



Chishui River Project as ADB's first pilot nature credits mechanism

Yating Ru

Natural Resources and Agriculture Economist
Asian Development Bank

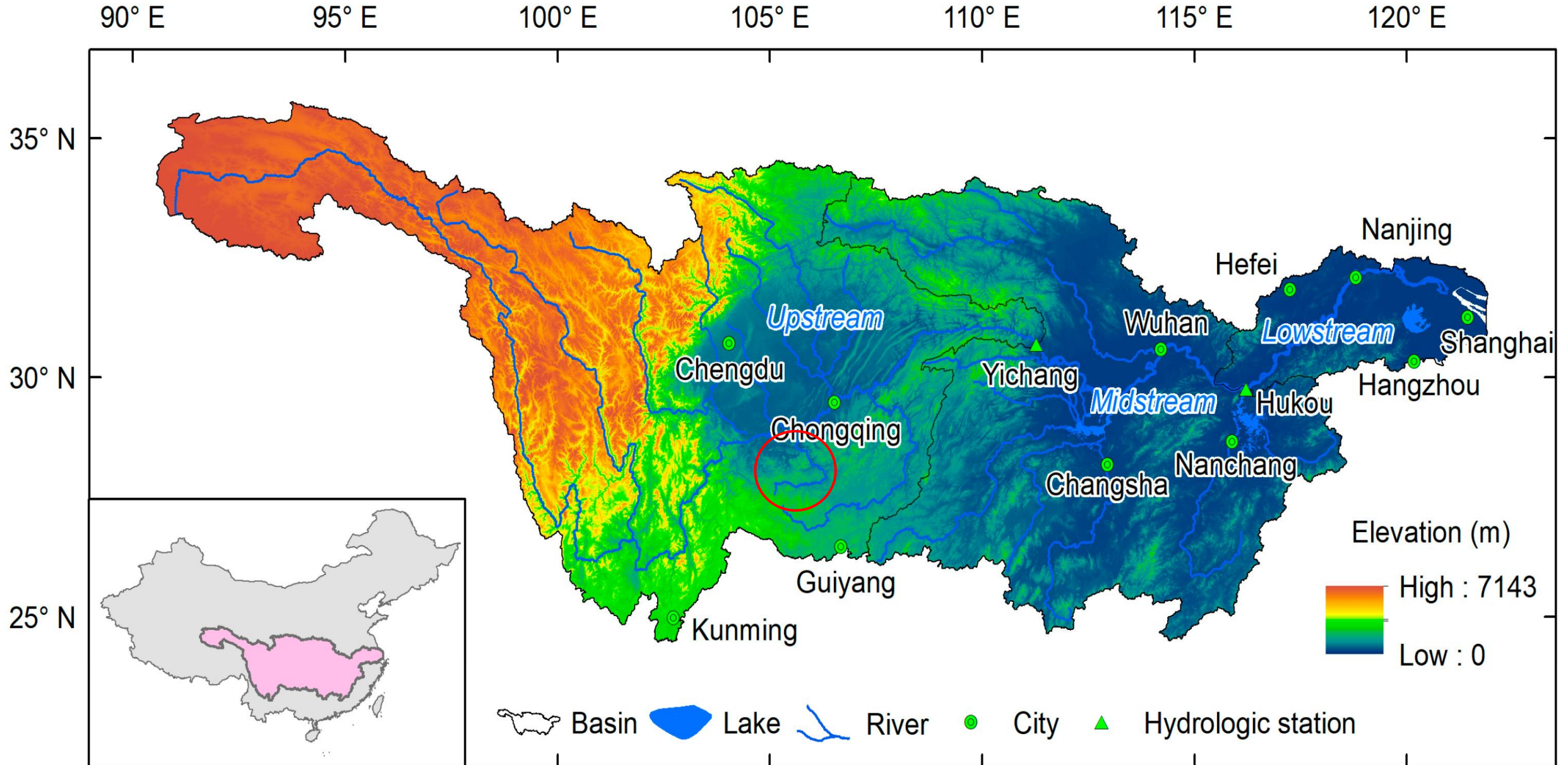
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*Towards the first nature credits transactions in the Chishui Basin,
PRC - updates on progress, challenges, and opportunities
Yating Ru, Asian Development Bank*

