



World Agroforestry Centre  
TRANSFORMING LIVES AND LANDSCAPES

Learning Opportunities:  
Innovative Finance in Conservation and Development  
IUCN World Conservation Congress 2008

# Rewarding Upland Farmers for Reducing Sedimentation: River Care Scheme

A case study of RUPES Project at Sumberjaya Watershed,  
Lampung Province, Indonesia

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# Rewards for Environmental Services (RES) lessons, outcomes and impacts



ICRAF's 3 major networks of action research and learning sites on RES and climate change issues:



Rewards for, Use of and Shared Investment in Pro-poor Environmental Services schemes in Asia (2002-2012) covering 12 sites in 8 countries (China, Vietnam, Indonesia, Philippines, Nepal, India, plus Thailand and Cambodia - upcoming)



Pro-poor Rewards for Environmental Services in Africa (2006 - 2011) covering 8 sites in 5 countries (Tanzania, Kenya, Guinea, Uganda & Malawi)



Global partnership devoted entirely to research on the tropical forest margins with 12 benchmark sites in the Amazon, Congo Basin and Southeast Asia

## Future challenges:

Greater R & D efforts needed to:

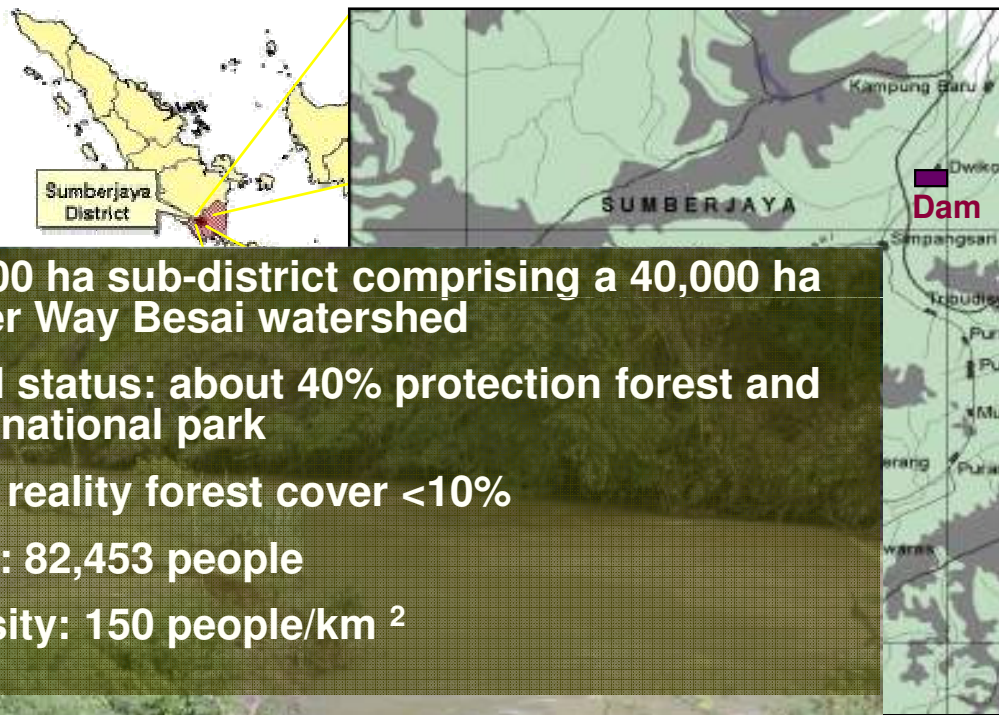
- ❑ Reduce transaction costs of RES schemes
- ❑ Enhance efficiency of RES schemes and balance it with fairness for actors involved
- ❑ Review legal and policy frameworks that create enabling environment for RES to be scaled up and out







# Research Site: Sumberjaya watershed



- 55,000 ha sub-district comprising a 40,000 ha upper Way Besai watershed
  - Land status: about 40% protection forest and 10% national park
  - → in reality forest cover <10%
  - 2003: 82,453 people
  - Density: 150 people/km<sup>2</sup>
- 
- A benchmark for conflicts of forest-watershed functions in Indonesia
  - “Myth-understanding” regarding watershed functions led to often violent evictions of thousands of people

- Current public investment scheme: land rehabilitation and ‘community development’ program
- Option of mechanisms for reward transfer

- Coffee cultivations: monoculture and multistrata
- Community as ‘land managers’
- Agroforestry system (shade coffee & fruit trees) could maintain watershed function





