UNGEONOW 2025

Developing and Providing Global Geo-spatial Public Goods

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Oct. 24, 2025, Deqing

Contents

Growing importance of geospatial information

1

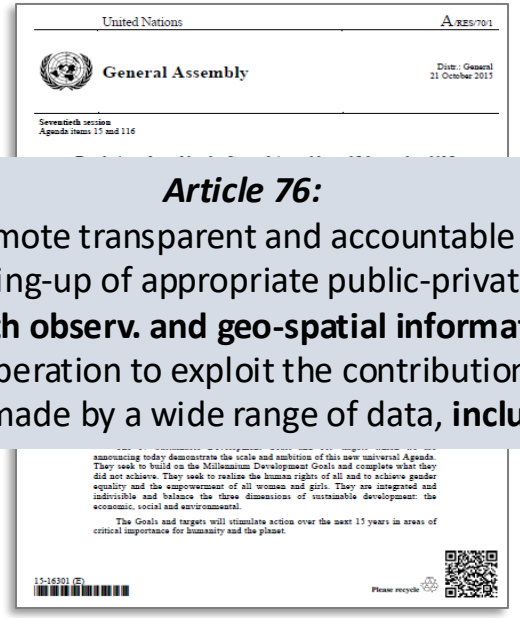
Global geospatial public goods

Collaboration with United Nations

Summary

Geo-spatial Information for SDGs

In order to successfully implement the 2030 SDGs, United Nations called its member nations and international communities to conduct a systematic follow-up and review of progress towards SDGs,。


United Nations A/RES/70/1

General Assembly

Distr.: General 21 October 2015

Seventieth session
Agenda items 15 and 116

announcing today demonstrate the scale and ambition of this new universal Agenda. They seek to build on the Millennium Development Goals and complete what they did not achieve. They seek to realize the human rights of all and to achieve gender equality and the empowerment of all women and girls. They are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental.

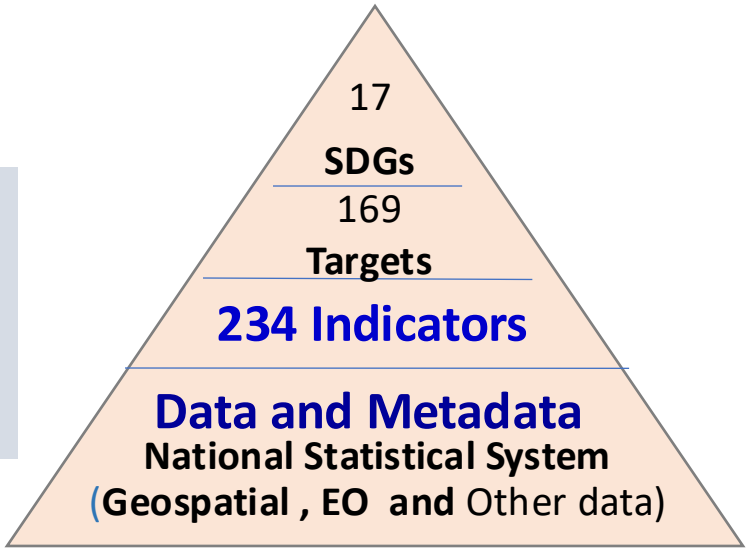
The Goals and targets will stimulate action over the next 15 years in areas of critical importance for humanity and the planet.

15-16301 (E)

Please recycle

Article 76:

promote transparent and accountable scaling-up of appropriate public-private **Earth observ. and geo-spatial information**, cooperation to exploit the contribution to be made by a wide range of data, **including**



Harnessing geospatial information for implementing SDGs is becoming a MUST

A Side Event in UN High-level Political Forum in New York

On 14th July, the first afternoon of UN High-level Political Forum on Sustainable Development,a side event titled "Advancing Sustainable Development Through China's 'Two Mountains' Concept" was held

Speakers

- Mr. Li Junhua, UN Under-Secretary-General
- H.E. Fu Cong, China ambassador to UN
- Zhang Bing: **China's Spatial Planning Reform** and Sustainable Development
- Chen Jun: **Leveraging GI Achieve UN 2030 Sustainable Development Goals**
- Wang Zongming: Huzhou City's Implementation Experience

High-quality Sustainable Development

↑

Digital Transformation (Leveraging Geospatial Information)

Very welcomed and high expectations expressed

High expectations from World Bank

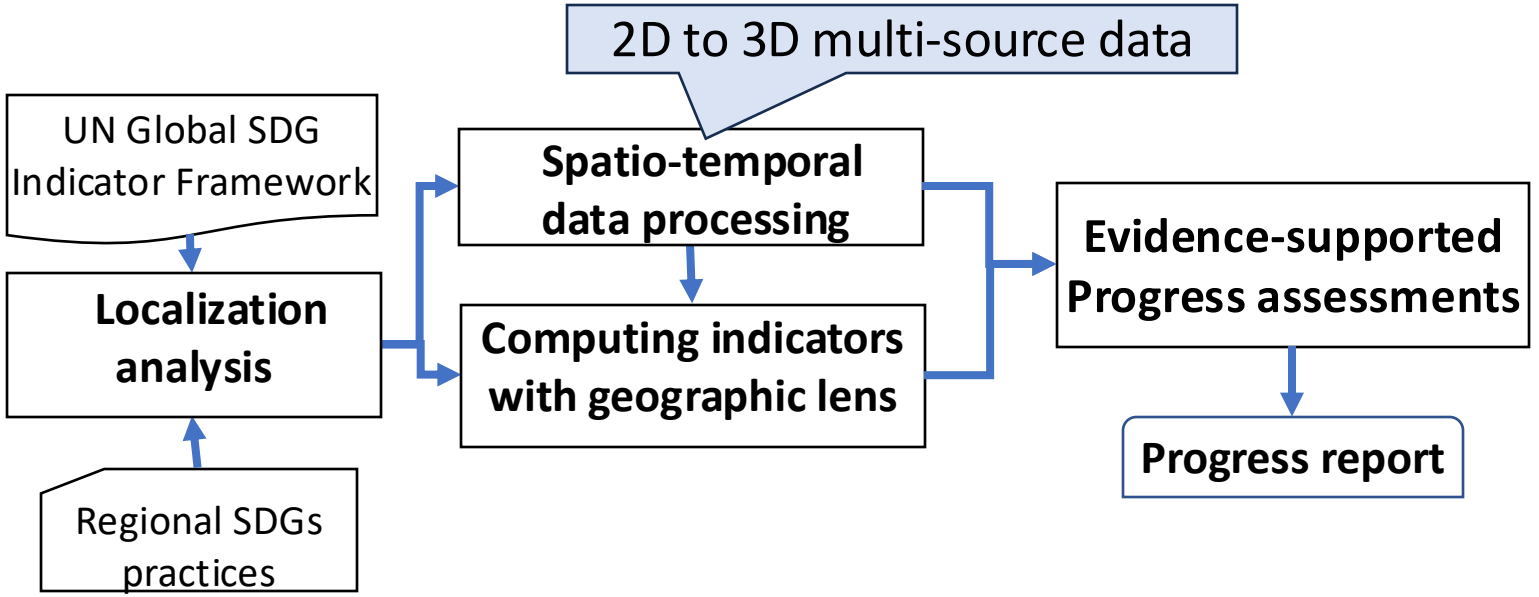
On the next day, World Bank organized 4 mtgs with us. Many senior experts expressed their appreciations about China's achievements in territorial spatial governance and geospatial information.

- The World Bank dispatched 17 experts to China to study ecological governance and expressed great satisfaction with the outcomes.
- How did China manage **to reduce the impoverished population by 800 million within just two decades and double its forest coverage rate at the same time**?

A critical question: how to replicate and apply?

