Financing for River Ecological Protection and Green Development
Experience from China’s Yangtze River Economic Belt
Presentation Outline

I. Environment and Development Challenges
II. Planning Tools
III. ADB’s YREB Framework Approach
IV. Financial innovation for Ecosystem services protection
V. Project cases
Environment and Development Challenges

Ecosystems and river health degradation

- Slow transformation to sustainable cities and industries
  - 81% of chemical and fibre outputs
  - 60% of chemical pesticide outputs

- Transportation & logistics not optimized
  - Missing links need a corridor approach
  - Improve river transport safety, vessels waste management

- Increasing pollution and pressure on natural resources
  - 65% of lakes and 22% of reservoirs eutrophic
  - Floods causing 50% of national economic losses and mortality

- Weak institutional coordination and strategic planning
  - Cross-provincial coordination needs improvement
  - Varying income & capacity of provinces

Constraints to inclusive socio-economic development
Comprehensive and Strategic River Basin Investments

People's Republic of China (PRC)
Support for the Yangtze River Economic Belt

An Asian Development Bank (ADB) assistance framework for the PRC's Yangtze River Economic Belt is key to helping the country achieve its goals of inclusive and sustainable growth.

Land Area: Over 2 million km²
Population: 580 million
GDP: $4.16 trillion

21% of the PRC's freshwater resources
Over 40% of the country
Key engine of future growth

The Yangtze River Economic Belt (YREB) covers 9 provinces and 2 centrally-administered municipalities.

Environmental degradation, especially water resources
Institutional and governance reform
Regional economic and social disparity
Compounding climate change
Planning Tools for Addressing Challenges

- Innovative financial and policy mechanisms
  - Eco-compensation and environmental accounting/valuation
  - Land value capture linked to environmental improvements

- Nature-based approaches
  - Innovative design elements for green infrastructure (e.g. permeable pavements, stormwater management, green embankments and wetland conservation areas)

- Rural-urban integration
  - Addressing issues in holistic manner, recognizing need to manage rural-urban disparities (e.g. incomes, livelihoods) and linkages with environmental protection goals

- Multi-sector integrated approach (cross-cutting issues)
  - YREB framework approach, aligned with YREB masterplan and supporting national and provincial environmental protection targets and outcomes
### ADB’s YREB Framework Approach

<table>
<thead>
<tr>
<th><strong>YREB Framework</strong></th>
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<tr>
<td><strong>Initial period</strong></td>
<td>2017-2020</td>
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<tr>
<td><strong>Geographical areas</strong></td>
<td>Projects in 7 provinces and 1 municipality in the middle and upper reaches</td>
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<tr>
<td><strong>Indicative budget</strong></td>
<td>Approximately $2 billion</td>
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| **Priority areas of the YREB development plan** | 1. Ecosystem restoration, environmental protection, and management of water resources  
2. Green and inclusive industrial development  
3. Integrated multimodal transport corridor  
4. Institutional strengthening and policy reform |
<p>| <strong>Interventions</strong> | Catalytic, innovative, adoption of high level technologies, creating and sharing knowledge sharing |
| <strong>Financing modalities</strong> | Combination of different modalities depending on the nature of projects and borrowers’ needs |</p>
<table>
<thead>
<tr>
<th>Year</th>
<th>Project Description</th>
<th>Cost</th>
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<tbody>
<tr>
<td>2017</td>
<td>Guizhou Rocky Desertification Area Water Management</td>
<td>$150 m</td>
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<tr>
<td></td>
<td>Chongqing Longxi River Ecological Protection Demonstration</td>
<td>$150 m</td>
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<td></td>
<td>Yangtze River Green Ecological Corridor Comprehensive Agriculture Development</td>
<td>$300 m</td>
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<td></td>
<td>Sichuan Ziyang Inclusive Green Development</td>
<td>$200 m</td>
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<td></td>
<td>Hunan Xiangjiang River Watershed Existing Solid Waste Comprehensive Treatment</td>
<td>$150 m</td>
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<td>2018</td>
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<tr>
<td>2019</td>
<td>Henan Dengzhou Integrated River Restoration and Ecological Protection</td>
<td>$200 m</td>
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<tr>
<td>2020</td>
<td>Chongqing Innovation and Human Capital Development Project</td>
<td>$200 m</td>
</tr>
<tr>
<td></td>
<td>Anhui Huangshan Xin'an River Ecological Protection and Green Development</td>
<td>$100 m</td>
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<tr>
<td></td>
<td>Yunnan Sayu River Basin Eco-Compensation Demonstration</td>
<td>$100 m</td>
</tr>
</tbody>
</table>

