

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

Disclaimer: The views expressed in this document are those of the author, and do not necessarily reflect the views and policies of the Asian Development Bank (ADB), its Board of Directors, or the governments they represent. ADB does not guarantee the accuracy of the data included in this document, and accept no responsibility for any consequence of their use. By making any designation or reference to a particular territory or geographical area, or by using the term “country” in this document, ADB does not intend to make any judgments as to the legal or other status of any territory or area.

**Michael T Bennett**  
***Adjunct Scholar, CEPRC***  
***Senior Advisor, Forest Trends***

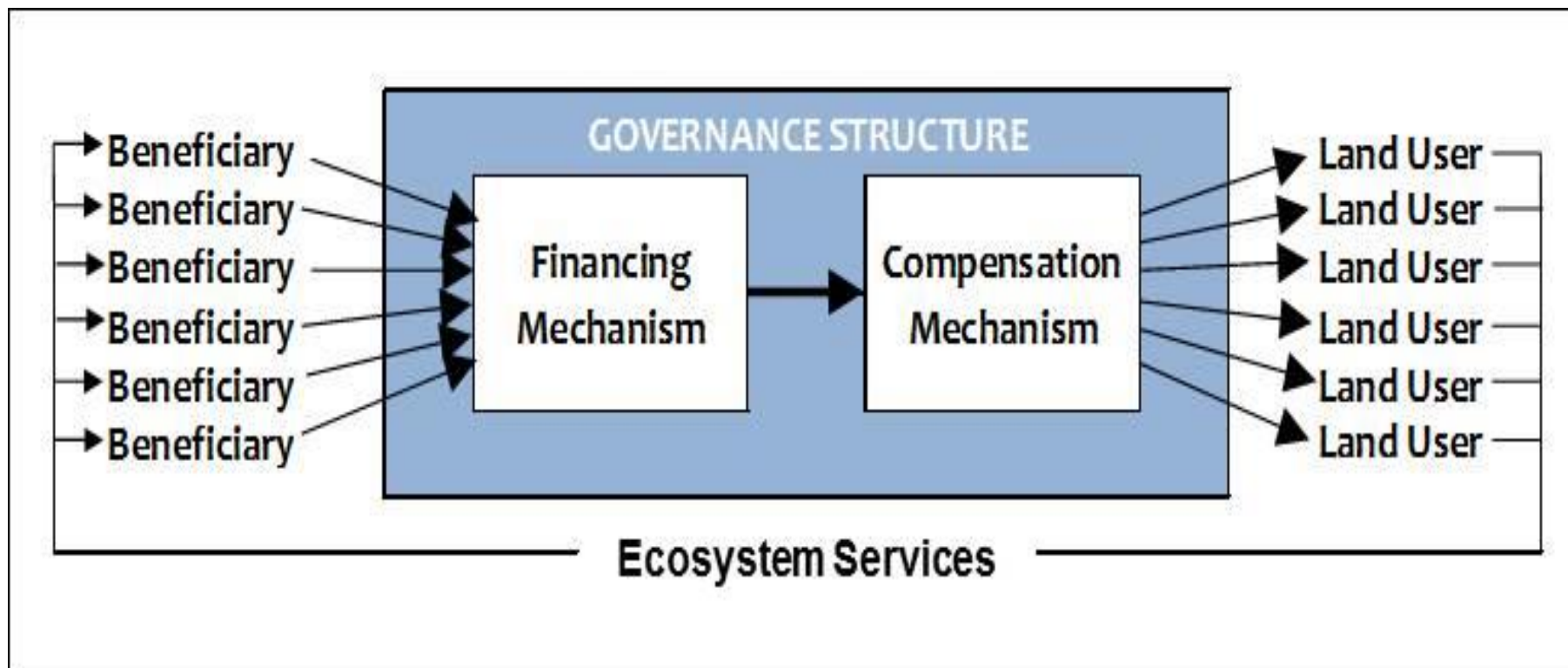
**5<sup>TH</sup> INTERNATIONAL SUMMIT ON ECO-COMPENSATION AND PES**  
**Nov. 24-25, 2016 | KUNMING, YUNNAN PROVINCE, P.R.CHINA**

- 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)