A Good practice for Local SDG monitoring

Our team developed an indicator-aligned, data-driven and evidence-supported methodology with a geospatial perspective, and implemented in Deqing county, then Huzhou city, China.



Deqing's Progress report

Deqing County

English version- 80 pages

Chinese version- 70 pages

A progress report was written in both English and Chinese in 2018.

Approach briefing

Assessment of each Single SDG

SDGs Cluster analysis

Directory

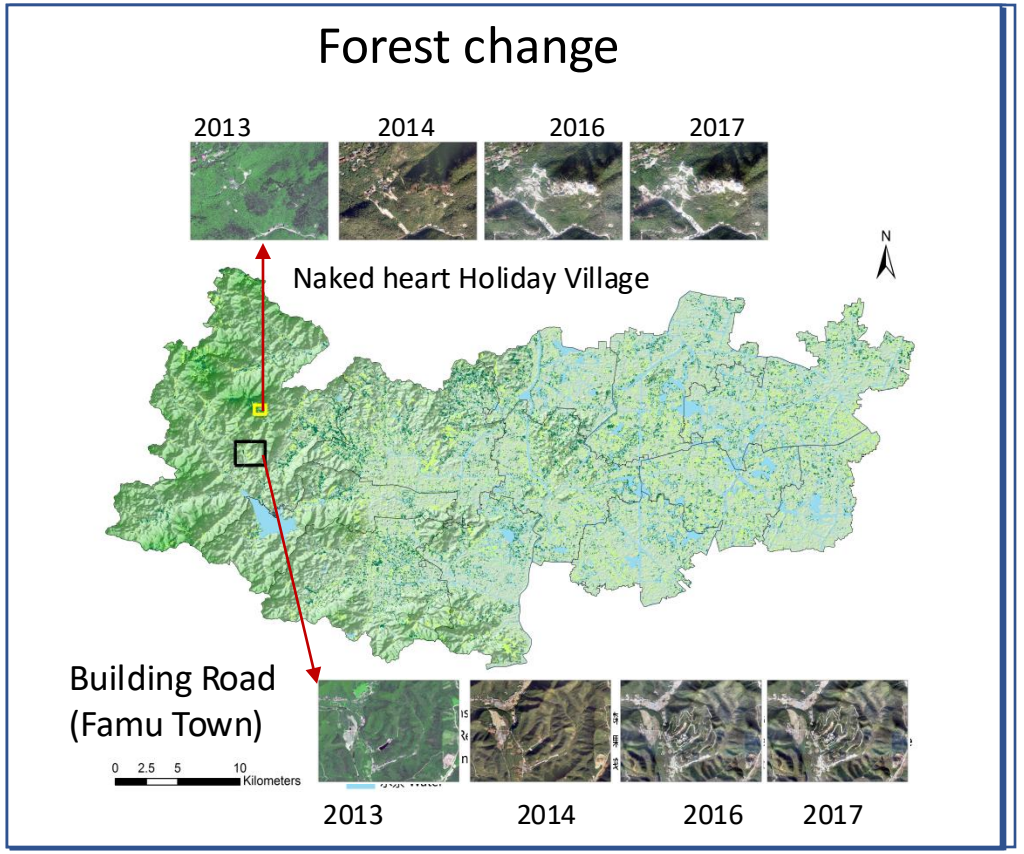
Two questions answered

(1) How to conduct a comprehensive monitoring of progress towards 2030 SDGs by integrating statis-geo data?

(2) How far is Deqing county from 2030 SDGs ?

Indicators Measured with Geospatial Data

Indicator	Contents
1.4.1	population Proportion living in households with access to basic services
2.4.1	Proportion of agricult. area under productive/ sustainable agriculture
3.8.1	Coverage of essential health services
6.3.2	Proportion of bodies of water with good ambient water quality
6.6.1	Change in the extent of water-related ecosystems over time
9.1.1	Proportion of rural population living within 2 km of an all-season road
11.2.1	Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
11.3.1	Ratio of land consumption rate to population growth rate
11.7.1	Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities
15.1.1	Forest area as a proportion of total land area
15.1.2	Proportion of important sites for terrestrial and freshwater biodiversity covered by protected areas, by ecosystem type
15.2.1	Proportion of forest change
15.3.1	Proportion of land that is degraded over total land area
15.4.1	protected area coverage of import. sites for mountain biodiversity



Based on Deqing's good practices, more reliable geospatial data and terrestrial-related indicators are used for measuring the progress of SDGs in the City of Huzhou

Generating Geospatial Public Goods

Nowadays, many developing countries are facing serious data challenges, such as lacking of reliable geospatial data, technology, as well as capacity building.

Data Challenges

- Incomplete data coverage
- Poor currency of information
- Severe lack of knowledge
- Critical capacity shortages

- Africa launched its Digital Africa Initiative in 2001, but only around 20% of the continent has 1:50,000 scale map coverage?

An increasing demands of suppling global public goods

Contents

Global Public Goods

Public goods refers to products or services that can be collectively consumed or utilized by the vast majority, including traditional categories towards development, rules, value and security.

Global Public Goods

- Benefit scope extends beyond the borders of a single country
- Evolve from national public goods within the context of globalization
- Exhibit significant differences in decision-making mechanisms, forms of provision, and funding sources

Examples of conventional global public goods

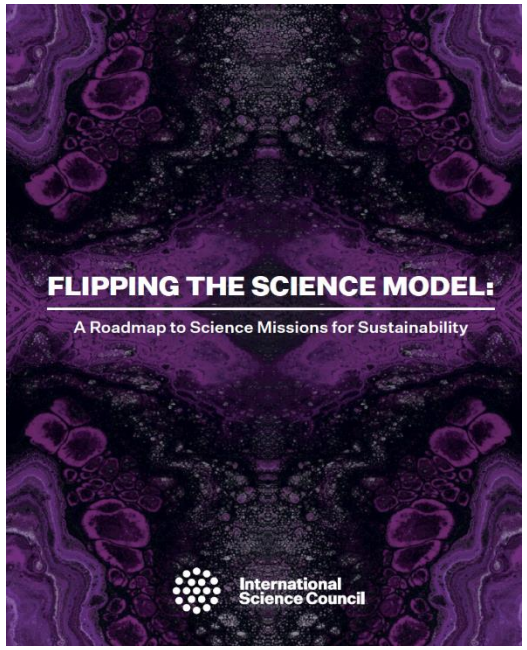
	Highly competitive	Weakly competitive
High Priority	**Public Goods for Security** ▪ Upgrading the Shanghai Cooperation Organization ▪ Building partnership networks	**Public Goods for Development** ▪ Leading the Belt and Road Initiative (BRI) ▪ Enhancing multilateral mechanisms (e.g., G20)
Low Priority	**Public Goods for Value** ▪ Community with a Shared Future for Mankind ▪ New Asian Security Concept	**Public Goods for Rules** ▪ Asian Infrastructure Investment Bank (AIIB) ▪ Asian Financial Cooperation Association (AFCA)

Distinct from national public goods in global coverage or multinational sharing.

ISC---- Science as Public Goods

Despite considerable scientific support to SDGs, it was found that that little progress has been made. Why science was not making a greater and more effective contribution?

From providing "what" to "How"



- making the knowledge actionable, less siloed, and truly engaged with stakeholders
- properly brings communities, policy-makers and science together and across the global divides.

Change the ways of doing science

Global Geospatial Public Goods

Referring to those public goods that can provide GI or GI enabled services, and can be collectively consumed or utilized by the majority of nations or individuals worldwide.

