) costs of development, with central China's Hubei using a pilot '[gross ecosystem product](#)' that can be applied to individual districts, rivers or development projects.

China is home to 16 of the 20 global regions most vulnerable to [climate change](#), data showed on Monday.



Ireland



He saw beginnings in [China's Gross Ecosystem Product](#) and New Zealand's Living Standards Framework. But he urges transformative global change in attitudes to nature on a scale to match the economic Marshall Plan that followed the last world war.

Pakistan

New metrics can help a green recovery

Without transformative change in how economic growth and well-being are measured, Pakistan risks blinding itself to the fact that it is growing ever poorer and more vulnerable to future shocks from climate change, recessions and pandemics. Indices such as the [Gross Ecosystem Product](#)⁴⁹ and the [Living Standards Framework](#)⁴⁹, being piloted in China and New Zealand respectively, have shown great promise in tracking and enhancing happiness and well-being across

European Union



The estimated EU28 [gross ecosystem product](#) presented for reference year 2019 has two components⁽²⁰⁾. The first one are the seven ecosystem services accounts produced by the INCA project for reference year 2012 for the whole of EU28 as shown in earlier pages. These values were converted from 2012 prices to 2019 prices using the GDP deflator^(**). In addition, further adjustments were made for the outdoor recreation and carbon sequestration ecosystem services. The scope of outdoor recreation in the estimate includes all recreation (i.e. not limited to the most valuable natural sites of the EU located within 4 km from human settlements) to give a better approximation of the [gross ecosystem product](#). Carbon sequestration in the

India



'Focus on Gross Ecosystem Product too'

The researchers also recommended that ecological units be identified at the panchayat level for areas that require conservation under Section 5(1) of the Environment Protection Act 1986.

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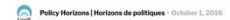
By Bosky Khanna
Express News Service

BENGALURU: Gross Domestic Product (GDP) must not be the sole indicator of well-being, and the government must also strive to give importance to Gross Ecosystem Product (GEP) to acknowledge and account for nature's contribution to society and the well-being of people. This was one of the key recommendations submitted to the government after the conclusion of the lake symposium

Canada



Canada 2030: Scan of Emerging Issues – Sustainability



The development of social and environmental tools and metrics are contributing to a redefinition of prosperity. Social life-cycle assessment tools^(link is external) can currently be used to measure and evaluate the social impact of goods, services and policies on different stakeholders, including employees, local communities, society, consumers and all the actors across the value chain^(link is external). At the same time, a "sharing economy" is emerging that may transform our consumption-oriented society. For decades, GDP has been the measure of wellbeing, but emerging metrics such as the [Gross Ecosystem Product](#)^(link is external) and [Genuine Progress Indicators](#)^(link is external) are being developed that may ensure a more equitable balance between the three dimensions of sustainability: economy, society and environment. Anemic economic growth could also put pressure on governments to adopt new metrics that better reflect progress and prosperity compared to GDP alone.

Why do we need GEP?

- » **Global GDP more than doubled between 1990 and 2020**, but the **world's natural capital stocks** (e.g., forests, grasslands, soils, wetlands, coral reefs) and the flows of ecosystem services they provide **continued to decline**.

“Absurdly, GDP rises when there is overfishing, cutting of forests or burning of fossil fuels. We are destroying nature, but we count it as an increase in wealth.”