Institutional Strengthening and Policy Reform
Financial Innovation for Ecosystem Services Protection

- **Eco-compensation mechanism**
  - Demonstration component under ADB’s Yangtze River Economic Belt (YREB) program ($2 billion)
  - Sharing co-benefits from natural capital investments between upstream and downstream provinces and townships
  - Addressing environmental externalities and capturing returns on investments
  - ADB-NDRC partnership through International Conference on Eco-Compensation and PES
  - ADB-CCICED partnership through Special Policy Study on Eco-Compensation and Green Development Institutional Reform in the YREB
Financial innovation for ecosystem services protection

• Establishing a Natural Capital Lab in the YREB
  • Will be set up as an Open platform for partnering with private sector and other stakeholders to catalyze financial and technology innovations in ecological protection along the Yangtze river
  • Create an enabling policy and regulatory environment to accelerate natural capital investment
  • Delivering breakthrough innovations such as high-level technology applications in agricultural value chains for scaling up
  • Applying modelling and valuation tools (e.g. Stanford University’s INVEST program) to illustrate and quantify climate risks and valuation of ecosystem services
**Project Case Study: Anhui Huangshan Xin’an River Ecological Protection and Green Development Project**

**Outcome:**
Economic and environmental conditions in the upstream of Xin’an River improved

**Outputs:**
1. Urban and rural point source pollution management installed
2. Non-point source pollution control enhanced
3. Green finance mechanism piloted
4. Capacity for ecological system and project management strengthened

**Innovations**
- Establish a “Green Incentive Fund” to provide grants as financial incentives to farmers who have achieved the pollution control targets through adoption of sustainable farming practice
- Establish a “Green Investment Fund” to provide equity investment on small and medium sized enterprises in green business, particularly for development of ecological agriculture, eco-tourism, and pollution control

**Financing**
- ADB **proposed** loan: $100 million (50%)
- Govt./Counterpart: $100 million

**Implementation**
01/2020-12/2025

*Proposed project*
Anhui Huangshan Xin’an River Ecological Protection and Green Development Project - Green Financing Mechanism

### Green Financing Mechanism

- **Green Incentive Fund**
  - CNY 40m
  - Grant
  - Financial incentives to change farming behavior & practices
  - Administered via general/score subsidy
  - Awareness raising, capacity building

- **Green Investment Fund**
  - CNY 200m
  - Equity
  - Investments in green business
  - Administered through a financial intermediary
  - Eligibility subject to green criteria and goal
Project Case Study: *Henan Dengzhou Integrated River Restoration and Ecological Protection Project

**Outcome:**
Water security and environmental sustainability in Dengzhou City improved

**Outputs:**
1. Urban and rural water infrastructure in Dengzhou City improved
   - Rural water supply
   - Wastewater and solid waste management
   - Storm water and flood mitigation
2. Ecological zones in Tuan River restored
   - Rural corridor improvement
   - Soil and water conservation
   - Wetland including small creeks restoration
3. Water resources management capacity enhanced
   - Institutional capacity (Asset mgt, digital governance)
   - Community based watershed management
   - Research and development center (env monitoring)
   - Water and env. planning, dev., river health monitoring, and eco-compensation mechanism

**Innovations**
- Advanced asset management with interactive service delivery provisions; and integrated rural-urban water and waste management for improved financial sustainability