---

- 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**

---

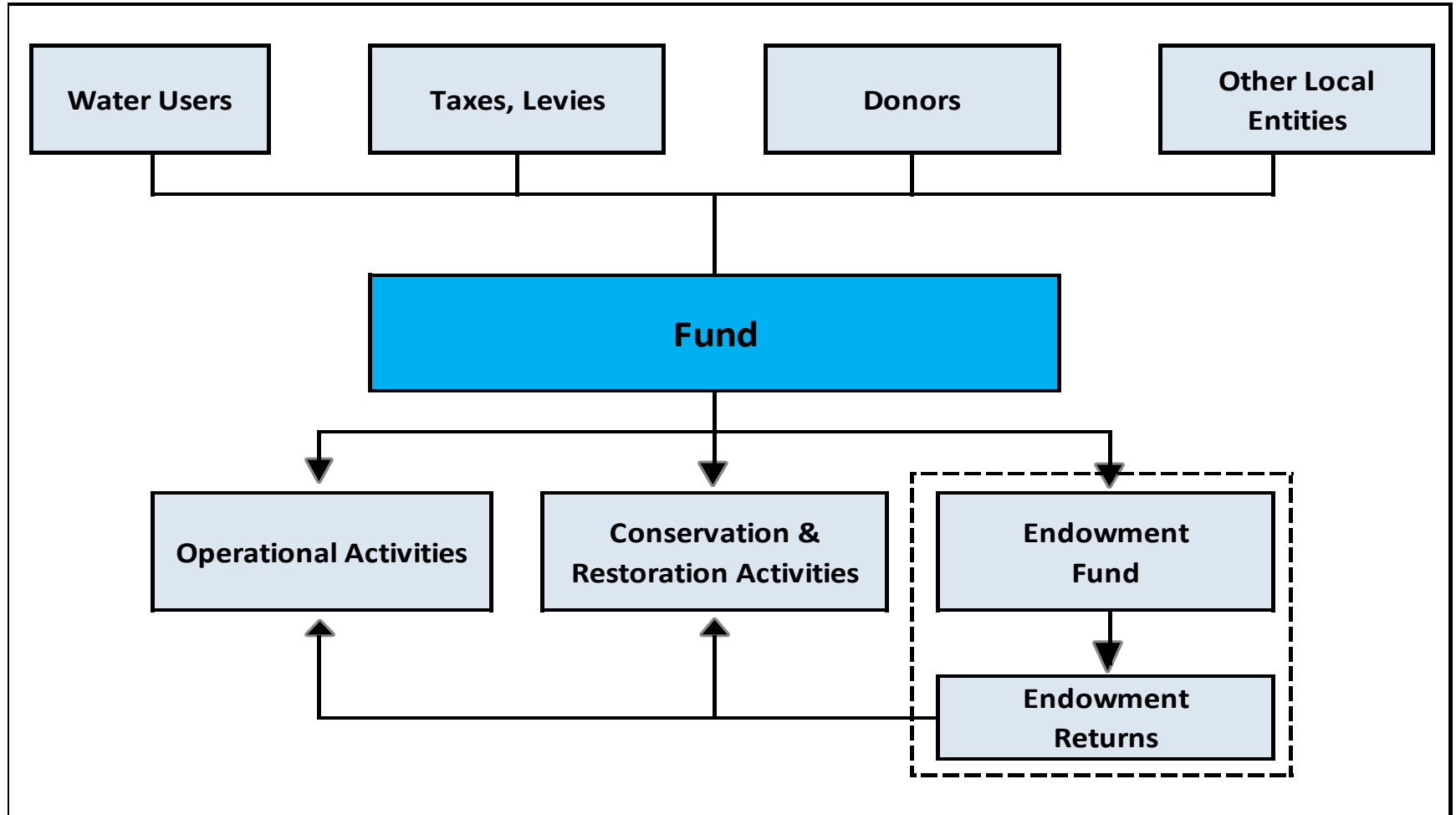
- **US Environmental Quality Incentive Program (EQIP) –**
  - Provided \$936 million in financial support and \$36.1 million in technical assistance to farmers in 2014;
  - 37,207 active and completed contracts for 2014, covering 4,539,132 hectares of farmland.
- **Measures under the Common Agricultural 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