- Antonio Guterres, UN Secretary General



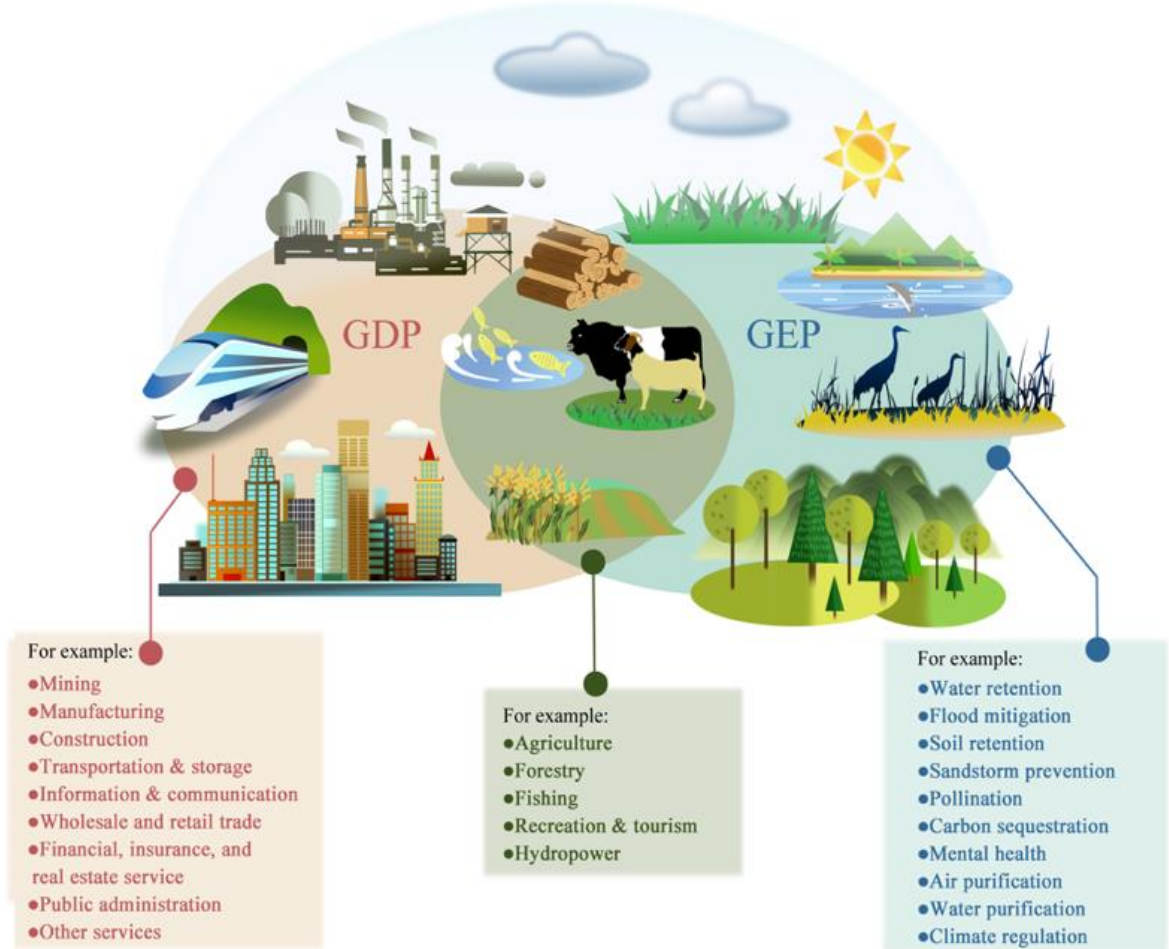


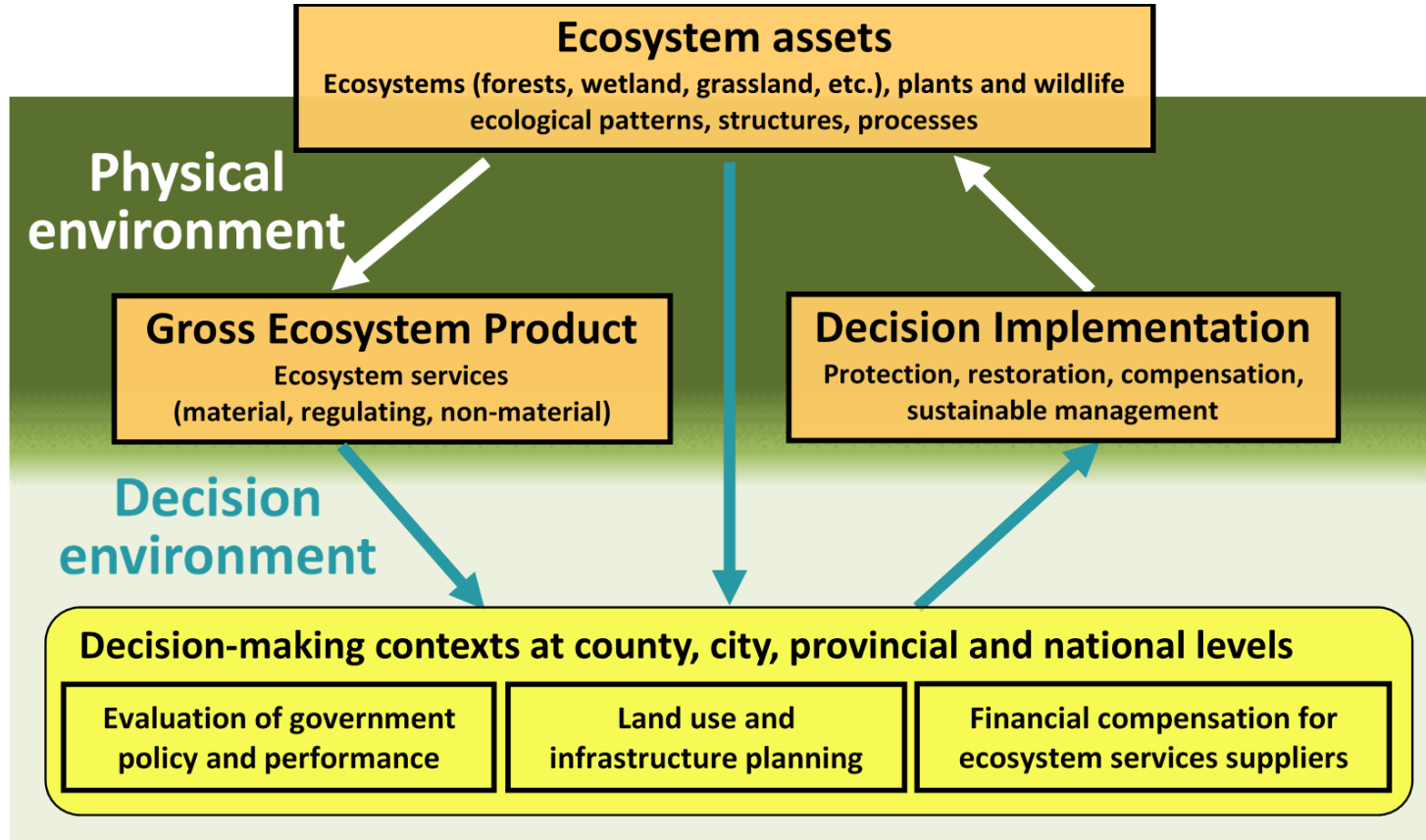
But why?

- » Most of nature's economic contributions are like *infrared radiation*: although felt by people, they **lie outside the “visible spectrum” of existing metrics and markets.**
- » **GEP** is meant to bring **economic visibility to this “infravalue”** so its sources can be sustained and enhanced.
- » After all, **that which cannot be measured cannot be managed.**

Gross Ecosystem Product (GEP)

The aggregate value of final ecosystem goods and services produced within a given area, such as a country, province, or city.









GEP for Natural Capital-Based Development





GEP for Natural Capital-Based Development

Assessment
(Modelling and Mapping)



Understanding the distributions, conditions, and valuations of ecosystems and how they have changed.

Accounting
(Valuation and Aggregation)



Compiling commensurable monetary values of ecosystem stocks and service flows.

Application
(Policies and Institutions)



Applying natural capital accounts in decision contexts such as finance, land use planning, and policy and project evaluation.

