



**Ecosystem Marketplace**  
A FOREST TRENDS INITIATIVE

# **An International Overview of Innovative Financing Instruments for Ecosystem Management Implications for the PRC**

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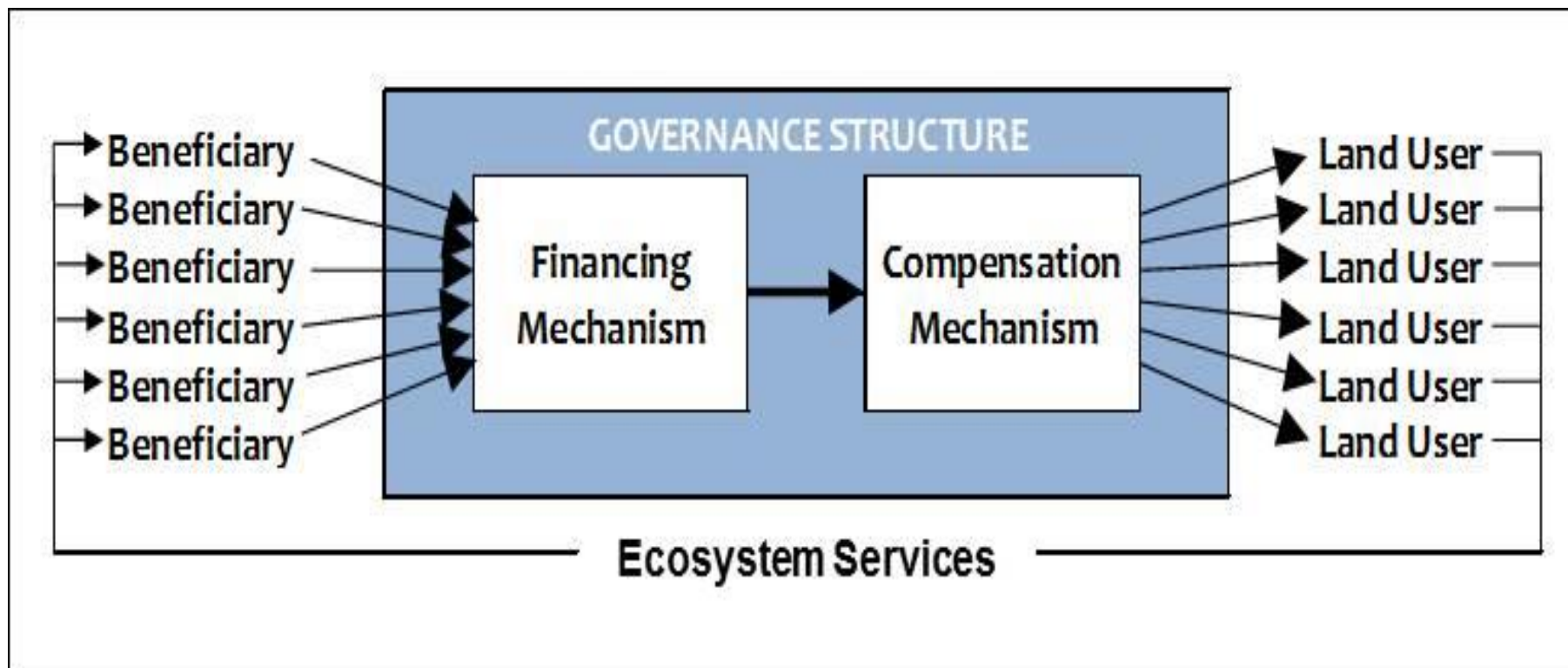
**5<sup>TH</sup> INTERNATIONAL SUMMIT ON ECO-COMPENSATION AND PES**  
**Nov. 24-25, 2016 | KUNMING, YUNNAN PROVINCE, P.R.CHINA**

- I. Global Overview**
- II. China's Place in Global Trends**
- III. Implications for Eco-compensation**
- IV. Final Thoughts**

# Global Ecosystem Services Markets

Ecosystem Service	# of Active Programs	Market Size
<b>Biodiversity</b>	45 (as of 2011), 39 in 2010	US\$2-4 billion/year (as of 2011)
<b>Watershed</b>	405 as of 2013, 205 in 2011, 103 in 2008	US\$9.57 billion (as of 2013)
<b>Forest Carbon</b>	513 (as of 2013), 452 in 2012, 412 in 2011.	US\$216 million (as of 2013), US\$237 million (as of 2012)

# Payments for Ecosystem Services (PES)



## Payments for Ecosystem Services (PES)

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- The most recent survey found US\$7.3 billion was paid globally in 2013 to compensate landowners for sustainably managing their farms, forests and other productive lands for watershed services;
- The PRC contributed the majority of this, with its large-scale forestry programs such as the Conversion of Cropland to Forests Program a major source of total investments.

## **Agro-environmental Payments**

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- **US Environmental Quality Incentive Program (EQIP) –**
  - Provided \$936 million in financial support and \$36.1 million in technical assistance to farmers in 2014;
  - 37,207 active and completed contracts for 2014, covering 4,539,132 hectares of farmland.
- **Measures under the Common Agricultural Policy (CAP) of the European Union –**
  - 2007-2013: Expenditures totaled \$22.8 billion, or 22% of total expenditures for rural development;
  - 2014-2020: 30% of the \$286.6 billion European Agricultural Guarantee Fund will be for “Green Direct Payments”;
  - 2014-2020: 1/3 of the \$108 billion European Agricultural Fund for Rural Development.