---

- 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





## Carbon Markets

---

- 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)**

---

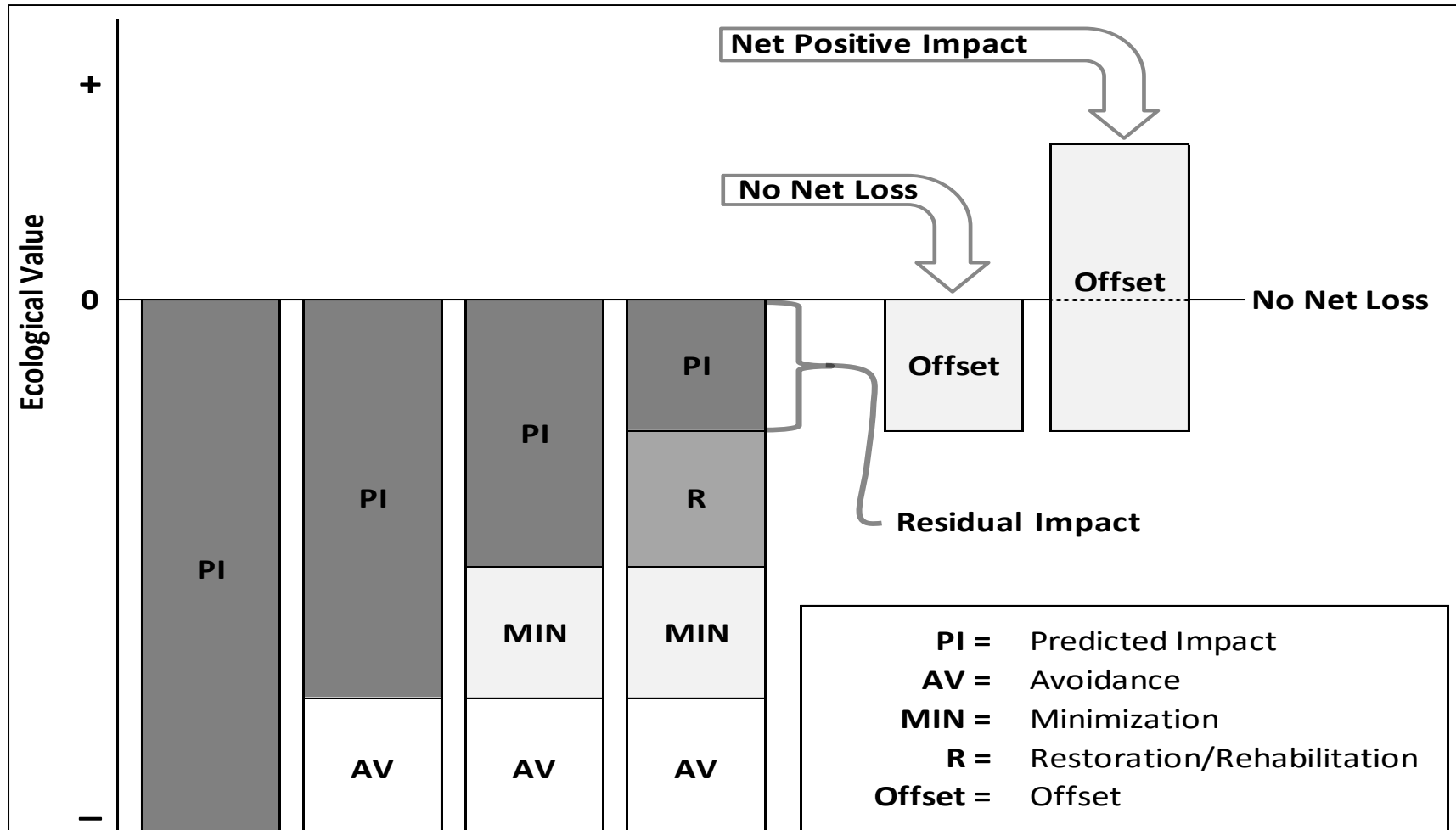
- 1996 - US Environmental Protection Agency (EPA) drafted a Framework for Watershed-Based Trading.
- 2003 - After funding numerous pilot studies, EPA released a Final Water Quality Trading Policy;
- By 2004, more than 70 schemes were in development across the US, with these involving a range of mechanisms 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

---

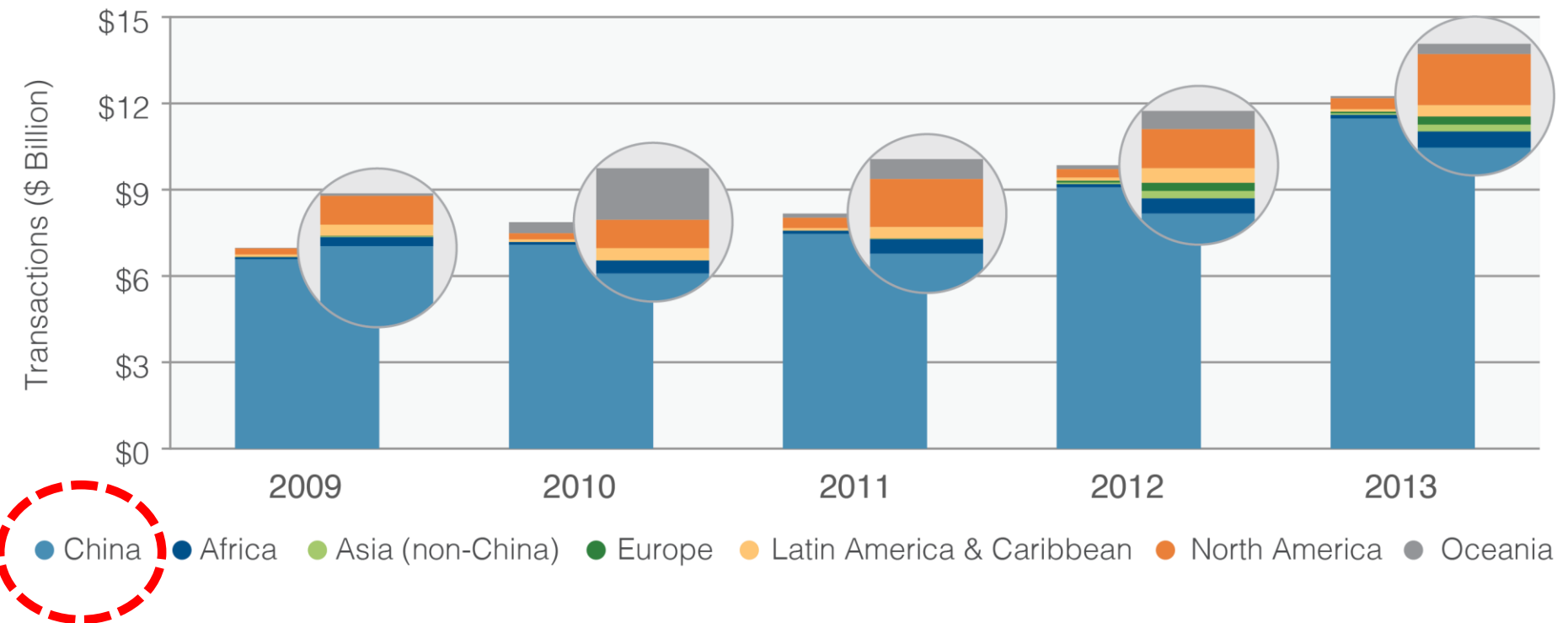
- Biodiversity Offsets, Wetlands Banking.
- Designed to resolve pressure between development and conservation;
- The US, EU, Brazil, Australia and South Africa are examples of countries with laws requiring biodiversity offsets in certain circumstances;