The Yangtze and Chishui River Basin



The Chishui River Basin

- 425 km, 20,438 km² in Yunan, Guizhou, and Sichuan Provinces;
- Subtropical monsoon climate zone: warm and humid, annual precipitation 800 – 1,200 mm, annual discharge to Yangtze 11.9 million m³
- The only primary tributary of the Yangtze river with no dam on the main river;
- The Upper Yangtze River Rare and Endemic Fish National Nature Reserve is the largest river-based nature reserve in PRC, Chishui half of the length;
- Nationally important ecosystems:
 - Four national and many provincial and locally designated protected areas
 - Protected plants, grade 1: 7 species; grade 2: 32 species
 - Protected animals, grade 1: 2 species; grade 2: 33 species



The Chishui River Basin Ecological Protection and Green Development Project

- Executing agency: Gulin County Government
- Cost: \$307.94 million (ADB loan \$150 million)
- Implementation 2026-2032
- Protect and restore the Chishui River Basin's ecosystems while creating a sustainable financing mechanism, including nature credits and eco-compensation, that can attract public and private investment for biodiversity conservation and local development



Inception mission & natural capital workshop 17-20 Apr, Gulin, Sichuan



Partners:

Sichuan Province
Guizhou Province



Tencent

ziranjiti



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Biodiversity credit for **net gain** in **freshwater ecosystems**

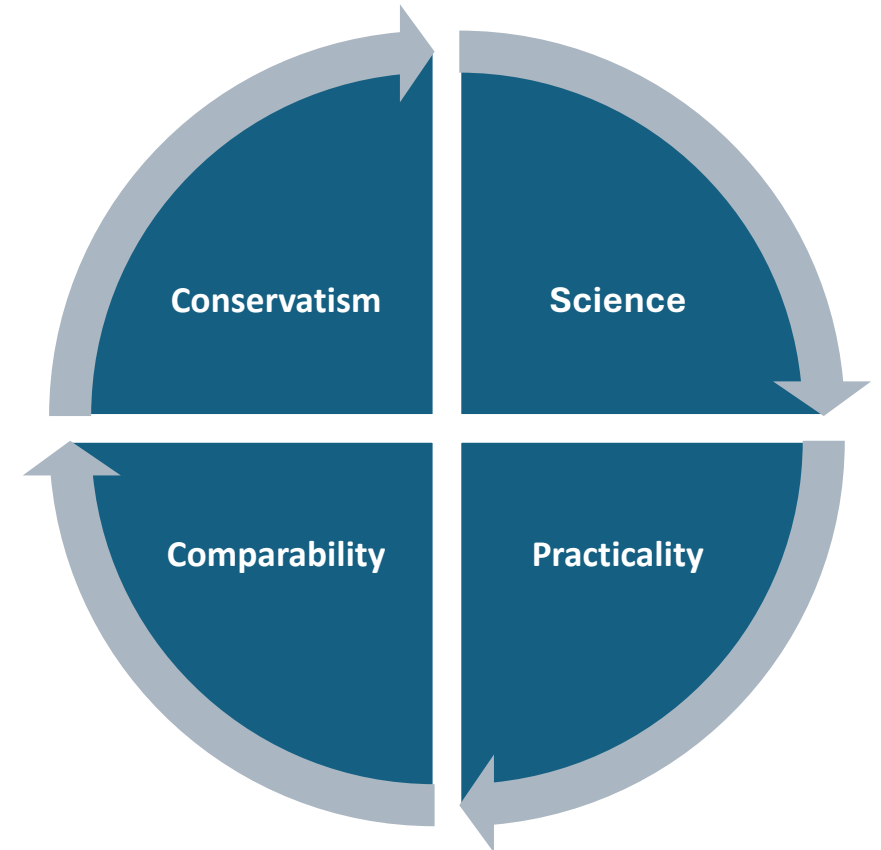
Credit units = river length or habitat area × condition uplift × ecological significance multiplier × confidence factor × permanence/risk discount

Systems:

- per unit length (km) for **linear ecosystems** (e.g., rivers & streams)
- per unit area (ha) for **area-based ecosystems** (e.g., lakes & wetlands)

Buyer-oriented design principles

- Simplify indicators and calculation methods to lower the barrier to understanding.
- Align with relevant national standards and policy frameworks.
- Integrate community participation and benefit-sharing mechanisms into risk control.
- Emphasize the permanence of biodiversity outcomes.