Critical Roles

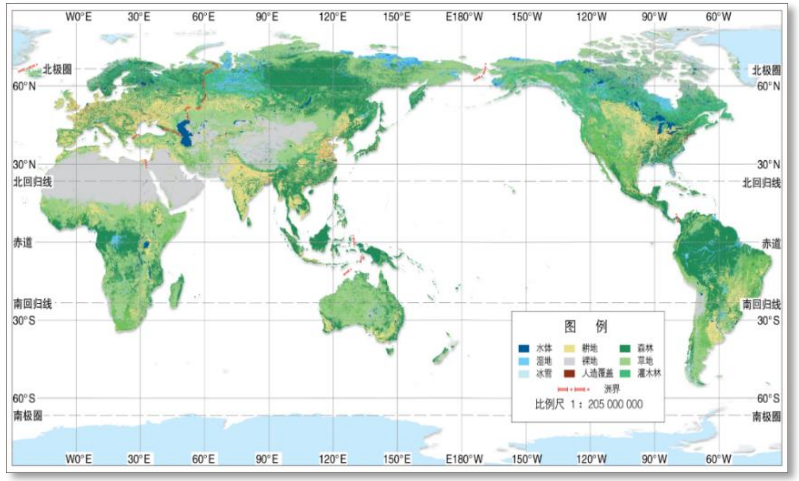
- Reflecting geographic conditions for development
- Revealing spatiotemporal processes of development
- Evaluating spatiotemporal effects of policies
- …

Major Categories

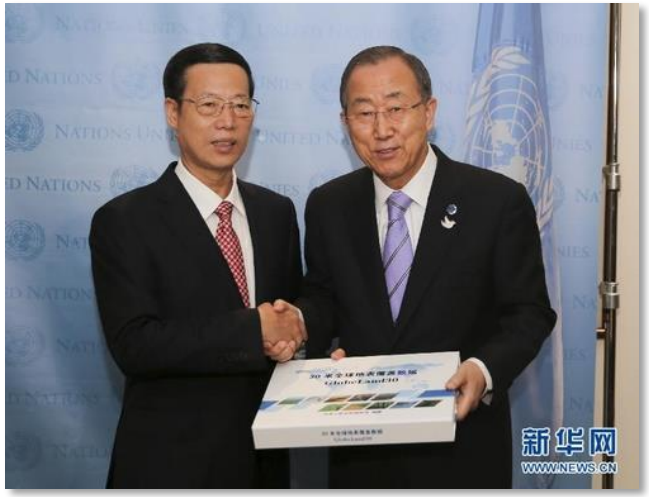
- Data Products
- Technology Products
- Knowledge Products
- Platform Products
- Capacity Building Products
- …

(1) Data Products

One example is GlobeLand30, a 30-m resolution global land cover data product developed by NGCC, and was donated it to the UN by China in 2014,



Ten land cover types, two periods (2010/2020)



In UN Headquarters

联合国新闻

新闻中心 电台 电视与录像 联合国图片 网络直播 媒体核证

亚洲及太平洋 非洲 中东 欧洲 美洲

潘基文欢迎中国向联合国捐赠全球30米地表覆盖数据集

2014年9月22日 在联合国气候变化峰会即将举行之际，以习近平主席特使身份率团与会的中国国务院副总理张高丽今天在纽约联合国总部举行的一个仪式上签署了中国政府向联合国捐赠全球30米地表覆盖数据集（GlobeLand30 Datasets）的联合声明，潘基文秘书长对此表示欢迎。

潘基文秘书长在协议签署仪式上致辞指出，世界领导人将在明天举行的气候峰会上聚在一起，做出采取行动的承诺。这一详尽的数据集将帮助我们更好地理解、监测和管理全球地表和土地使用方面的变化。潘基文就此对中国政府信息共享的举措表示赞赏，称这一慷慨捐赠非常及时。

今年4月，中国科学家自主研制的首套全球30米分辨率地表覆盖遥感制图数据集通过了国家测绘地理信息局组织的专家评审，这项成果不仅标志着中国地球科学研究走向世界，还可为全球科学家分析地球变化、监测地理状况以及进行可持续发展研究提供依据。

联合国气候峰会将于9月23日在纽约召开，中国国务院副总理张高丽将以习近平主席特使身份率团与会，在峰会上宣传中国积极应对气候变化的政策、行动和成效。张高丽还将原则性地阐述中国2020年之后应对气候变化的强化政策，表明中国愿意同世界一道推动气候变化谈判如期达成协议，为保护全球气候作出新的重要贡献的立场。

Widely used worldwide

(2) Knowledge Products

Deqing's good practice provides a data-driven and evidence-supported approach within a geospatial framework about "how can a local community follow-up and review its progress towards SDGs"

02

DEC 2020

Good Practices on SDG Implementation: Inspiring Examples to Drive Change

Wed 02 - Wed 02 Dec 2020

UN DESA hosted the online event "Good Practices on SDG Implementation - Inspiring Examples to Dri

Location
Virtual Event
Related Goals

A total of 16 SDG good practices are showcased, with the case on Page 30

SDGs Local Monitoring - China's Pilot Practice

SNAPSHOT

Geographical coverage: China (Deqing County, Zhejiang Province)
Entity name: National Geomatics Center of China (www.ngcc.cn)
Entity type: Government
Implementation period: March 2017 - Ongoing
Key stakeholders and partnerships: Ministry of Natural Resources of China, Zhejiang Provincial Government, National Bureau of Statistics, Deqing County Government, an international multidisciplinary expert group

Relevant SDGs:

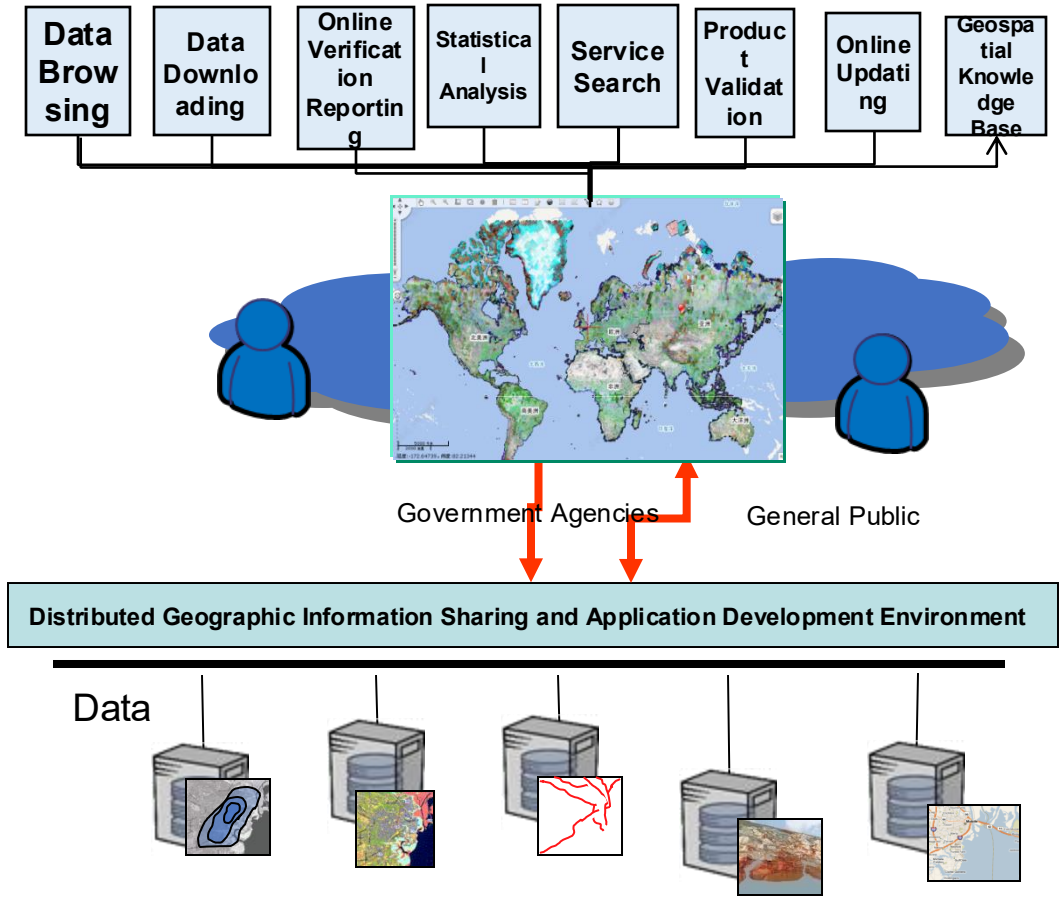
Click to learn more: sustainabledevelopment.un.org/partnership/?p=29982