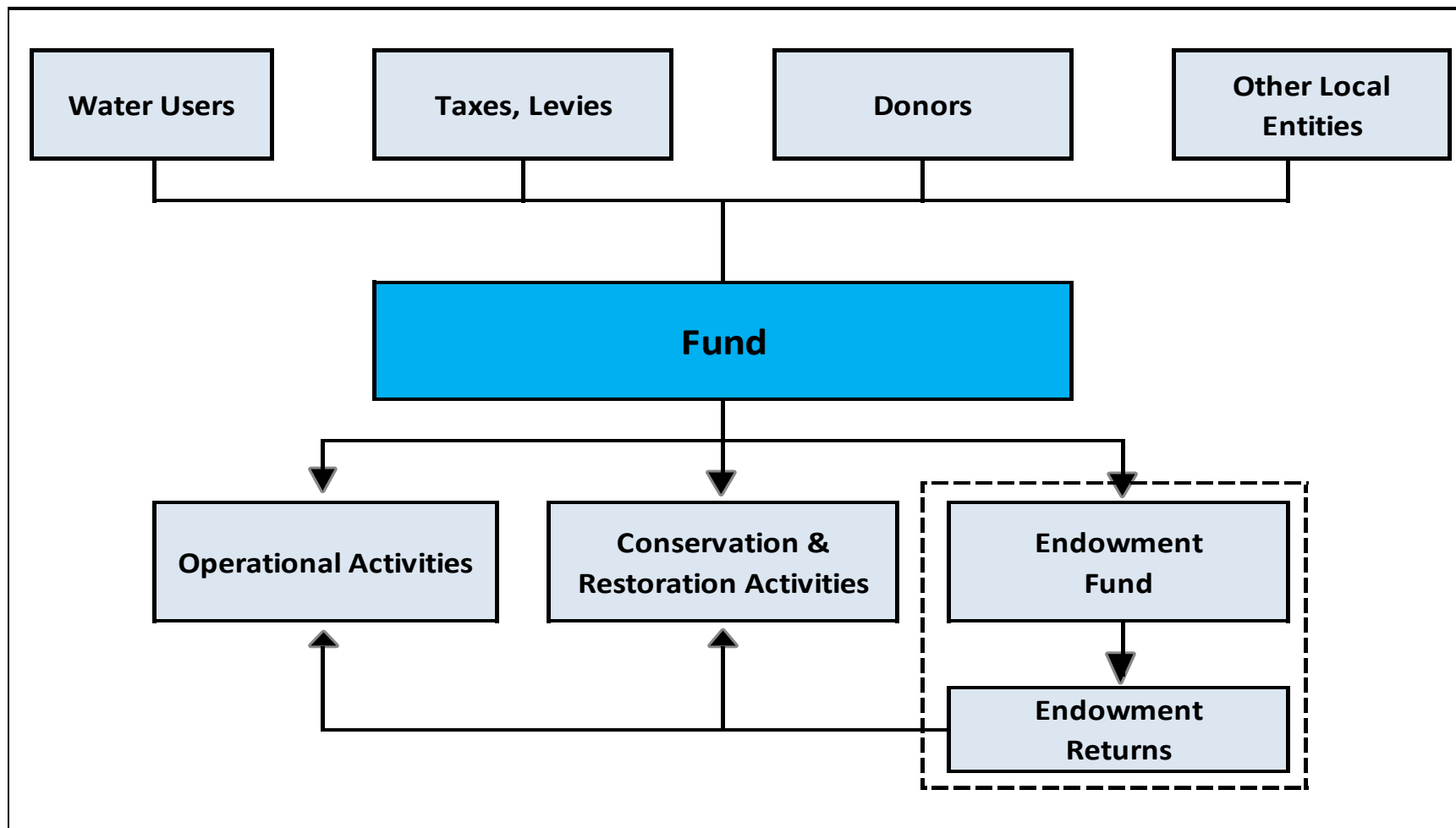
## Collective-Action Funds/Water Funds

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- One-third of new programs during 2012-2013 for investing in nature-based solutions for watershed services.
- Help to better leverage preexisting financial resources;
- Serve as a platform for negotiations and decision-making between key stakeholders so as to improve overall governance;
- Serve as a vehicle for raising awareness of environmental costs and benefits.

# Collective-Action Funds/Water Funds

## General Structure of Collective Action Funds





## Carbon Markets

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- At least 18 subnational, national or regional emissions trading schemes and crediting approaches currently in operation;
- These covered ~6 gigatonnes of equivalent carbon dioxide (GtCO<sub>2</sub>e), or around 12% of global greenhouse gas emissions;
- These include schemes in the European Union, Switzerland, US, Canada, Kazakhstan, Austria, New Zealand, Japan and China;
- A number of voluntary schemes are also in play, with voluntary carbon offset demand involving \$395 million in transactions for 87 MtCO<sub>2</sub>e in 2014, up from 76 MtCO<sub>2</sub>e in 2013;
- Market-wide average prices around \$3.8 per tCO<sub>2</sub>e in 2014.
- Forestry and land-use related offsets comprised more than half of all voluntary market transactions by volume.