## The Mitigation Hierarchy



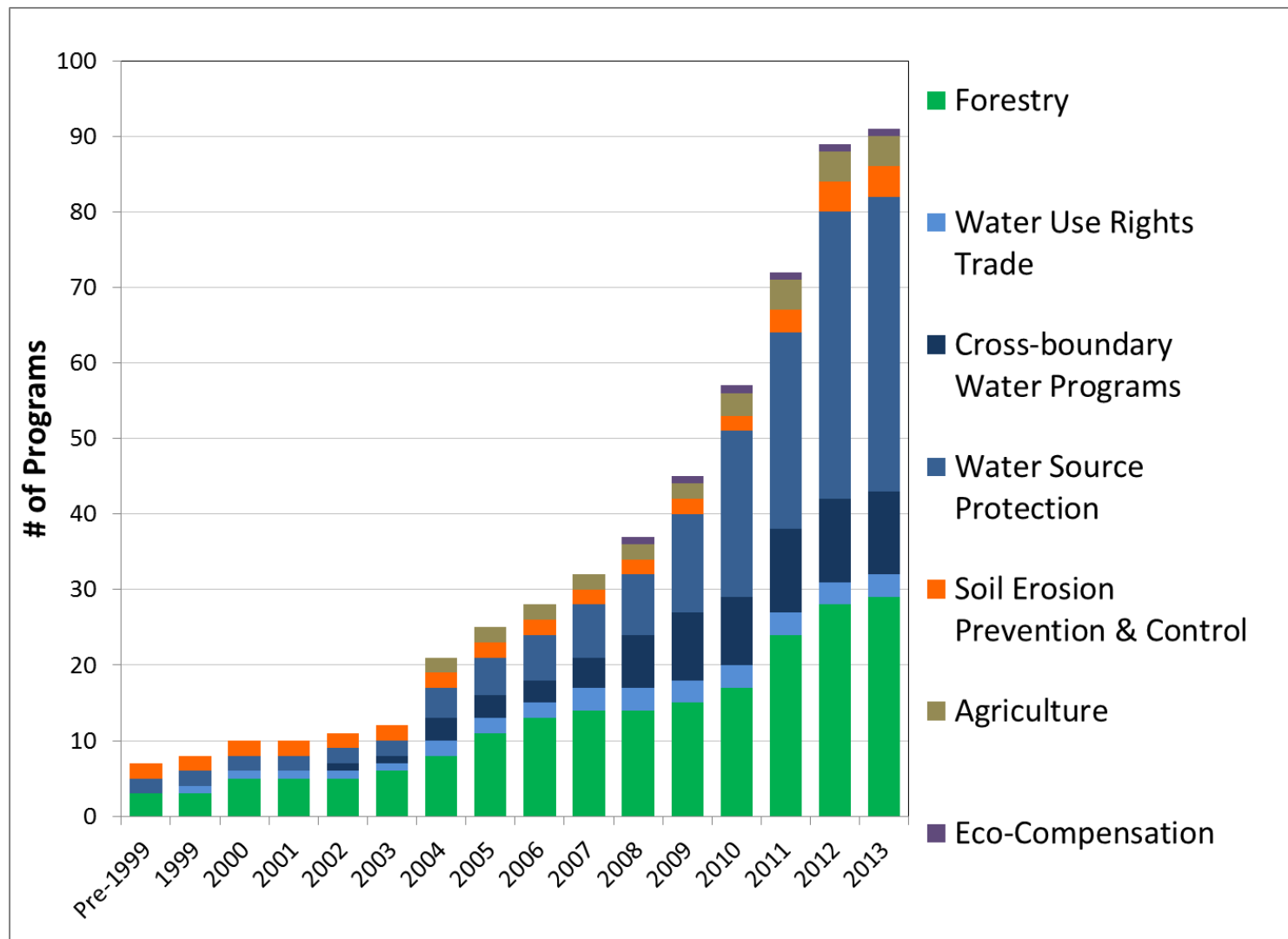
# China's Place in Global Trends

## By Region, 2009-2013