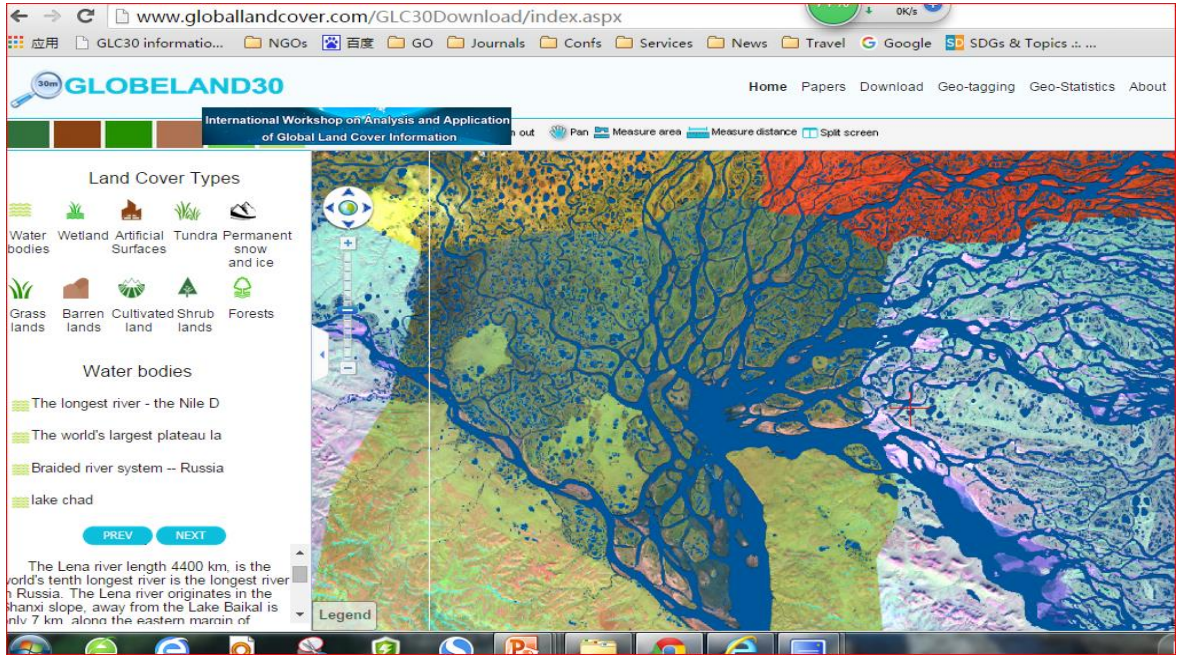
Brief Summary

Recognizing the necessity to conduct indicator-based and data-driven measuring and monitoring of SDGs progress at national, regional and global levels, the United Nations has adopted a Global Indicator Framework (GIF) with a set of 234 indicators developed by the Inter-Agency and Expert Group on Sustainable Development Goals Indicators (IAEG-SDGs). The GIF covers all 17 SDGs and 169 targets for the 2030 Agenda, but its implementation, particular at sub-national levels, requires significant resources and the production of timely and reliable data disaggregated by a number of specific characteristics, including by geographic location. Geospatial data and enabling technologies play an instrumental role since many of the indicators and their associated targets have a geographic context. The success of a comprehensive measurement and assessment depends on the selection of appropriate indicators, the availability and effective integration of reliable statistical and geospatial data, as well as spatial-temporal evidence-supported analysis

(3) Platform products

A Global Land Cover Information Service Platform was developed and providing services including data downloading, verification, and so on.



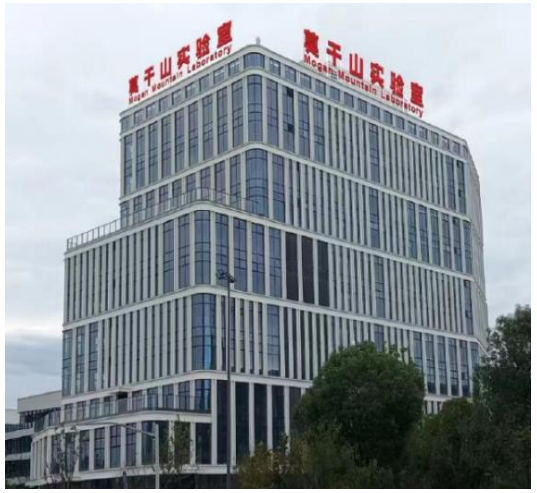


Contents

UN-GGIKC

Recognizing the importance and challenges of global geospatial information, UNDESA set up its UN Global Geospatial Knowledge and Innovation Centre (UN-GGKIC) in Deqing, May 2022.

An overseas office and the first specialized technical centre initiated by the UN Secretariat.

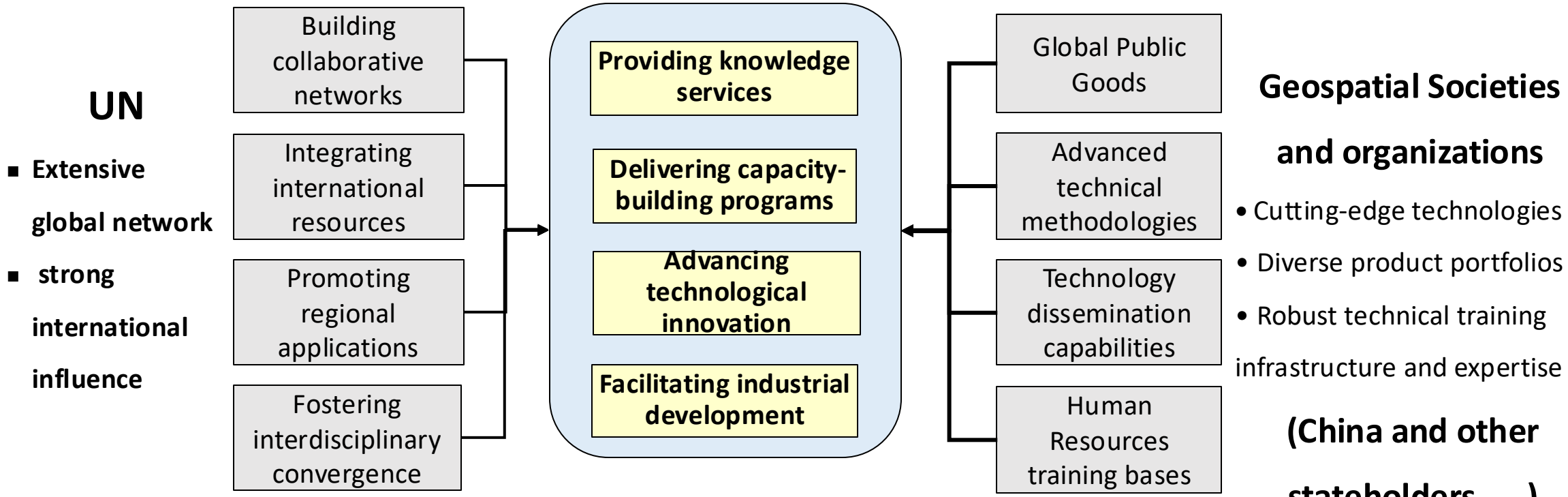


Established on Nov 2023

Moganshan Geospatial Information Laboratory was established to support UN-GGIKC

A closer cooperation with UN-GGIKC

It is time to unite our resources and collaborate with UN-GGIKC to develop and deliver global geospatial public goods, in support of Unmember nations and organizations



WU, CHEN, et al. Technological Development Directions and Key Tasks for Global Geospatial Public Goods Research. Journal of Spatiotemporal Information, 2023, 30(02): 157-166.