## **Nutrient Trading (a.k.a. Water Quality Trading)**

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- 1996 - US Environmental Protection Agency (EPA) drafted a Framework for Watershed-Based Trading.
- 2003 - After funding numerous pilot studies, EPA released a Final Water Quality Trading Policy;
- By 2004, more than 70 schemes were in development across the US, with these involving a range of mechanisms and performance targets;
- Current estimates - trading volumes hit a high in 2013 of \$10.7 million in North America due to the market gaining scale and the entrance of new actors, including private entrepreneurs developing credits for the market.
- Not all of these schemes are regulatory-driven, with some “pre-compliance” markets (e.g. the Conservation Marketplace of Minnesota, and the Great Miami River programs).

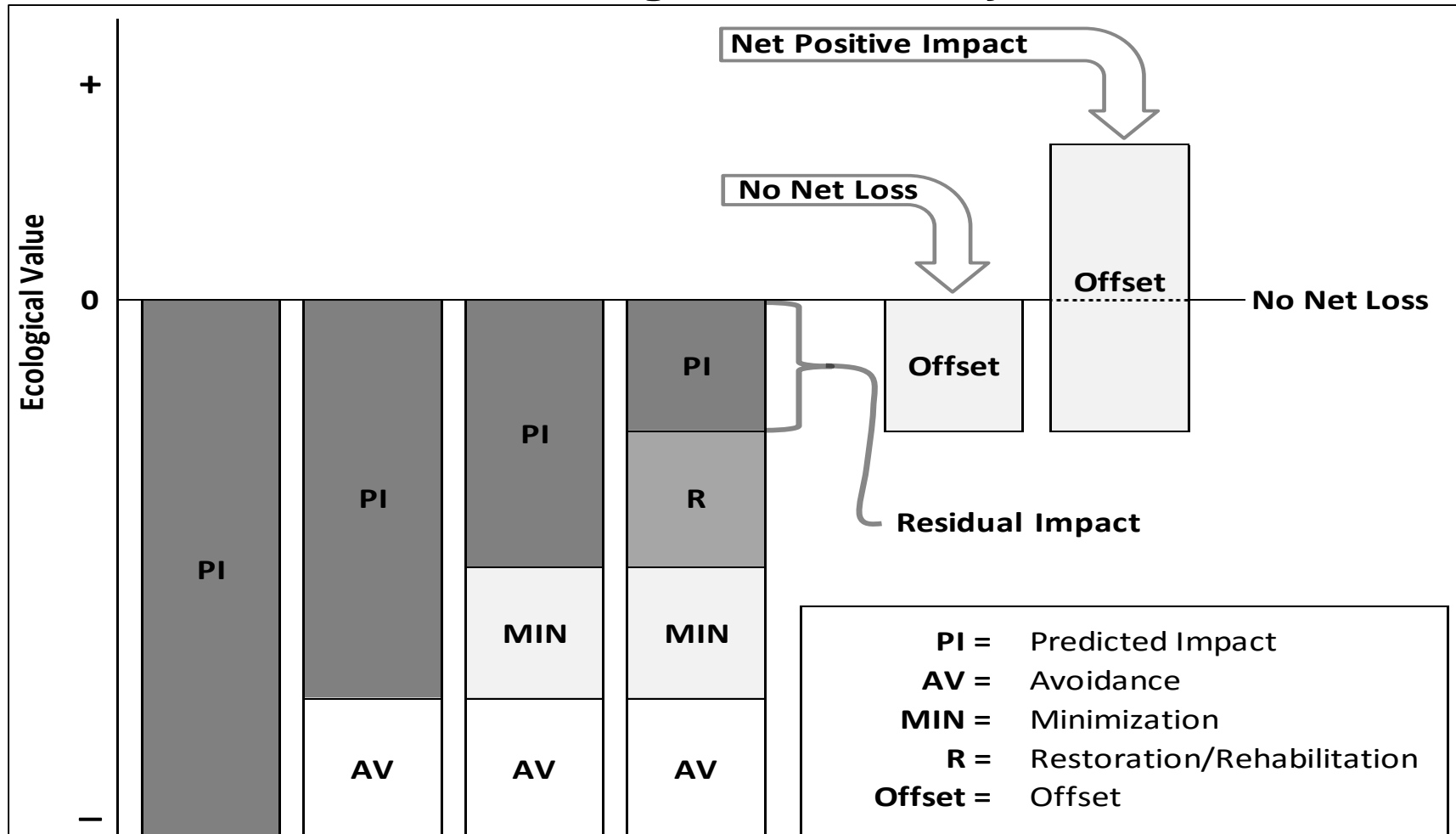
## Conservation Offsets

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- Biodiversity Offsets, Wetlands Banking.
- Designed to resolve pressure between development and conservation;
- The US, EU, Brazil, Australia and South Africa are examples of countries with laws requiring biodiversity offsets in certain circumstances;