**GEP cover-page
paper in *Ambio***
Zheng et al. (2023)

Shenzhen

2019



2004



1999

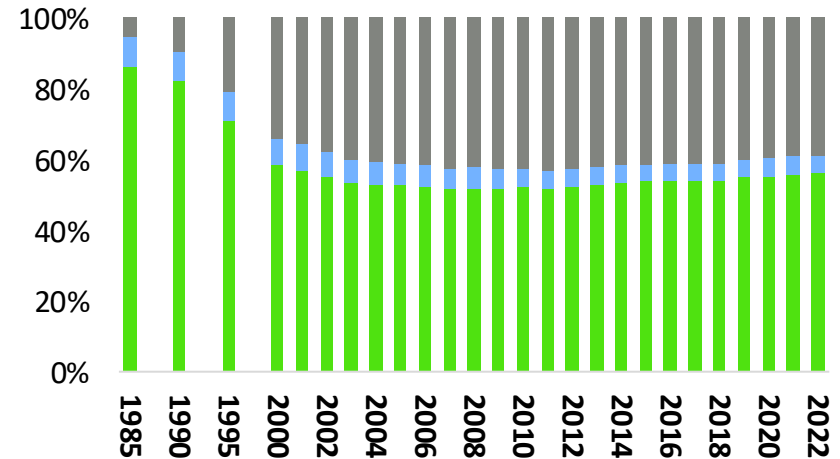
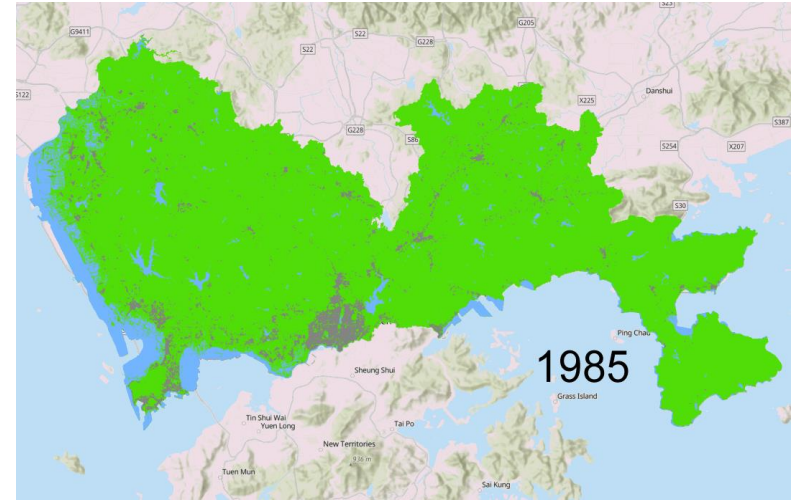


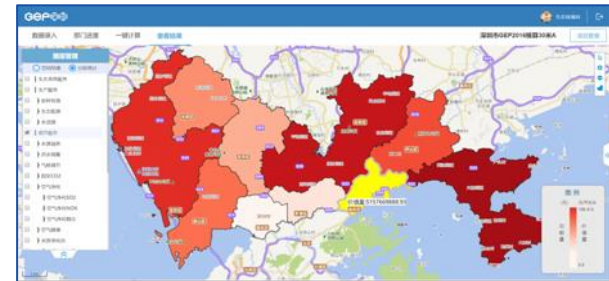
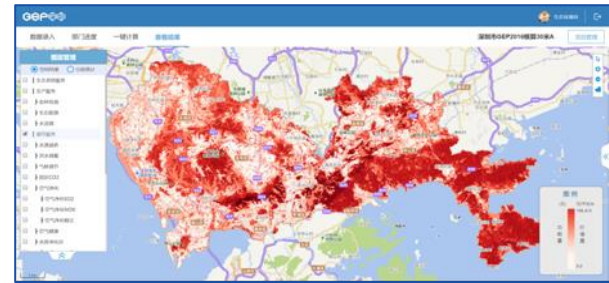
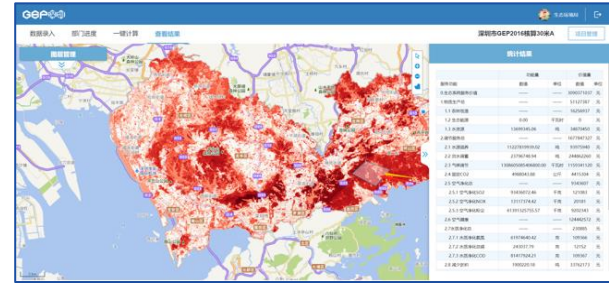
Approximately 22 million residents in 2,050 km² (1/10th the size of the Minneapolis–Saint Paul metropolitan area)