Linear vs. area-based freshwater ecosystems

Option 1: River Systems Only. - our choice

Focuses on the river itself with well-defined physical boundaries to minimize costs and simplify data requirements, facilitating rapid methodology development and implementation.



Option 2: Freshwater Ecosystems

Adopts a holistic perspective by integrating rivers, lakes, and associated wetlands into a unified framework to systematically assess ecological integrity but increases the complexity.



Trade-offs

- Reduce methodological complexity
- Lower monitoring and accounting costs
- Enable potential for nationwide application across different regions

Pilot Site Selection



Site selection considerations

**Clear management
authority**

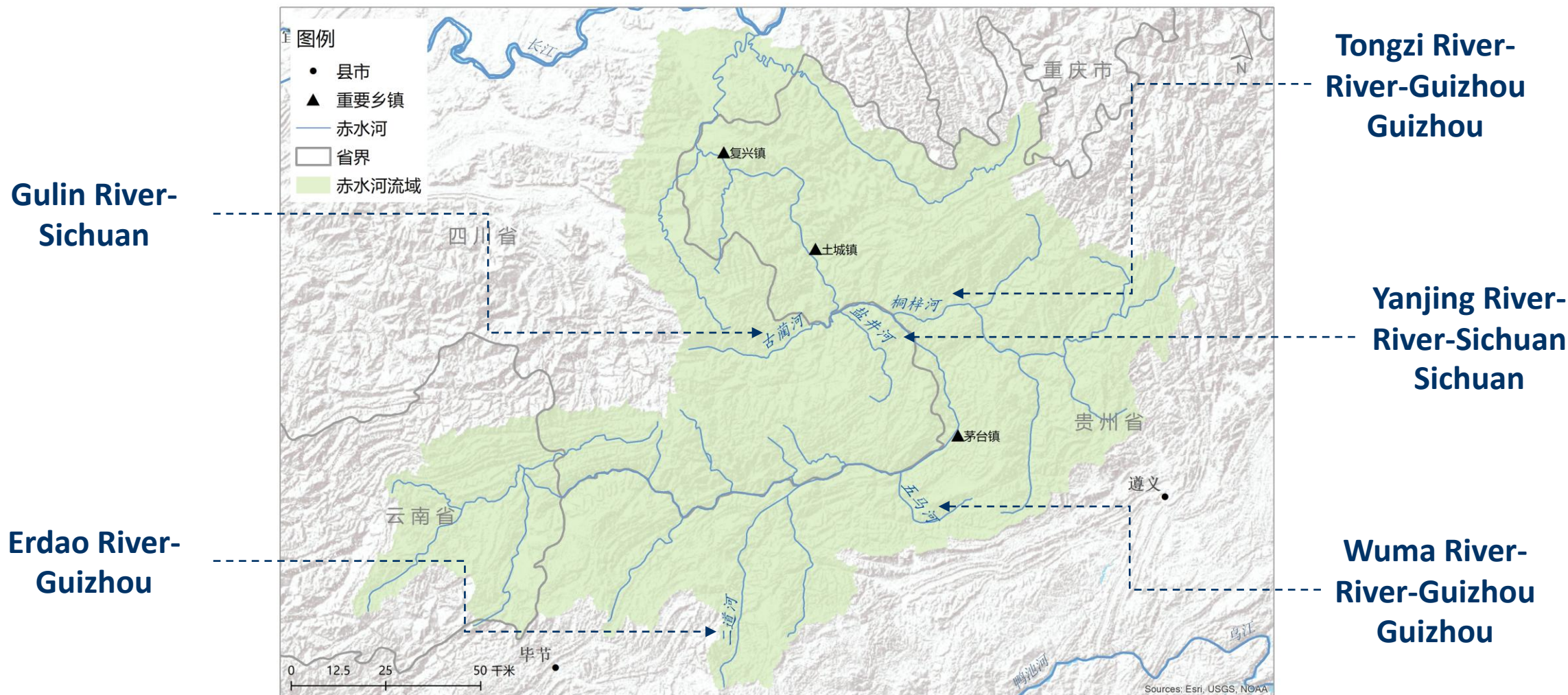
Continuous monitoring

**Potential buyers'
interests**

Specific site and its boundary will be determined later based on methodology development and local intentions