Towards a Shared Strategical Vison

A conceptual farmwork and implementation mechanism needs to be establish, which requires co-design, co-develop and collaborative service should

No	Project	Type
1	Huzhou High-Quality Sustainable Development Comprehensive Monitoring & Assessment	Data Product
2	UN-GGIF Geospatial Big Data Platform	Data Product
3	UN Global Remote Sensing Satellite Data Portal Platform	Data Product
4	Global Geospatial Information Sustainable Development Data & Knowledge Porta	Knowledge Product
5	UN Agriculture/Food Security Early Warning System	Knowledge Product
6	UN Global Geospatial Data & Knowledge Panel (Global SDGs Dashboard)	Knowledge Product
7	SDGs Think Tank Research	Capacity Building
8	SDGs Capacity Training	Capacity Building
9	Organize International Summer School	Capacity Building
10	Open Lab Internships & Visiting Scholar Positions	Capacity Building
11	Establish International Youth Geospatial Capacity Building Fund	Capacity Building
12	Establish UN Geospatial Capacity Training Network	Capacity Building
13	Build Geo-Spatial Innovation Alliance (Geo Innovation Alliance)	Cooperation Mechanism
14	UN-GGIM-AP 2025 Executive Board Meeting & "Intelligent Geospatial Development Empowers Territorial Governance" Int'l Symposium	International Activities
15	2nd UN Geospatial Week (GEONOW)	International Activities
16	Advance ISO 19124-4 Project	Internatl Standard

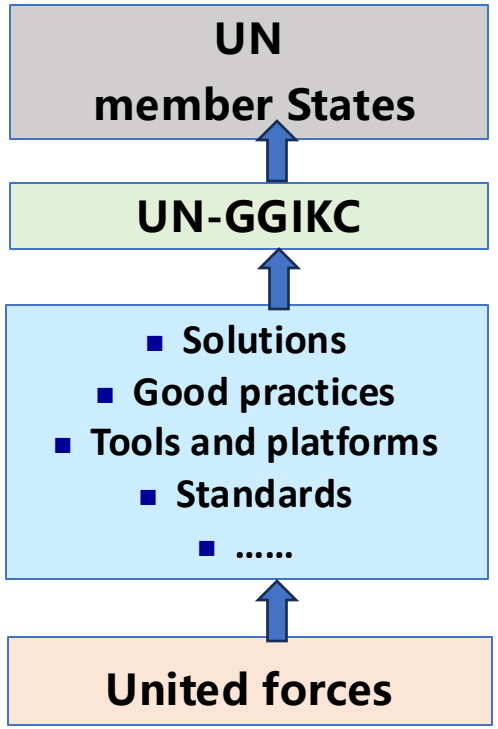
2025 Priorities proposed by UN-GGKIC

Three Key Tasks

- **Sets of public goods**
- **Federated service platform**
- **Collaborative mechanism**

Task 1: Develop Geospatial Public Products

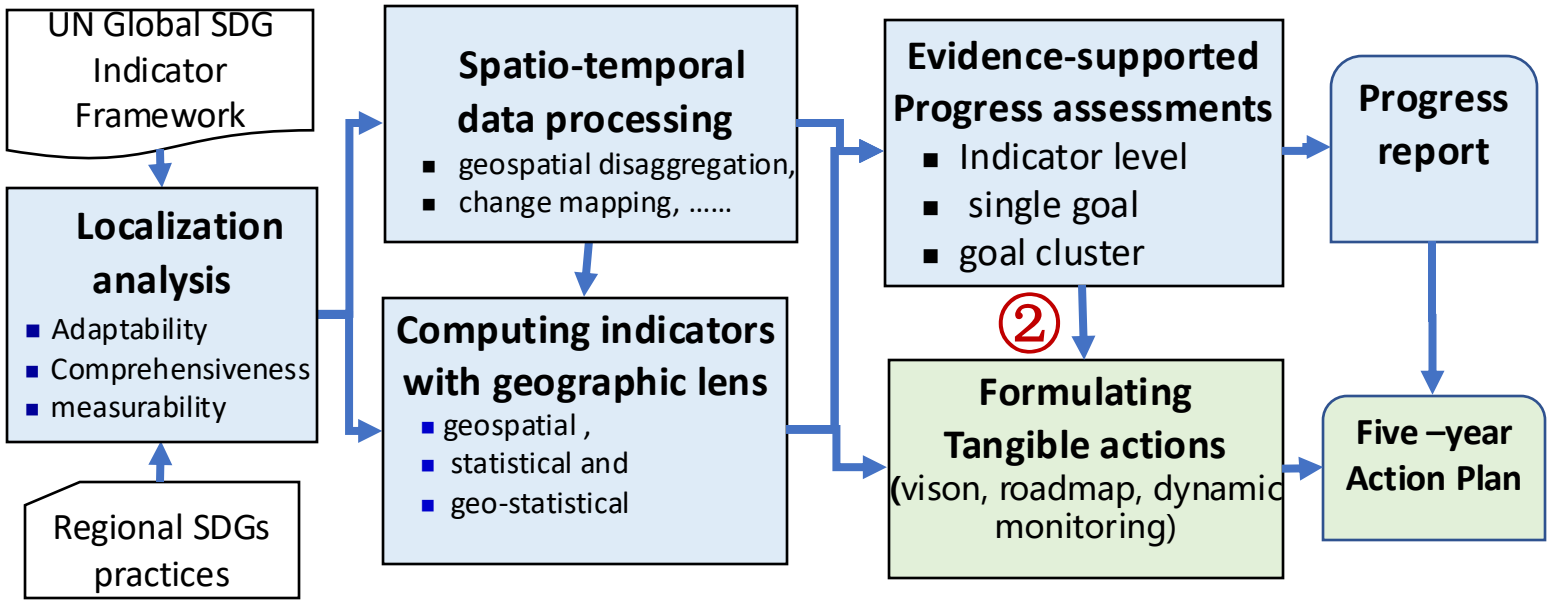
In order to provide tangible technical solutions and capacity building to UN member states, we need to integrate our resources and promote the co-design and co-development of global public goods.