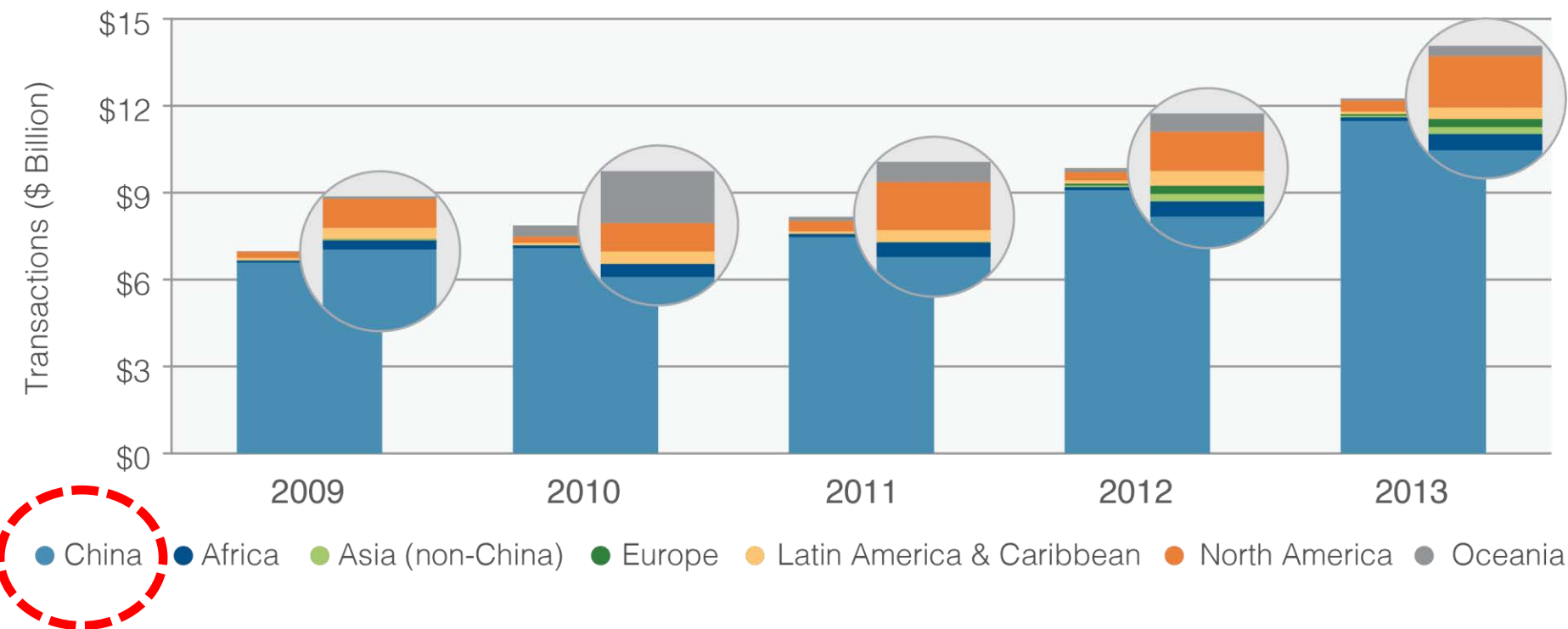
# Conservation Offsets

## The Mitigation Hierarchy



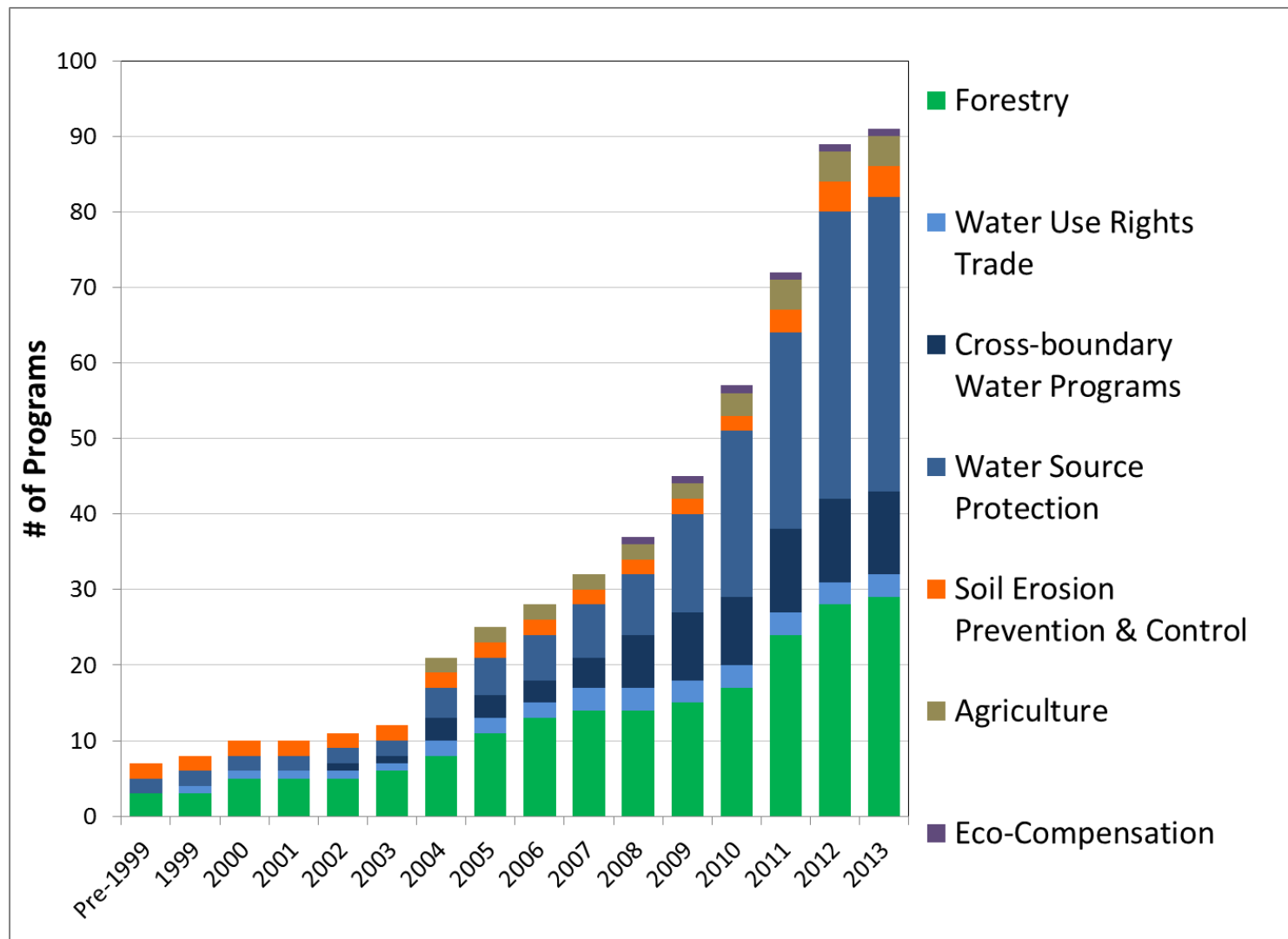
# China's Place in Global