Selection of Pilot Tributaries

Candidate pilot tributaries for data testing:

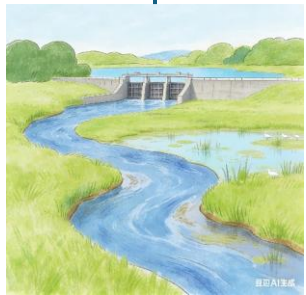


Indicator Selection

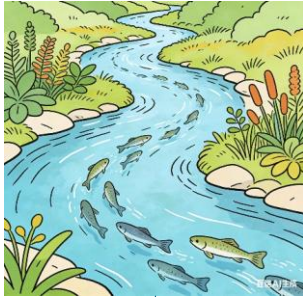
Key ecological attributes (KEAs) for freshwater ecosystems



Hydrologic
Regime



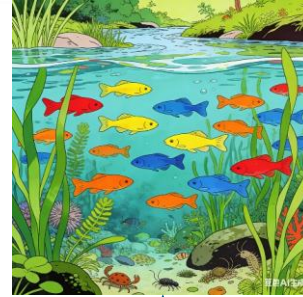
Connectivity



Habitat



Biotic
composition



Water
quality



Adopt Technologies

Field surveys

Satellite data / drones

New technologies (e.g., eDNA)



Local Adaptation

China Species Red List / Key
protected species

Align with national standards

Core Strategy

Core indicators (mandatory) + Supplementary indicators (optional)

Formula Design and Testing

- Discussed the formula design
- Conducted sensitivity analysis
- Tested formula rationality

Accounting Method: Biodiversity Credit Accounting - v2.8 Current Accounting Methods_1787274964712 - Land - Draft

Indicator selection and definition Quantitative Indicators Formula construction (1) Data entry (2) Formula Test - Sensitivity (3) Data testing Official confirmation

Indicator navigation

Dimension 1 Species S

1.1 Shannon-Wiener Diversity L...

Dimension 2: Protected species PW

2.1 Protected species index PW

Formula navigation

Option A

A 香农-维纳多样性指数 (香农-维纳指数) EC (香农-维纳指数) - 香农-维纳指数A

EC = S * PW

AWC-T = (EC_p,T - EC_p,T-1) - (EC_p,T-1 - EC_p,T-2)

HC-T = AWC-T * (ImpAll - othall) * (1 - 0.5) * L (注: 发: 基于上一监测期调整)

Biological group selection

Fill in at least one biological group. Each group is labeled must be selected / Optional / Not selected.

Biological groups	Category	
种子植物	must be selected	Delete
哺乳类	must be selected	Delete
鸟类	must be selected	Delete
两栖/爬行类	Optional	Delete
昆虫	Optional	Delete

Indicator selection and definition

Please set at least one dimension, at least one indicator for each dimension, and fill in the data and parameter requirements, calculation formulas, parameters, monitoring methods, etc. After filling out or editing, please save before proceeding to the next step. To make changes, please click Edit first.