- IGIF (integrated Geospatial Information Framework)
- 3D mapping and modeling
- Spatial planning
- Ecological restoration
- Digital culture heritage
- Disaster mitigation
- SDGs follow-up and review
- ……

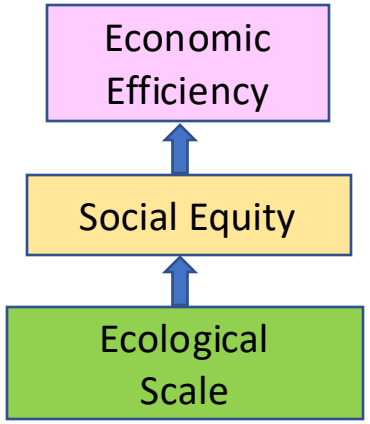
(1) SDG monitoring

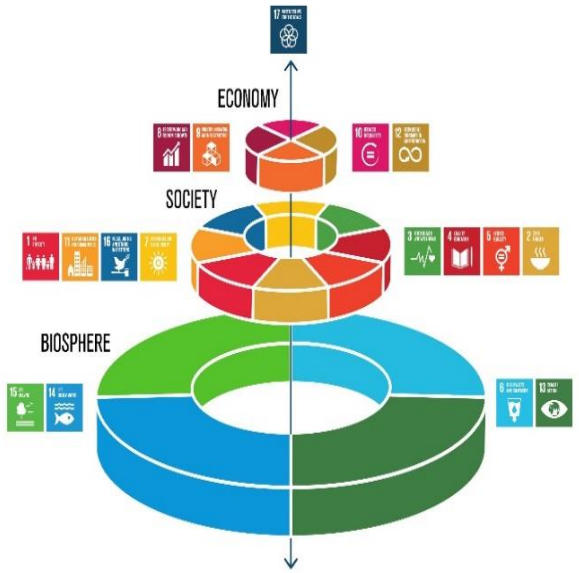
An indicator-aligned, data-driven and evidence-supported methodology with a geospatial perspective was developed and implemented in Deqing county, Zhejiang province of China.



(2) 3D Mappping

The UN SDGs were defined as an 'indivisible whole' to promote economic prosperity, social inclusion and environmental protection.





SDGs Cake

- **Progressive inclusive relationship:** Ecological scale constrains social equity (SE) and economic efficiency (EF), SE in turn influences EF.
- **Terrestrial dimension :** all economic construction, social development, and ecological civilization activities happen or occur on the terrestrial space of our planet.
- **Geo-spatial components:** Most sustainable development activities take place in geospatial space, and many goals, targets, and indicators have geo-spatial components

3 D geospatial information is needed.

3D Realistic Geospatial Landscape Modeling

Digital description and representation of the real 3D geospatial spaces, and new generation geospatial data product with 3D structures, realistic appearance, and geospatial entities.

Reality
- appearance
- texture

Geo-spatial entity

Real time
- or time series
- ……

3D structure
- Above and under ground
- Indoor-outdoor
- relationships
-attribute

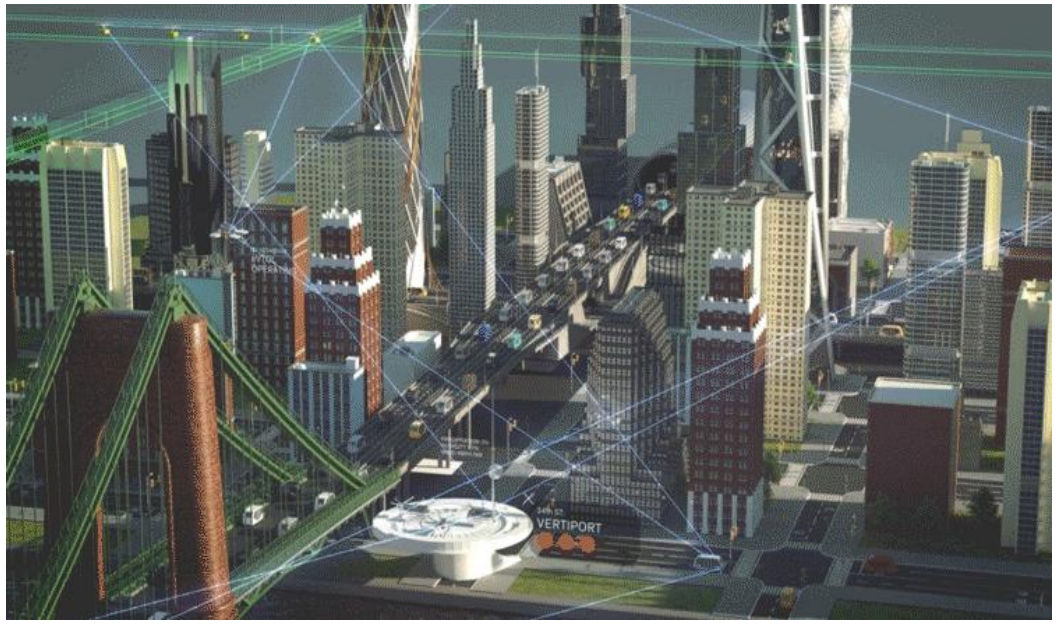
3d Realistic Geospatial Landscape model (3dRGLm)

Landscape
- structure
- function

represents a digital 3D realistic geospatial space which can facilitate the vital connection with the real geospatial space, and serve as new geospatial information infrastructure

(3) Low-altitude Economy

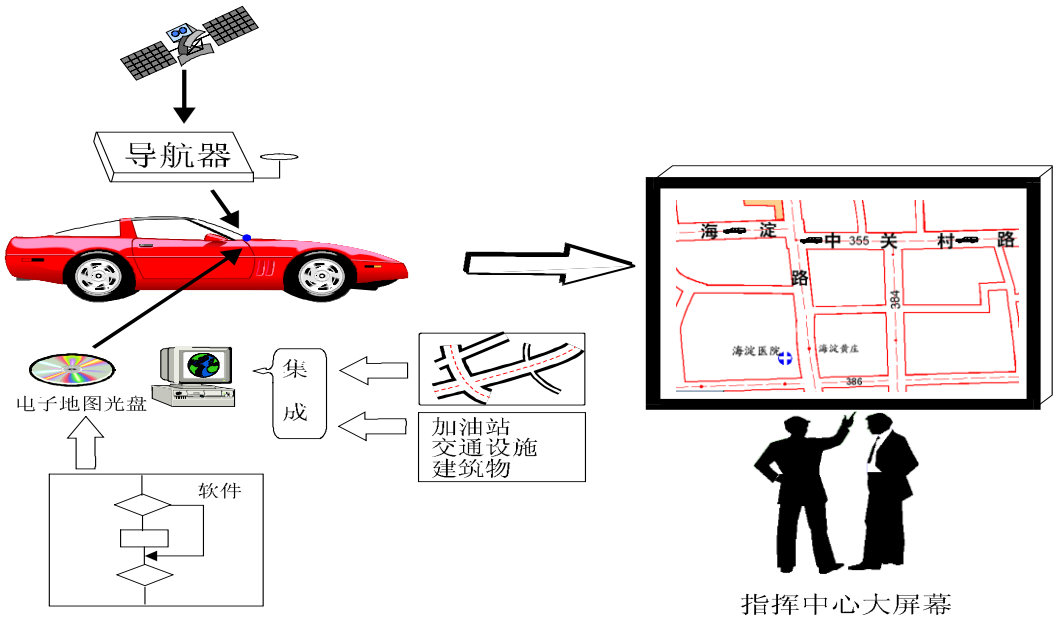
The Emerging Low-altitude (below 1,000m) economy represents a new frontier with significant applications. 3d navigation in low-altitude space .



3D geospatial information plays a critical role for low-altitude economy!