**Financing**
ADB proposed loan: $200 million (42.91%)
Govt./Counterpart: $266.12 million

**Implementation**
01/2020-12/2025

*Proposed project*
Project Case Study: Chongqing Longxi River Basin Integrated Flood and Environmental Risk Management Project

Outcome:
Environmental risk in the Longxi River watershed mitigated

Outputs:
1. Flood risk management infrastructure constructed
2. Wastewater management and pollution control infrastructure developed
3. Ecological conservation facilities improved
4. Flood and environmental risk management capacity enhanced

Innovations
• Introduction of a flood and environmental risk management approach at a river basin scale; establishment of a flood footprint and accountability mechanism, and real time river health monitoring system

Financing
ADB loan: $150 million (39.6%)
Govt./Counterpart: $228.68 million

Implementation
12/2018-12/2023
Project Case Study: Sichuan Ziyang Inclusive Green Development Project

**Outcome:**
Economic and environmental conditions of the Sichuan Ziyang High Technology Development Zone improved

**Outputs:**
1. Ecological systems and environmental infrastructure constructed
2. Facilities and programs to support the services sector broadened
3. Urban development planning and management capacity enhanced

**Innovations**
- State-of-the-art and information technology-based SMART city government management systems will enable the sharing of experiences, best practices, and innovation

**Financing**
ADB loan: $200 million (48.4%)
Govt./Counterpart: $213.54 million

**Implementation**
12/2018-12/2024
Project Case Study: Guizhou Rocky Desertification Area Water Management Project

**Outcome:**
Rocky desertification area reduced

**Outputs:**
1. Water resources conserved
2. Environment, ecology, and land productivity restored

**Innovations**
- Introduction of new technologies to prevent water leakage and increase water transfer efficiency for reservoirs and water transfer facilities
- Demand-based remote water allocation system demonstrated in sustainable farming pilot projects

**Financing**
ADB proposed loan: $150 million (44.3%)
Govt./Counterpart: $188.81 million

**Implementation**
12/2017-12/2023
Project Case Study: Hunan Xiangjiang River Watershed Existing Solid Waste Comprehensive Treatment Project

**Outcome:**
Long-term pollutants discharged to the Xiangjiang River watershed reduced

**Outputs:**
1. Substandard municipal solid waste landfills closed
2. Substandard municipal solid waste landfills mined and remediated
3. New urban–rural integrated municipal solid waste management systems established
4. Sanitary landfill facilities upgraded
5. A new kitchen waste treatment and management system established
6. Capacity for environmentally sustainable municipal solid waste management enhanced

**Innovations**
• Adoption of appropriate high-level MSW technologies with large-scale demonstration potential
• Improved operational management with approaches incorporating information and communication technology

**Financing**
ADB **proposed** loan: $150 million (58.1%)
Govt./Counterpart: $108 million

**Implementation**
04/2019-12/2023
Other financial innovation outside YREB: *Fujian Mulan River Basin Integrated Ecological Restoration and Management Project

**Outcome:**
Flood and environmental risks in the Mulan River mitigated

**Outputs:**
1. Innovative financing mechanism piloted
2. Institutional capacity for environmental management strengthened
3. Flood management, ecological restoration, sanitation, and water resources improvement systems installed

**Innovations**
- The project will pilot land value capture tools in a rural/peri-urban setting to address insufficient long-term funding for management, ecological restoration, and water quality improvement
- Investments in flood management, ecological restoration, and water quality improvement will reduce physical risk and improve quality of life and increase land value and property prices
- Funding for investments can be generated from capturing the increase in land value

**Financing**
ADB loan: $200 million (41.2%)
Govt./Counterpart: $285 million

**Implementation**
09/2021-08/2027

*Proposed project*
Summary

• YREB program is a unique, landscape-scale river basin approach to address complex and cross-provincial challenges
• ADB’s support is broad based focusing on ecosystem conservation and green development to reduce pollution and degradation of natural resources
• Within ADB’s portfolio of projects (both ongoing and planned), the feasibility of innovative financing models will be tested
Thank you.

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