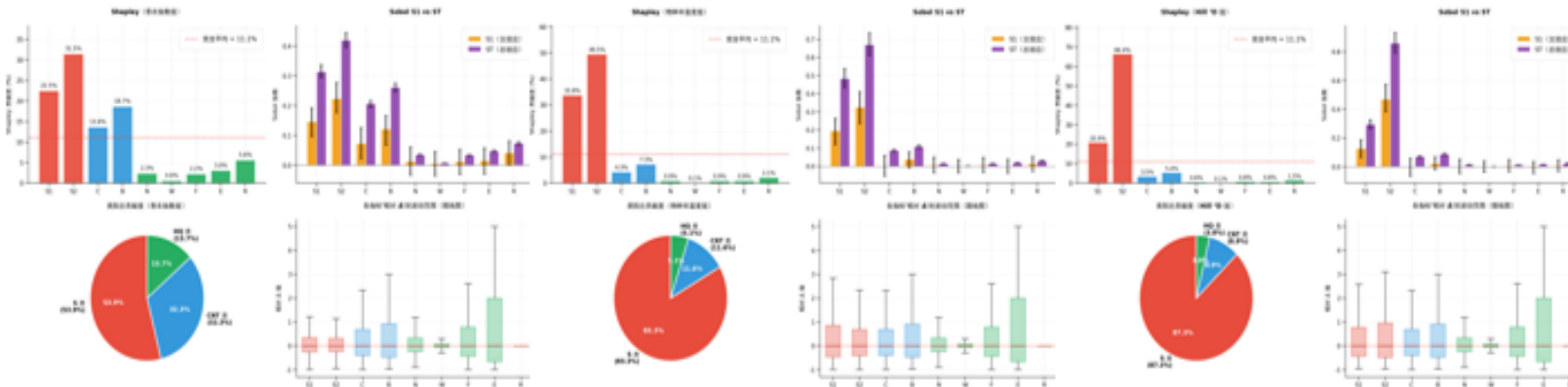
Dimension 1 * Dimension Name 物种 Comprehensive Index Name 物种综合指数 Symbol * S Save Delete dimensions

Indicator 1.1 * Name 香农-维纳多样性指数 Symbol SH must be selected Optional Set alternative indicators This indicator will not be adopted for now Move

Move to... Copy Copy other indicators... Save Delete the indicator

Data and parameter requirements:

相对丰度 p Subscript i 第 i 个物种 + Subscript



香农指数 H' Shannon H'

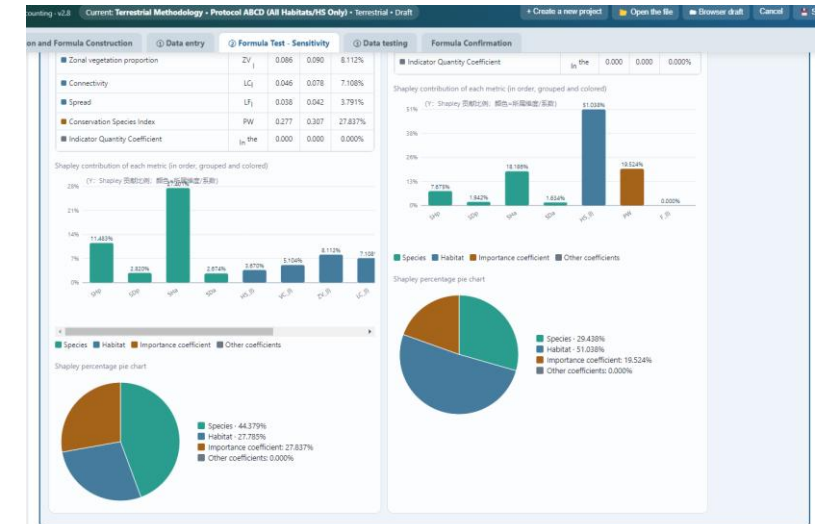
$S \approx 54\%$ ✓ 均衡 Balance

物种丰富度 S Species Richness

$S \approx 83\%$ X S 过度主导 Species dominance

Hill's 1D Hill Number 'D'

$S \approx 87\%$ X S 过度主导 Species dominance



MRV Plan and Trading Platform

Monitoring, Report and Verification

- Local governments: Issue the pilot implementation plan, establishing accredited validation and verification bodies.
- Base year set to 2019/2020.
- Validation and verification completed in one process.