Trends

## By Region, 2009-2013

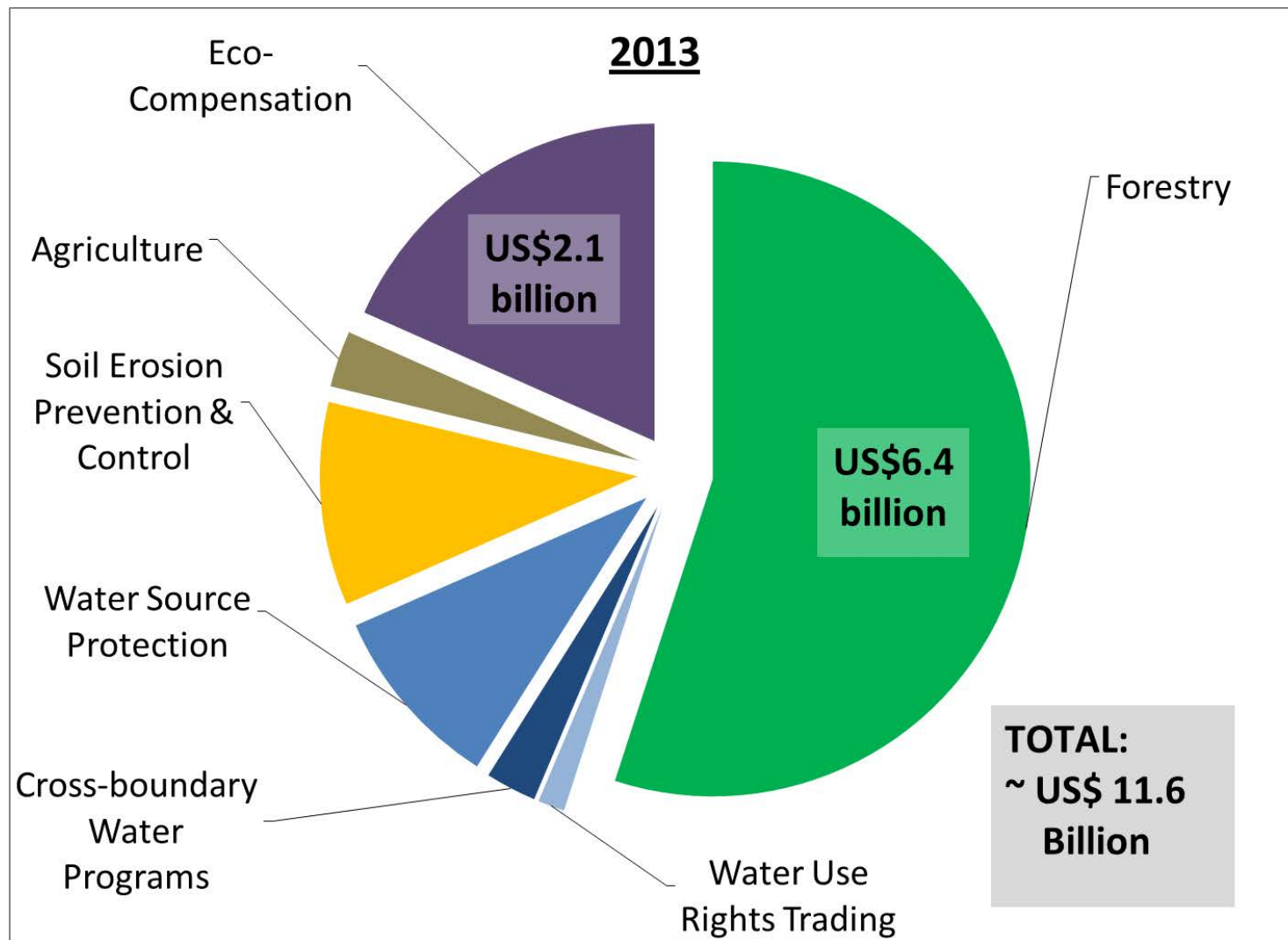


*Source: Forest Trends' Ecosystem Marketplace. (2014). State of Watershed Investment 2014.*