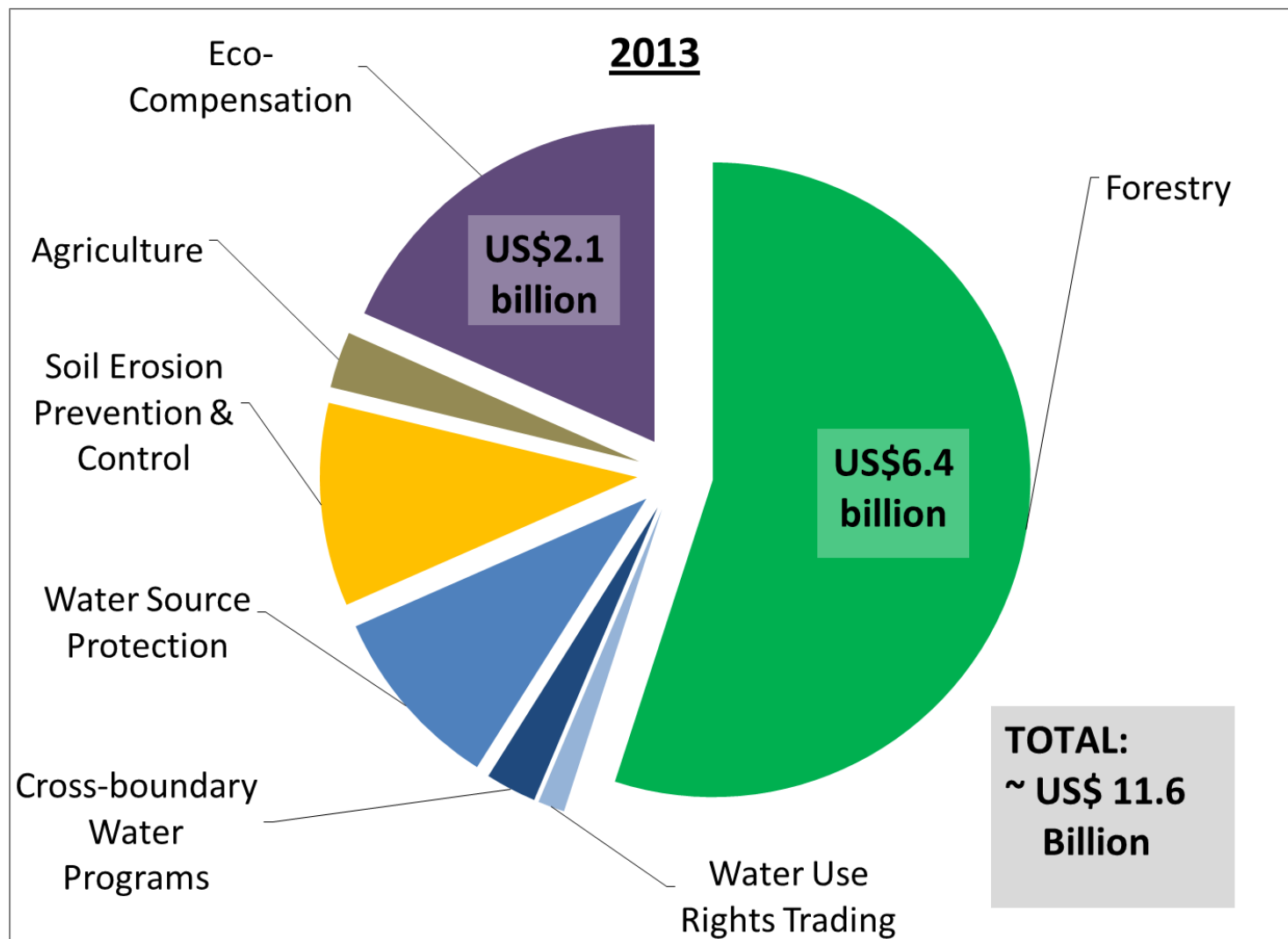


*Source: Forest Trends' Ecosystem Marketplace. (2014). State of Watershed Investment 2014.*

