

Presentation given at the Southeast Asia Katoomba meeting

## **Katoomba XVII**

# **Taking the Lead: Payments for Ecosystem Services in Southeast Asia**

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# **Watershed Eco-compensation Programs in China**

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1. Definition
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# Definition

- **Ecological Compensation** in China, a **broad/loose** concept:  
any kind of payment which has something to do with the environment. Eg. pay those who manage, maintain, or conserve a watershed that provides valuable environmental services, no matter how to pay, by whom
- **Payment for Watershed Ecosystem Services**  
voluntary, conditional, realistic...

# 1. Programs of National government

- In late 1990s onward, National Government launched several large scale public payment schemes for environmental services:
  - Natural Forest Protection Program, 1998
  - Sloping Land Conversion Program, 1999
  - Forest Ecological Compensation Program, 2001
  - Three-River Head Conservation Program, 2005
  - South to North (Middle route) Water Diversion Project upstream catchment conservation, 2008

# Sloping Land Conversion Program (SLCP)

- Intended to prevent soil erosion on sloping land in the up-reach of Yangtze & Yellow Rivers
- 1999-2005, central government paid 103 billion yuan (US\$12.8 billion) :
  - to 30 million households
  - in 25 provinces for converting
  - 9 million ha agricultural land to forest land and planting trees in 12.6 million ha of barren mountains
- They developed a payment system in order to improve on experience of previous approach

- The payment rate is:  
\$417/ha/yr in the Yangtze River Basin, and  
\$290/ha/yr in the Yellow River Basin  
for the first term of 5-8 years of conversion.
- The payment rate is cut half  
for the 2<sup>nd</sup> term of another 5-8 years.
- The payment rate is unclear for the 3<sup>rd</sup>...

# Forest Ecological Compensation Program (FECP)

- Government determined that certain forests must be preserved.
- FECP compensates owners of these forest lands to keep them under forest cover
- Payment rate:
  - US\$11/ha/yr during 2001-2008
  - US\$22/ha/yr from 2009
- Term: unlimited
- Coverage: 27 million ha of forest land



# Three-River Head Conservation Program

- Invest CNY7.5 billion (US\$1.1 billion) in the Three-River Head areas of Qinghai Province during 2005-2010
- To carry out:
  1. Grassland conservation;
  2. Resettlement;
  3. Infrastructure construction
  4. Rural energy program

# South to North (Middle route) Water Diversion Project upstream catchment conservation

- Public financial transfer:
  - CNY1.464 billion (US\$215 million) to the 40 upstream counties in 2008;
  - CNY1.788 billion (US\$263 million) to the 43 upstream counties in 2009.

# Are these government programs PES?

- Voluntary?
  - Semi-voluntary, not based on negotiation
- Conditional?
  - Yes/No – payment is in form of refunds after land use change
- Realistic?
  - They pay for land use change but not necessarily for ES
  - Payment exceeds opportunity cost in some cases and lower than it in others