Supporting Digital Economy (赋能低空经济)

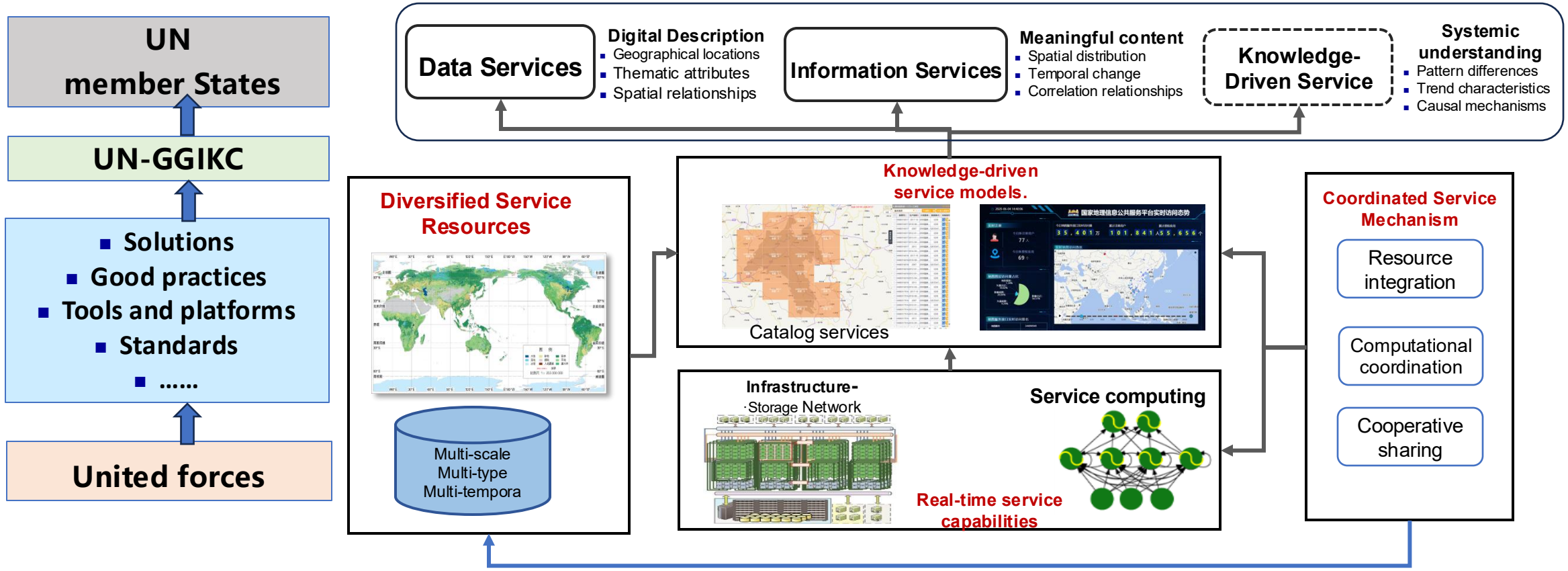
Develop and provide 3D navigation maps to support the low-space economy by integrating 3dRGLm with spatial navigation elememts and



It will help to solve the problem of unable fly and unsafe fly

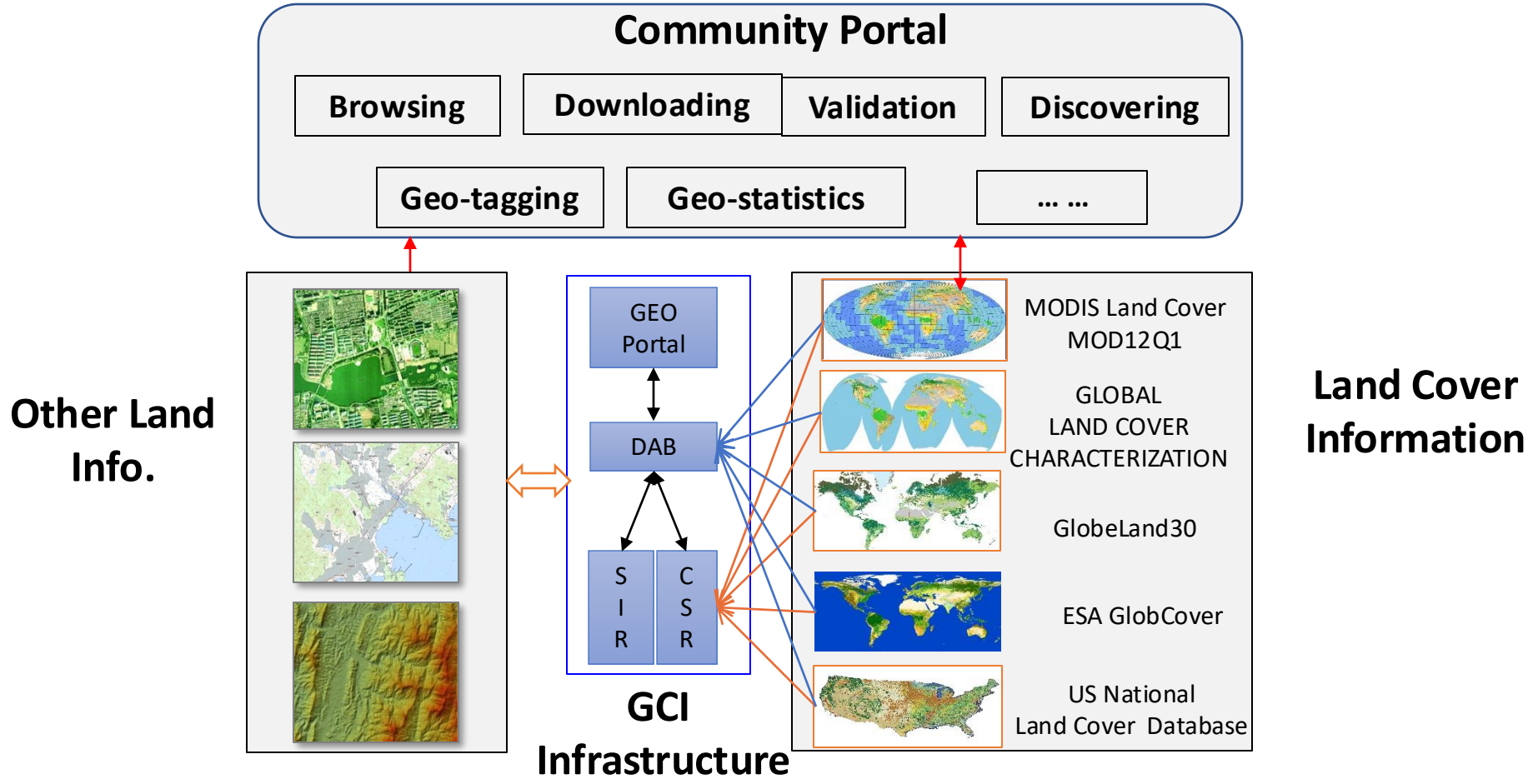
Task 2: Develop a Federated Service Platform

In order to provide tangible technical solutions and capacity building to UN member states, we need to integrate our resources and promote the co-design and co-development of global public goods.



CoGland- Collaborative Land Information service

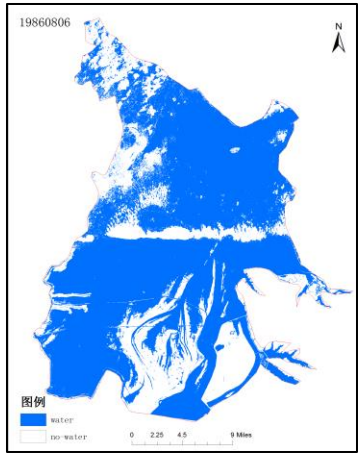
Connecting global, national & regional land cover data to provide more community service



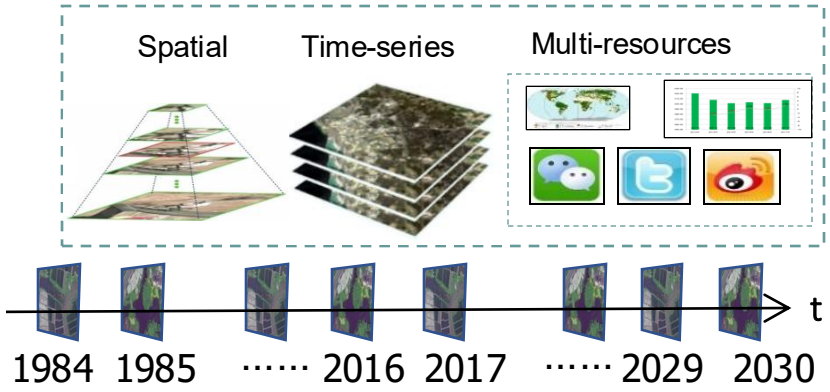
Chen, Li and Wu., 2017, Building a Collaborative Platform for Global Land Cover Information Services (CoGland), Int J Digital Earth