Vegetation

Water

Built-up & Bare





Realizing the valuing of regulating services through GEP

• Home / China / Environment

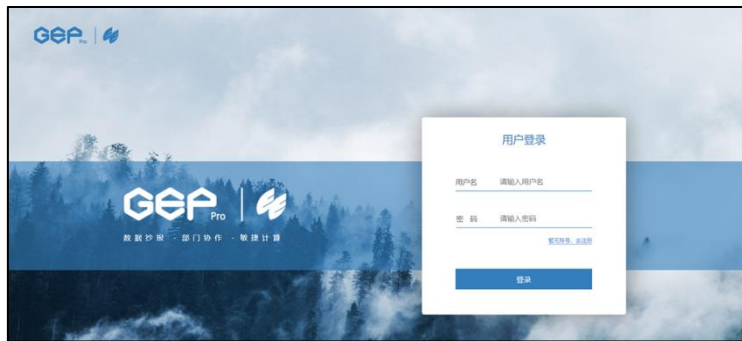
Beijing wants to measure the values of ecosystems

By Du Juan | China Daily | Updated: 2023-10-24 09:36



- The city of Beijing allocated **~115 million USD** for eco-compensation based on **GEP** in 2023.
- For 2024, this increased to **~285 million USD**.
- The amount **will continue to increase** in 2025 and 2026.