# Growth in IWS Programs in China, 1999-2013

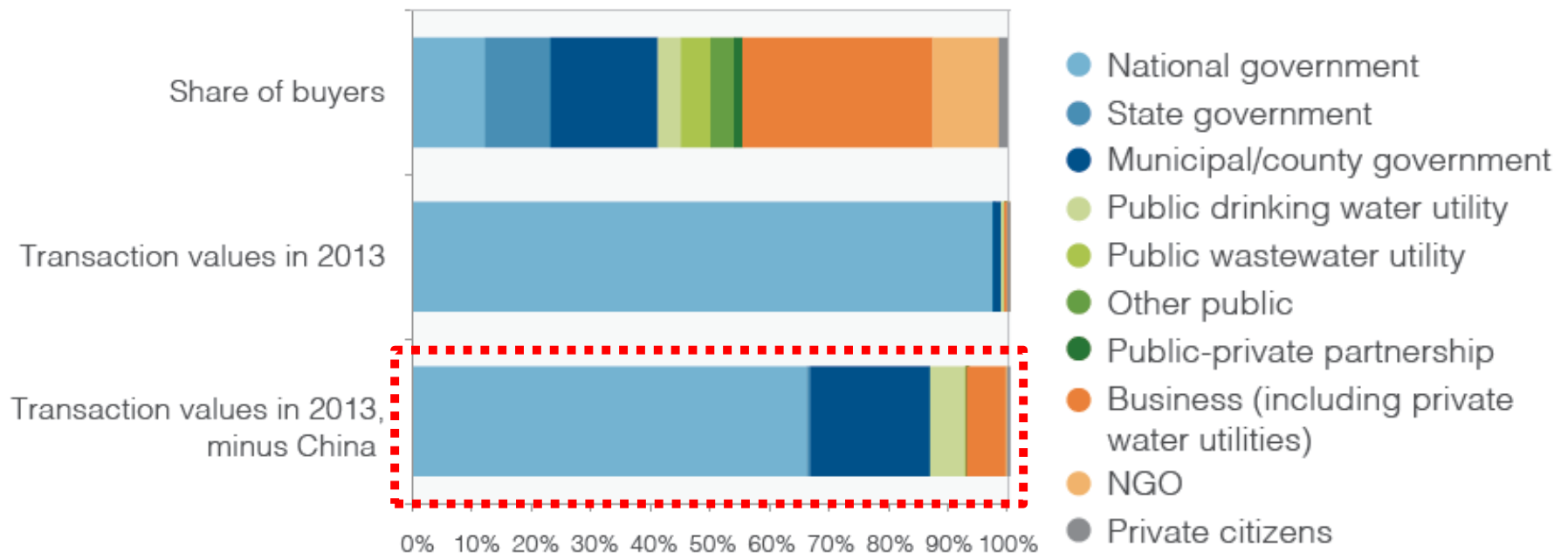


# Investments in Watershed Services in China



# The Role of Government

## Share of Buyers by Participation and Transaction Value Share – Investments for Watershed Services, 2013





## Implications for Eco-compensation

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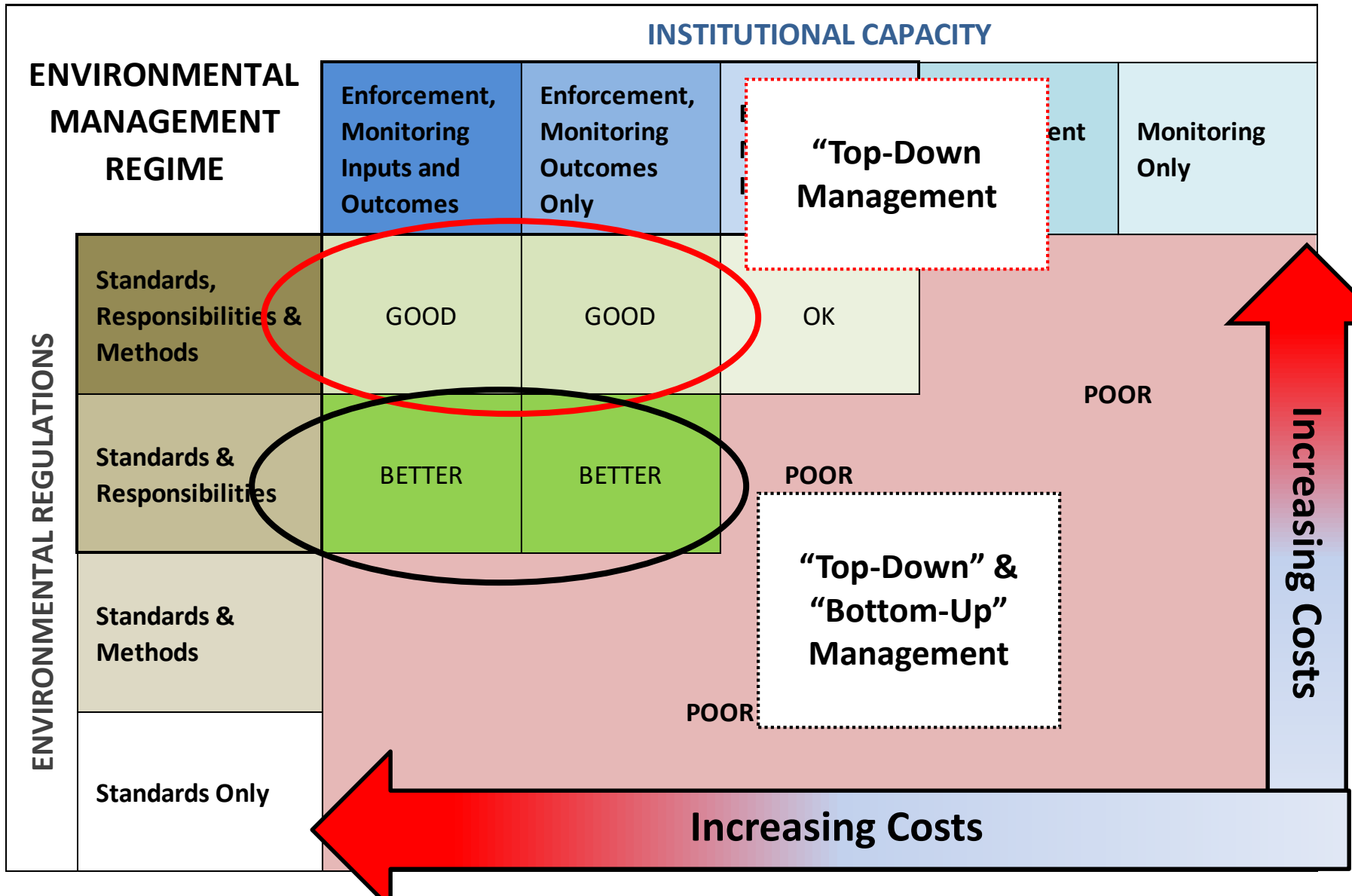
- **Payments for Ecosystem Services (PES)** approach very relevant for eco-compensation, but only if ecosystem service providers and beneficiaries can be clearly identified;
- **Conservation Offsets** hold promise within as an eco-compensation mechanism to support management of the recently-delineated “key ecological function zones”;
- **Collective Action Funds / Water Funds** could serve as a valuable approach for improving watershed management, and perhaps for cross-provincial eco-compensation.

## Entry Points for the Private Sector

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- **If government capacity is strong: “Regulatory-driven Markets”**
  - Wetlands Banking (US)
  - Biodiversity/Conservation Offsets
  - Environmental Trading (Carbon, SO<sub>2</sub>, Water Quality)
- **If government capacity is weak or management conflicts exist:**
  - “Water Funds” / Collective Action Funds
  - Payments for Ecosystem Services (maybe)