# Growth in IWS Programs in China, 1999-2013

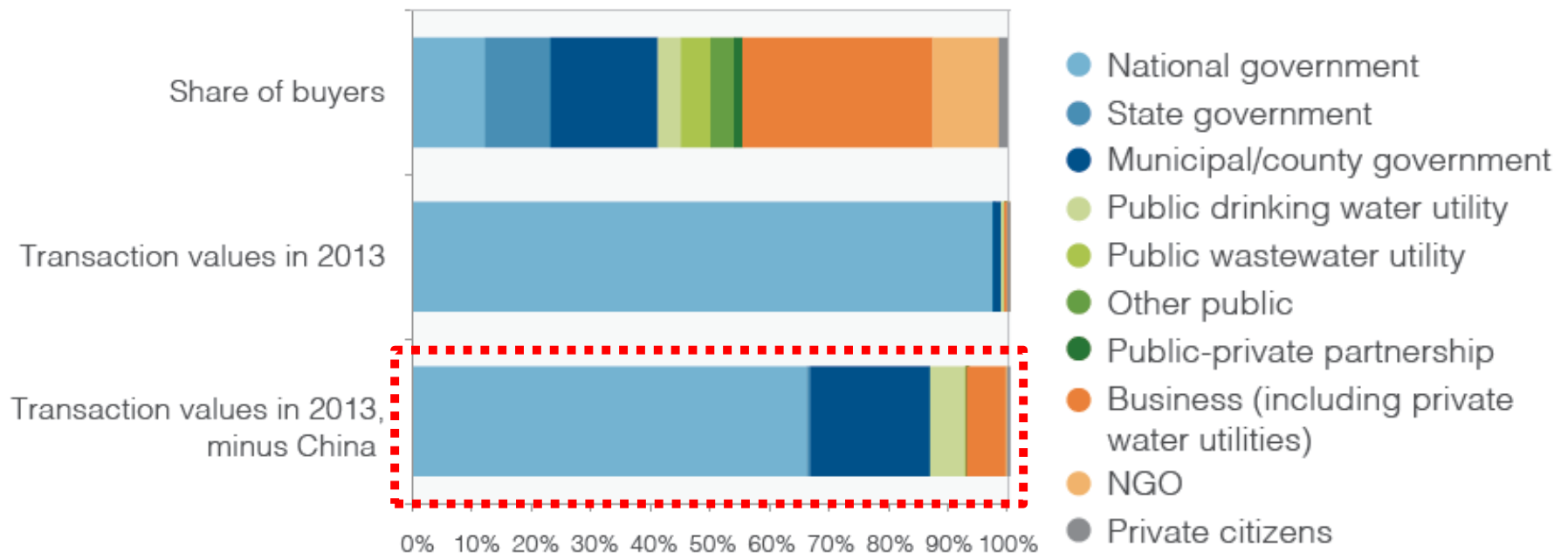


# Investments in Watershed Services in China



# The Role of Government

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





## Implications for Eco-compensation

---

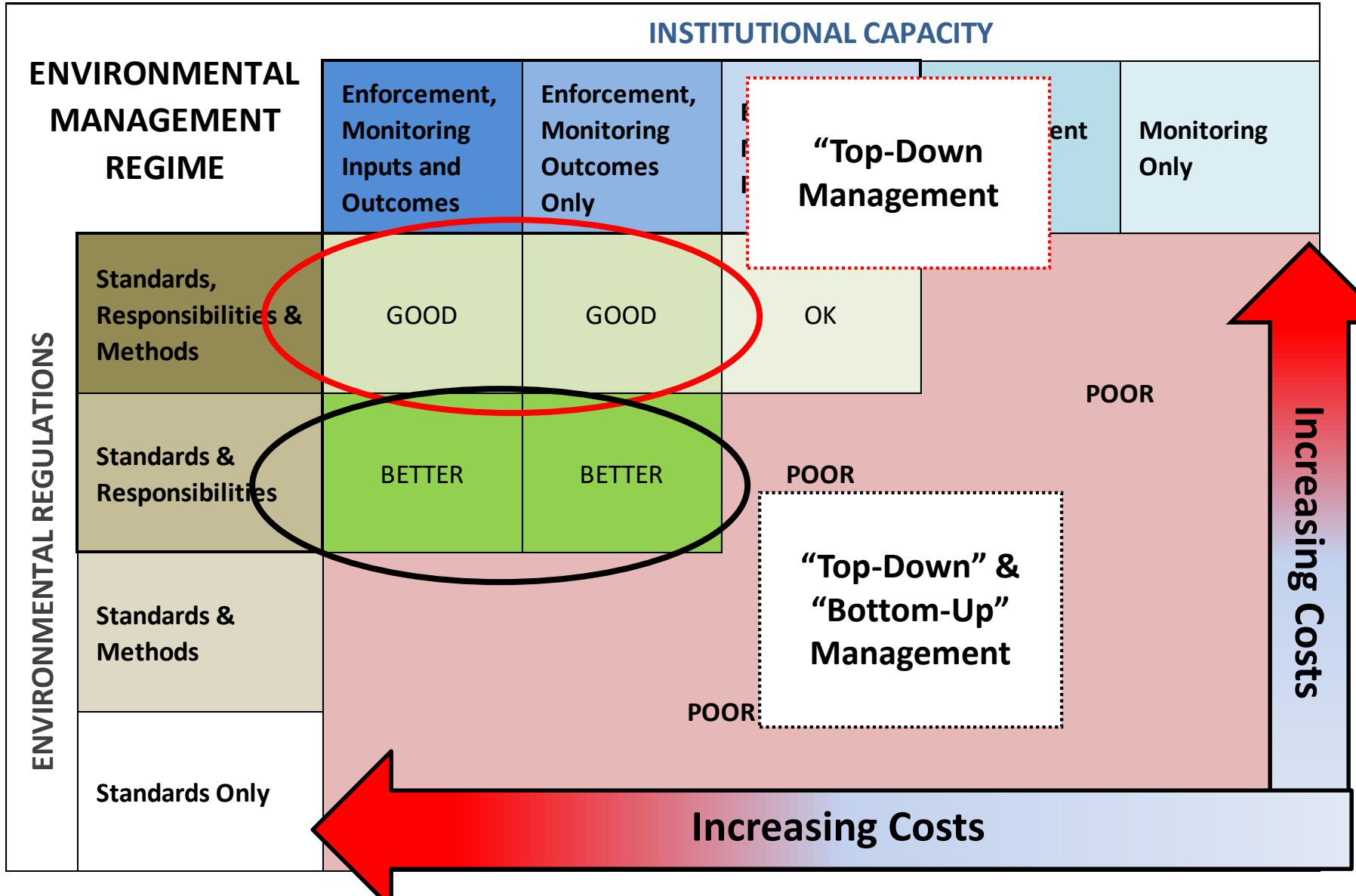
- **Payments for Ecosystem Services (PES)** approach very relevant for eco-compensation, but only if ecosystem service providers and beneficiaries can be clearly identified;