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西部生态产品交易平台
Western Ecological Product Trading Platform

建设生态文明新模式 创建生态产品实现新机制



公示公告 政策资讯

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| • 四川联合环境交易所（西部生态产品交易中心）成交公告 | 2025-12-31 |
| • 四川联合环境交易所（西部生态产品交易中心）成交公示 | 2025-12-24 |
| • 大理石（3456吨）项目成交公告 | 2025-10-14 |
| • 大理石（9845吨）项目成交公告 | 2025-10-14 |
| • 生态修复剩余石料（第一批）项目成交公告 | 2025-06-16 |



Methodology Certification

- To be accredited as a group standard



Trading Platform

- Sichuan United Environmental Exchange
- Guizhou Environmental assets exchange
- Trading under ecological products asset class



Trading Modes

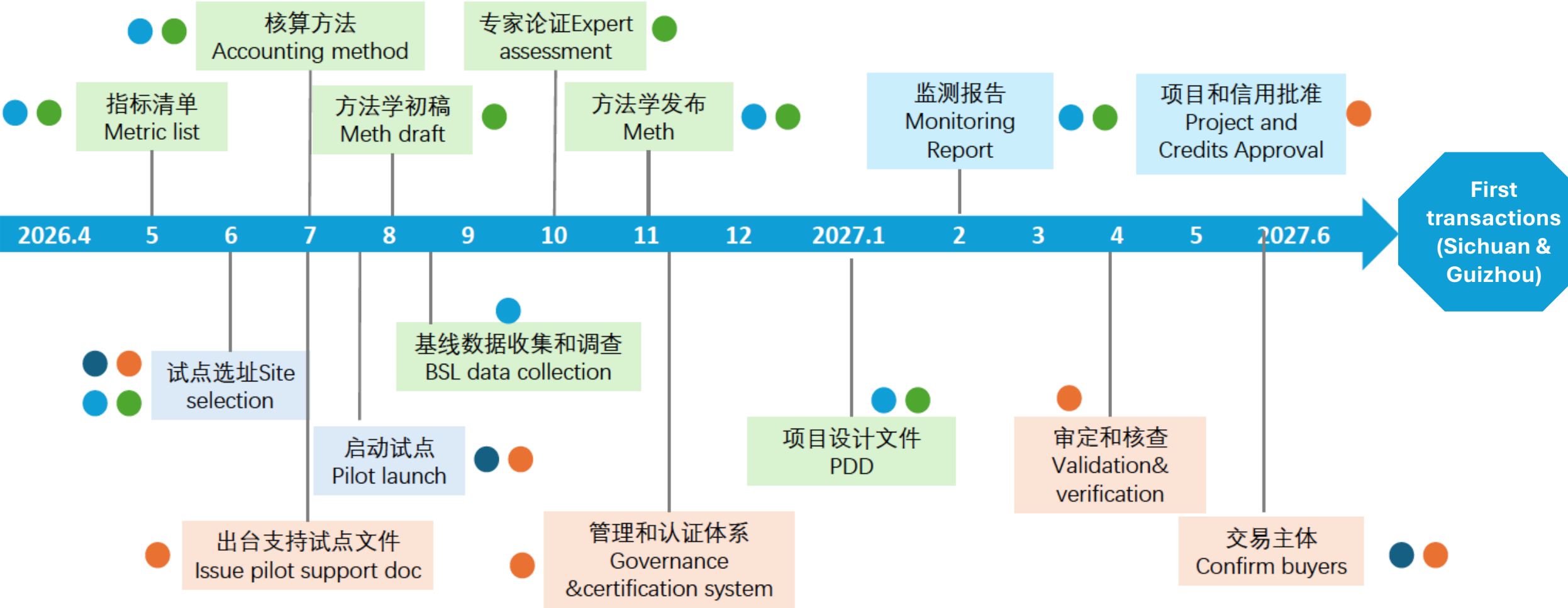
- Trade through bilateral agreement / listing



Supply and Demand

- Supply side: project owners own credits
- Demand side: voluntary corporate purchases

Next steps



Issues, Challenges, Opportunities

Buyers' incentives

- Methodology including MRV
- Ownerships, Boundaries, risks
- Trading mechanism (taxonomy, financial asset class)
- Policies and regulations
- Government role and endorsement (linked to many but belong to none)

Pilot & upscaling

- Sichuan --> Guizhou
- Four natural capital projects in PRC pipeline
- Southeast Asia, India, Sri Lanka...

Learning & dissemination

- Publications & technical notes
- MDB nature financing working group
- OneADB approach



Thank you