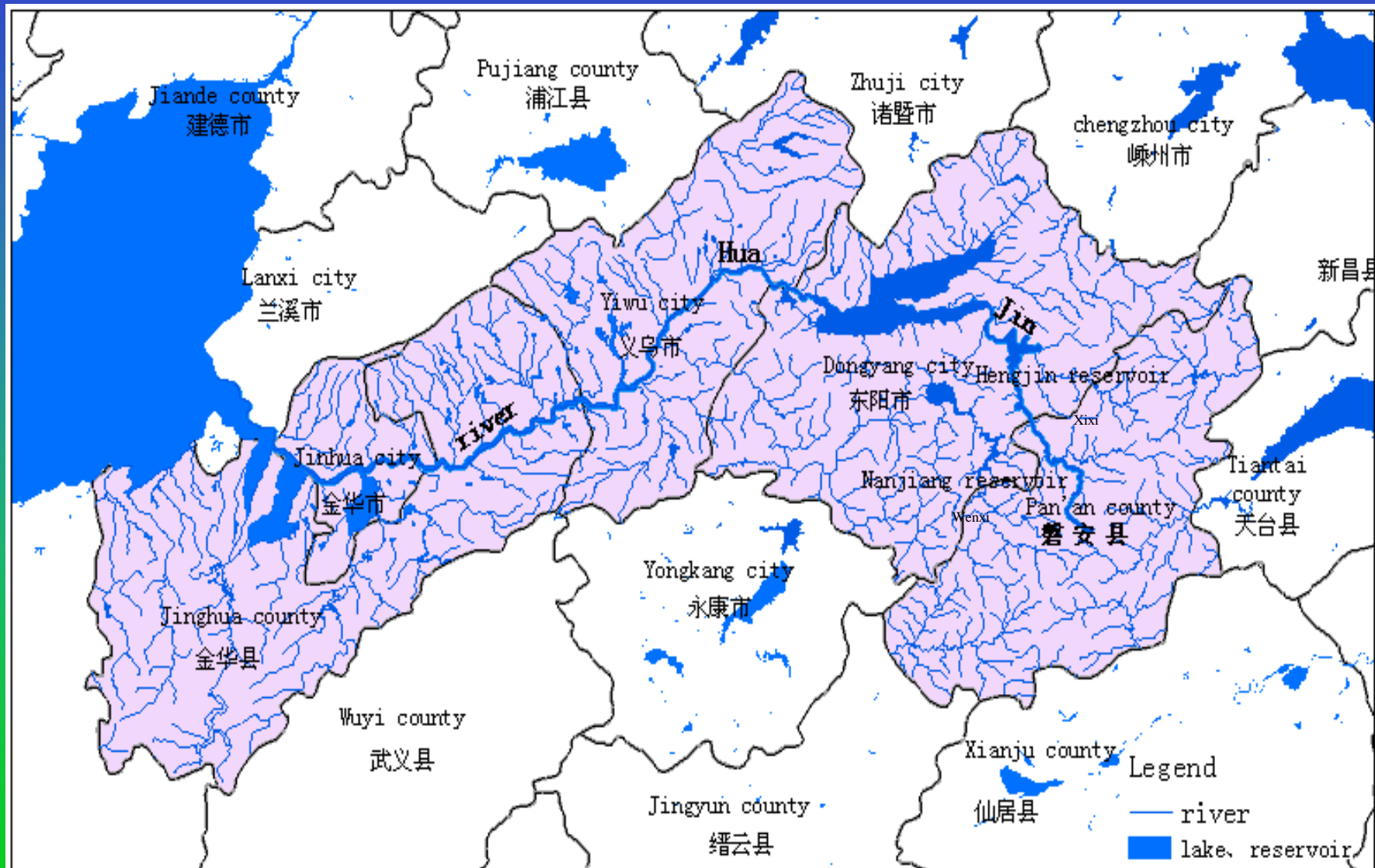
# Why the government fund these programs?

- Based on evidence, belief, treasure, pressure, and free riding of such a vehicle
  - Evidence: perennial vegetation reduces soil erosion
  - Belief: forest conserves water
  - Treasure: tax revenue increase by 15% annually
  - Pressure: join in CBD and other 50+ treaties
  - Vehicle for other goals: farmers income, regional disparity

## 2. Programs of local governments

- Are there downstream users who are willing and able to pay for environmental services?
- Rare,
- but they exist
- Example: agreement between Yiwu and Dongyang

# Water trade: Dongyang-Yiwu



# Dongyang-Yiwu, Nov. 2000

- Yiwu paid Dongyang 200 million yuan (US\$25 million) for the permanent right of annually diverting 50 million m<sup>3</sup> of water in the Hengjin Reservoir in Dongyang.
- Land use must be changed to maintain water level in the reservoir
- Water quality must be maintained
- Payment: fixed plus annual

# Does this program meet PES criteria?

- Voluntary?
  - Yes
- Conditional?
  - Yes – annual portion of payment is conditional
- Realistic?
  - Dongyang can control the reservoir water level
    - Restrict rice growing
    - Plant trees
    - Restrict intensive animal farming



# Liaoning eco-compensation

- Water quality of cross-border of municipalities
- The upstream government pays CNY500,000 (US\$73,500) to the downstream government for every 0.5 times of COD concentration higher than a standard level in the Liao River Basin.
- The payment rate is CNY250,000 in other river basins.
- Similar schemes are in Jiangsu, Henan, Hebei, and Guizhou provinces.