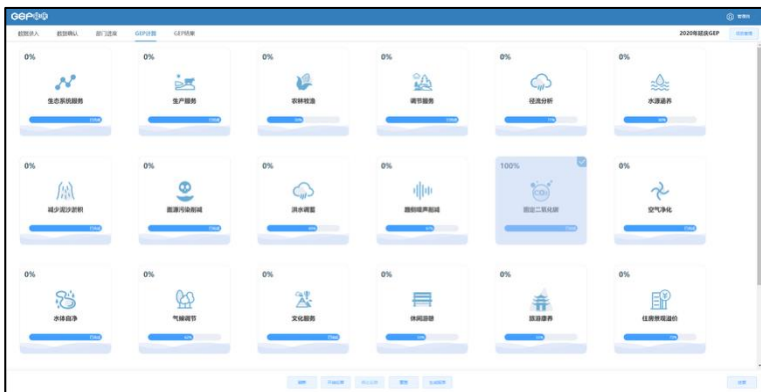
Beijing's GEP Accounting Platform



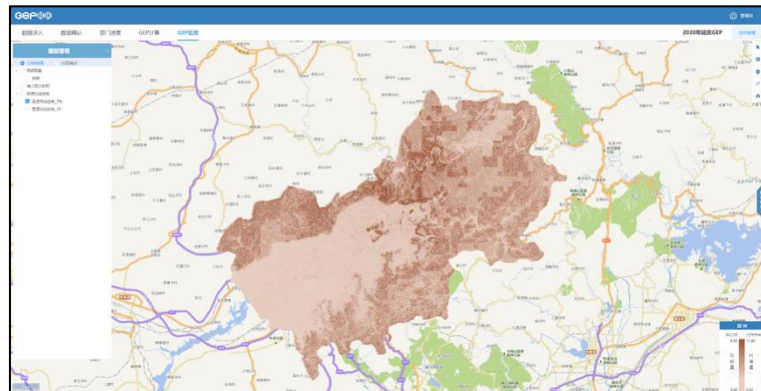
报表填报



一键计算



空间分析





数据录入

数据确认

部门进度

GEP计算

GEP结果

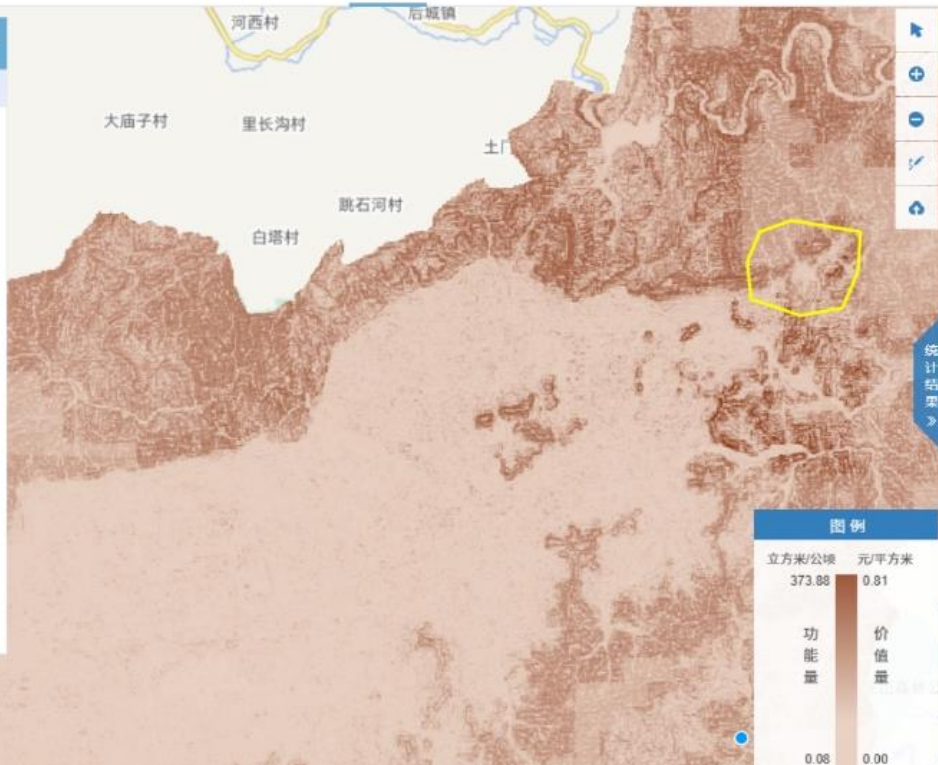
延庆区演示

项目管理

图层管理

空间结果 分区统计

- ☐ 生态产品总值
 - ☐ 物质供给
 - ☐ 农林牧渔
 - ☐ 调节服务
 - ☐ 水源涵养
 - ☒ 减少泥沙淤积
 - ☐ 洪水调蓄
 - ☐ 空气净化
 - ☐ 空气净化_二氧化硫
 - ☐ 空气净化_氮氧化物
 - ☐ 空气净化_工业粉尘
 - ☐ 水质净化
 - ☐ 水体自净_化学需氧量
 - ☐ 水体自净_氨氮
 - ☐ 水体自净_总磷
 - ☐ 局部气候调节
 - ☐ 噪声削减



统计结果

服务功能	功能量		价值量	
	数值	单位	数值	单位
生态产品总值	--	--	18730.824	万元
物质供给	--	--	695.981	万元
农林牧渔	--	--	695.981	万元
调节服务	--	--	18034.843	万元
水源涵养	9722504.867	立方米	6913.382	万元
减少泥沙淤积	148273.137	平方米	319.380	万元
洪水调蓄	0.000	立方米	0.000	万元
空气净化	--	--	183.165	万元
空气净化_二氧化硫	62.439	吨	78.873	万元
空气净化_氮氧化物	39.880	吨	50.376	万元
空气净化_工业粉尘	179.718	吨	53.915	万元
水质净化	--	--	0.000	万元
水体自净_化学需氧量	0.000	吨	0.000	万元
水体自净_氨氮	0.000	吨	0.000	万元