# Final Thoughts



## Further Reading

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### From Forest Trends:

**Markets for Ecosystem Services in China: An Exploration of China's "Eco-Compensation" and Other Market-Based Environmental Policies.** 2009. [http://www.forest-trends.org/publication\\_details.php?publicationID=2317](http://www.forest-trends.org/publication_details.php?publicationID=2317)

**Charting New Waters: State of Watershed Payments 2012.** <http://www.ecosystemmarketplace.com/reports/sowp2012>

**Gaining Depth: State of Water Investments 2014.** [http://www.forest-trends.org/dir/sowi\\_2014/](http://www.forest-trends.org/dir/sowi_2014/)

### From Asian Development Bank (most to least recent):

**Eco-Compensation for Watershed Services in the People's Republic of China**

<http://www.adb.org/publications/eco-compensation-watershed-services-peoples-republic-china>

**Payments for Ecological Services and Eco-Compensation: Practices and Innovations in the People's Republic of China**

<http://www.adb.org/publications/payments-ecological-services-and-eco-compensation-practices-and-innovations-peoples-rep>

**Buyer, Regulator, and Enabler: The Government's Role in Ecosystem Services Markets**

<http://www.adb.org/publications/buyer-regulator-and-enabler-governments-role-ecosystem-services-markets>