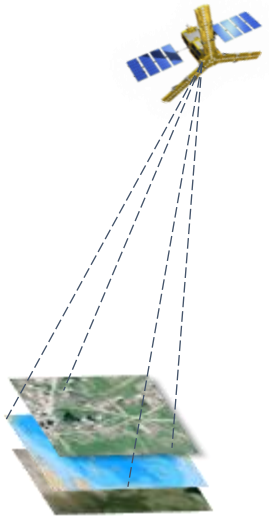
Essential Variables-based Monitoring

Some countries may have a shortage of these core data, while some others might lack the requisite data capture capacities



东洞庭湖长时间序列水体数据集
(1984-2017)

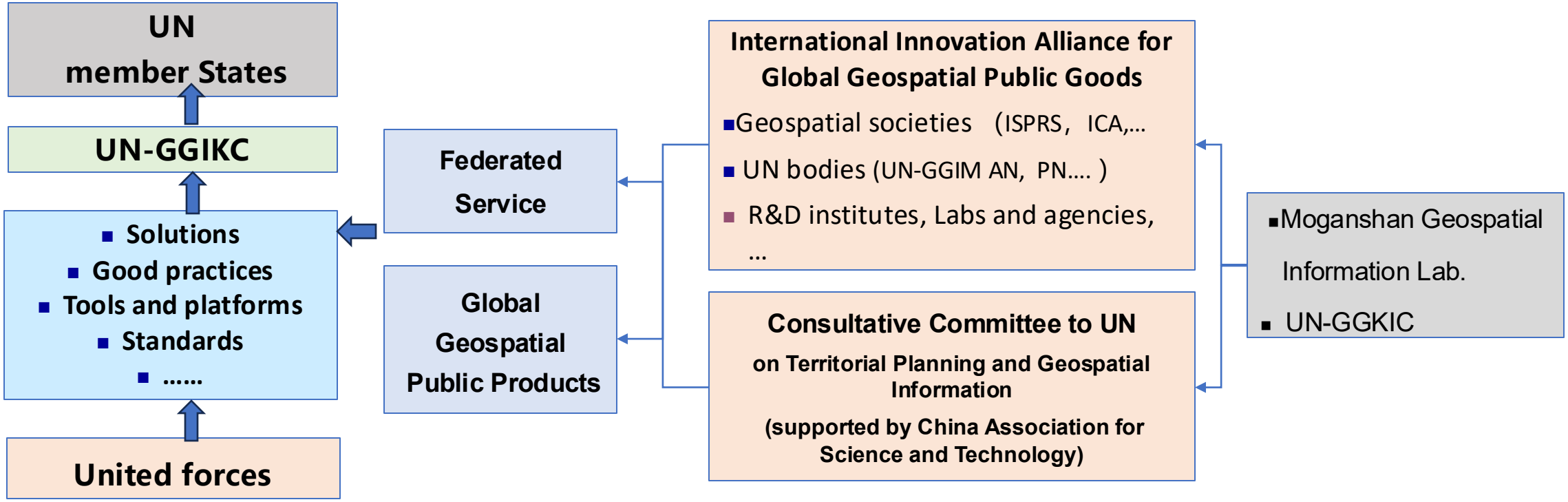




Generate reliable data with a set of technical requirements (i.e., spatial resolutions, thematic accuracy and temporal periodicity)?

Task 3: Set up a collaborative mechanism

In order to provide tangible technical solutions and capacity building to UN member states, we need to integrate our resources and promote the co-design and co-development of global public goods.



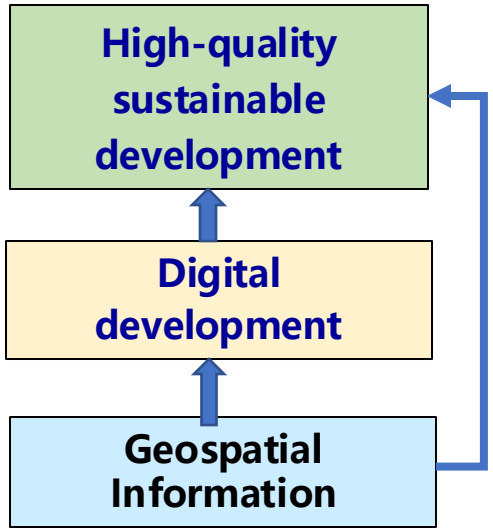
Establish a joint force (international alliance)

Contents

Growing important of Geospatial Information

While the world is moving towards sustainable and digital development, GI is playing more and mor important roles.

- Territorial spatial planning, Ecological protection and restoration
- Digital economy, digital life, digital governance, Smart city, smart land, smart habitat



- **Spatial-temporal sensing to reach anywhere**
  (无域不达的时空感知)
- **Spatial-temporal connection in anyplace**
  (无处不在的时空连接)
- **Spatial-temporal computing in anytime**
  (无时不用的时空计算)
- **Spatial-temporal Intellegence for anything**
  (无所不及的时空智能)

Get the Big Thing Well Done

Creating and delivering global geospatial public goods is a significant yet noble endeavor. It demands tremendous efforts and collaboratove contributions.

- **Strengthen top-level design**: Conduct a strategic and holistic research, and develop a strategic plan
- **Integrate multi-stakeholder efforts**: Mobilize all possible entities (such as UN groups, geospatial societies, enterprises and institutions …)
- **Secure institutionalized support**: Explore all possible financial support and establish a sustainable funding mechanisms, including pursue international mega-science initiatives.
- **Start from small steps**: Exemplified by initiatives in territorial spatial planning and governance.

Strengthen global cooperation

On the opening of GEONOW 2025, Dr Pengde Li issued an initiative on Establishment of the Global Alliance for Geospatial Public Goods Innovation.

- **Addressing disparities in development, resource constraints, fragmented innovation, and the persistent gap between knowledge generation and practical application,** which hinder the full realization of geospatial information's potential to support sustainable development.
- **Foster cross-border collaboration among stakeholders in open data, emerging technologies, standards, application ecosystems, and impact delivery,** ensuring that geospatial public goods are harmonized, accessible, and leveraged to advance the digital economy and the 2030 Agenda for Sustainable Development.

Three initial priority areas

- **Development of a global portfolio of geospatial public goods,** comprising reusable datasets, tools, models, and best practices, with a focus on replicability and scalability.
- **Establishment of an open and collaborative platform for spatiotemporal knowledge,** enhancing access to data, tools, expertise, and capacity, particularly for developing countries, and nurturing a sustainable global knowledge-sharing ecosystem.
- **Formulation of policy guidance and actionable frameworks**, supporting Member States, especially those in special situations, in planning, implementing, and monitoring geospatial contributions to the Sustainable Development Goals, thereby translating science into services

Call to Action

We invite stakeholders across sectors and regions to join this global effort as founding members.

- **Member States** to lead policy dialogue, articulate national needs, and create enabling environments.
- **International organizations, standards bodies, and academic networks** to contribute authoritative knowledge and global perspectives.
- **Academic and research institutions** to share cutting-edge research and expert insights.
- **Industry, technology enterprises, and civil society organizations** to contribute tools, computing resources, and practical experience.
- **Philanthropic foundations and investors** to provide financial support or other resources

Join us and work together!

UNGEONOW 2025

Developing and Providing Global Geo-spatial Public Goods

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