- **Conservation Offsets** hold promise within as an eco-compensation mechanism to support management of the recently-delineated “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

---

- **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

---

## 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**

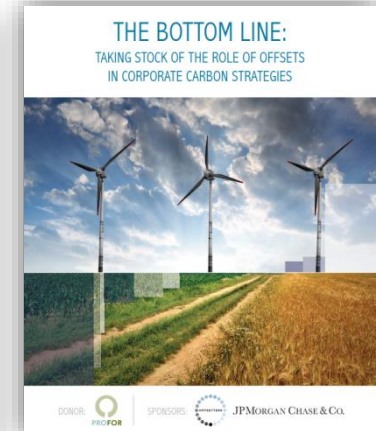
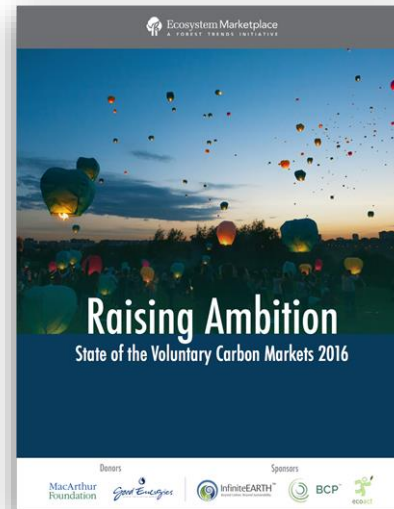
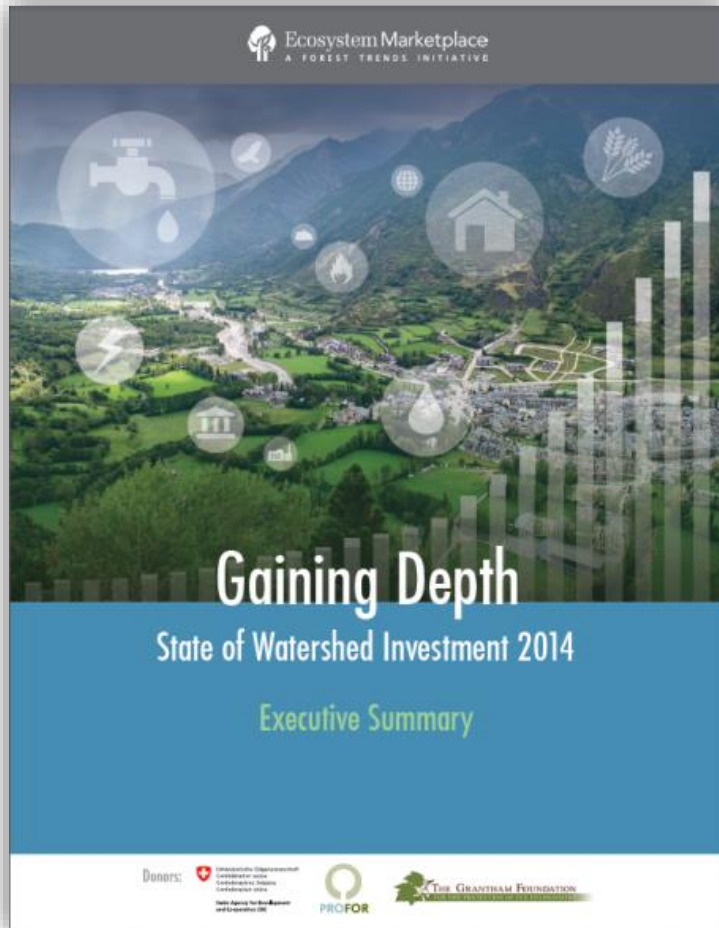
<http://www.adb.org/publications/eco-compensation-policy-framework-peoples-republic-china-challenges-and-opportunities>