**An Eco-Compensation Policy Framework for the People's Republic of China: Challenges and Opportunities**

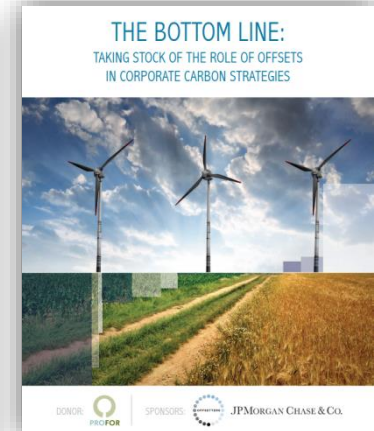
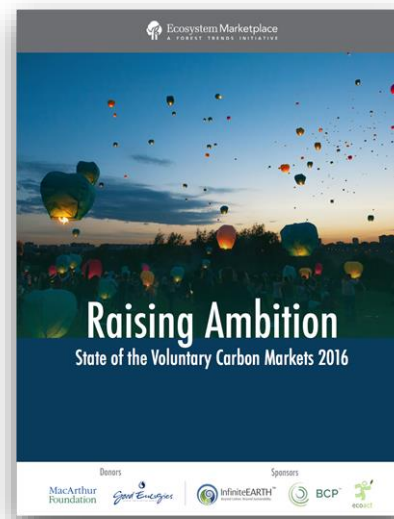
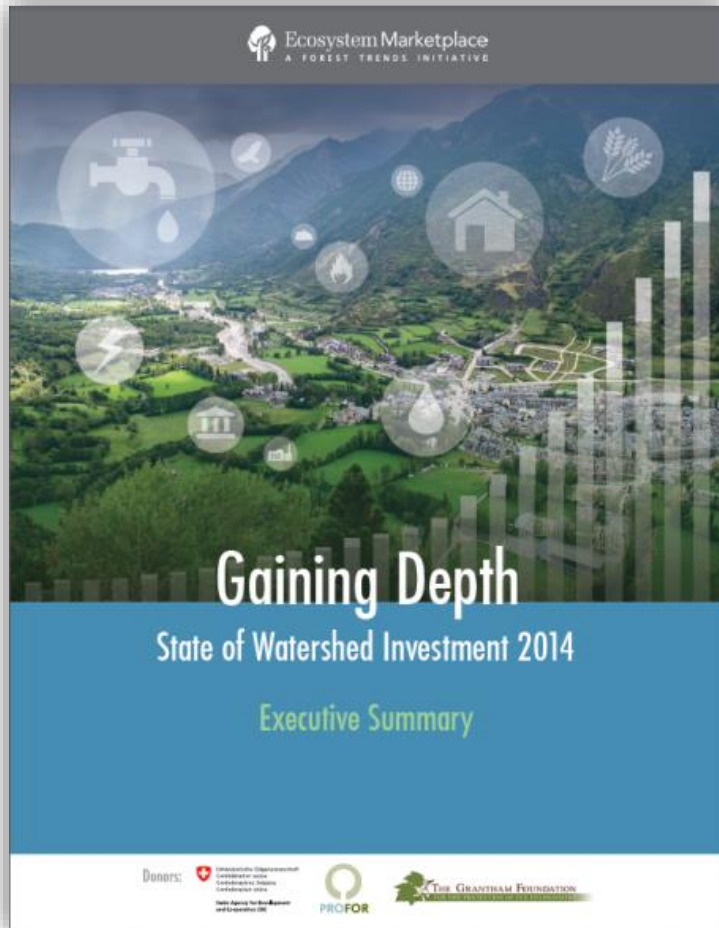
<http://www.adb.org/publications/eco-compensation-policy-framework-peoples-republic-china-challenges-and-opportunities>

**Toward an Environmentally Sustainable Future: Country Environmental Analysis of the People's Republic of China**

<http://www.adb.org/publications/toward-environmentally-sustainable-future-country-environmental-analysis-prc>

# Ecosystem Marketplace

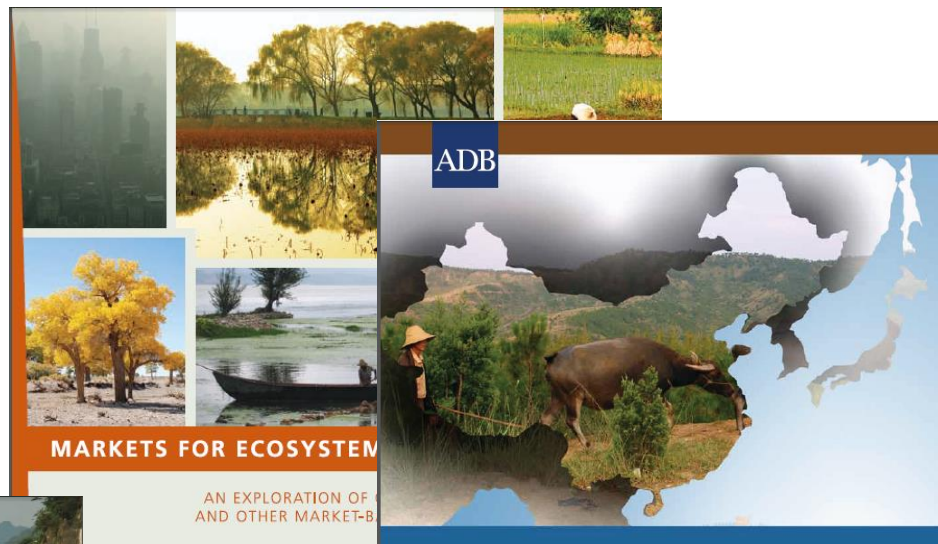
A global source for news, data and analytics around environmental markets and payments for ecosystem services



<http://www.ecosystemmarketplace.com/>



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# Thank You!

**Payments for E  
and Eco-Comp**

Practices and Innovatio  
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SONS LEARNED FROM INTERNATIONAL EXPERIENCE



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