# Does this program meet PES criteria?

- Environmental goods?
  - bad
- Voluntary?
  - No
- Conditional?
  - Yes
- Realistic?
  - yes

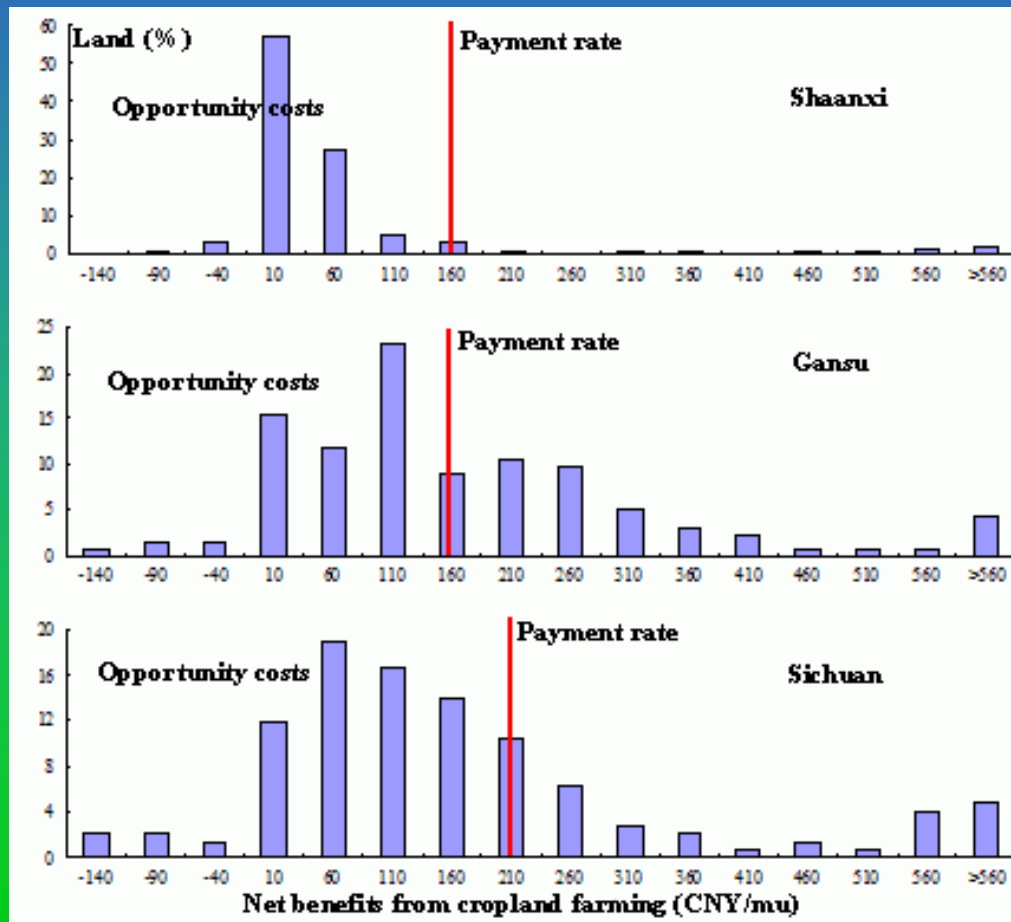
### 3. China's Eco-compensation

- Government predominates eco-compensation schemes
  - National government programs
  - Local government programs
  - Schemes between local governments

# Design problems

- Design problems

payment rate vs. opportunity costs in SLCP



(Xu, 2002)

# Design problem

- Monitor tree planting rather than actual environmental services
- Implemented through bureaucratic system
  - Reports of funds leaking
- Multiple objectives
  - Can reduce the effectiveness

# Implications

- The government has a vast demand, but design is often poor.
- Needs better understanding of:
  - When public PES scheme can work
  - How to design a public PES Scheme
- Demand for ES by downstream and other players is unlikely to emerge in an unclear tenure/quota system.

*Thank you!*