**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

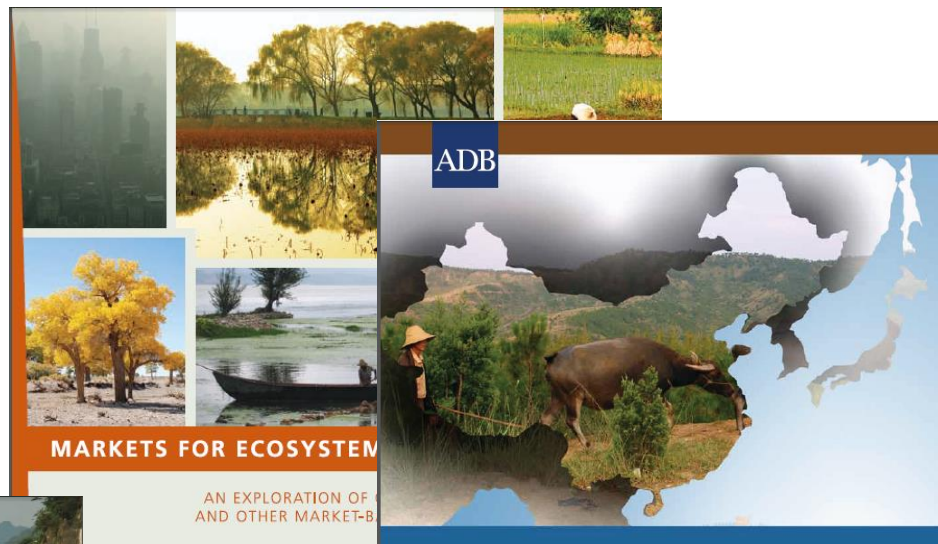
A global source for news, data and analytics around environmental markets and payments for ecosystem services



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



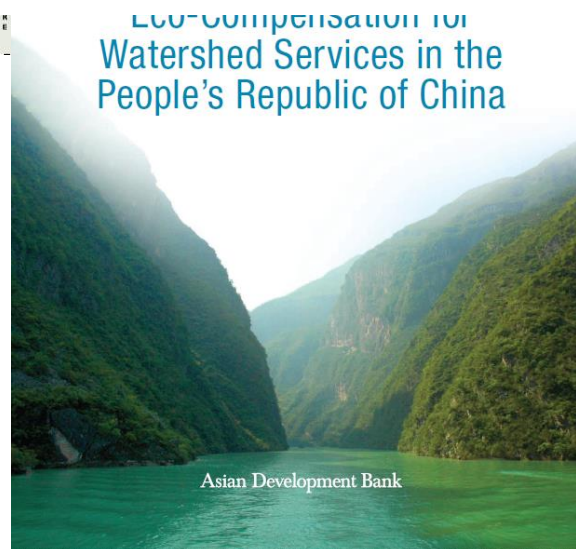
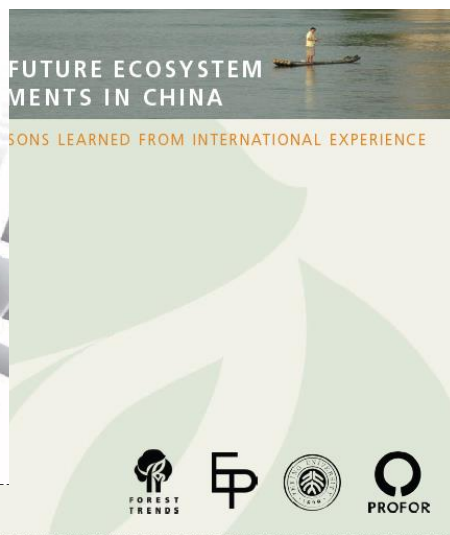
ADB



# Thank You!

## Payments for E and Eco-Comp

Practices and Innovatio  
in the People's Republic of China



and Enabler  
...in  
...ets  
...ts for Ecological Services