# Potential RES scheme in Sumberjaya

- **RUPES (*Rewarding Upland Poor for Environmental Services They Provide*) Program in Sumberjaya since 2003**
- **To support and mobilize capacity of poor local upland communities and government agencies to develop workable reward schemes for environmental services provided by upland poor.**
- **Three potential schemes in RES:**
  - **Land tenure security → tree planting and protection of remaining forest**
  - **Direct monetary reward for reducing sedimentation (River Care and land conservation) → sub-catchment scale**



## Premise in 1998:

**Uncontrolled *deforestation* and *conversion to coffee* on slopes have led to:**

- Increase of erosion
- Reduction of discharge of the Way Besai River
- Negative impacts for the hydroelectric power operation
- Reduction of water availability for irrigated paddy rice downstream





- Soil loss 20 cm in 4 years
- 500 ton per hectare yearly

Widodo (2005)



# Do stakeholders get the watershed functions they want?

## Expectations before and up to 2000:

- Hydro-power dam:
  - Water quantity: existing regular flow  $> 24 \text{ m}^3/\text{s}$
  - Water quality: problem on siltation of the lake
  
- Farmers: struggling for secure livelihoods
  
- Forestry Department: more forest and trees in the landscape





## Do stakeholders get the service they want NOW?

- Hydro-power dam:
  - Water quantity: has improved over the years
  - Water quality: high sediment levels in some rivers, need to identify major sources
- Farmers:
  - Tenure security has improved in some cases through experimental social forestry schemes
  - Paddy rice farmers suffer from floods
- Forestry Department: Less forest, but more trees
  - more mixed multistrata coffee systems now



## **River bank collapse**

**a very important factor in adding erosion problems in some catchments**







# Establishment of "River Care" Group

- Forum or Working team for sediment reduction
  - formed at each sub-village
  - consisted of hamlet administrators, community forestry administrators and mosque administrators
  
- A medium for
  - Community capacity building
  - Social network and
  - Conflict resolution
  
- The Governance: Forum Committee consist of
  - chief,
  - secretary,
  - treasurer,
  - conservation service section,
  - community development section,
  - agriculture and economic section, and
  - public work section



# Establishment of "River Care" Group

## ■ Activities:

- formulate work plan, budget allocation, rule of activity,
- monitor and evaluate activities based on community aspiration





## Contract: Sedimentation reduction activities on erosion hotspots

- Construct and maintain dams to retain sediments from forest, coffee garden, paddy field, foot paths;
- Divert waterway and construct limited ridging and sediment pits on coffee gardens to prevent erosion;
- Plant grass strip along potential landslide hotspots on coffee gardens;
- Install water channels and PVC pipes to stabilize water flows;

# Conservation Agreement

Payment schedule of operational cost	In total US\$ 1,100 – 50 percent at inception; 50 percent at two months contingent on performance
Payment as ES reward	<p>Reducing sediment up to:</p> <ul style="list-style-type: none"> <li>■ 30 percent: in cash: US\$ 2,200 (Gunung Sari) or a micro hydropower plant with the capacity of 5000 watt with similar monetary value to Gunung Sari (Buluh Kapur);</li> <li>■ 21 to 29 percent: US\$ 850</li> <li>■ 10 to 20 percent: US\$ 550</li> <li>■ less than 10 percent: US\$ 280</li> </ul>
Duration and monitoring	One year with monitoring every three months; termination if 50% contracted activities not completed by midterm monitoring date
Cancellation or non-compliance results in:	<ul style="list-style-type: none"> <li>■ Ineligibility for second payment installation</li> <li>■ Purposively destructing public physical construction and properties</li> <li>■ Friction and conflict among community members</li> <li>■ Indication of corruption</li> <li>■ Uncontrollable event such as natural disasters</li> </ul>





# Why this scheme works?

- Ensure **environmental service outcomes** of the scheme – linked to biophysical studies ('hot-spots') – realistic
  - Good knowledge about causes of erosion and its hotspot, including how to tackle the problem
- Clear conditionality, i.e. clear target of sedimentation reduction and reward
- Local stakeholders' **voluntary involvement** on this process will increase effectiveness in program implementation.
  - Identifying **environmental problems**, capturing **local knowledge** and understanding farmers' **management option** are important steps in initializing a conservation program.
- Clarity in measuring ES – transparency
  - Participatory water quality monitoring

# Four principles recognized within efficiency and fairness clusters

## I. Realistic

*(scoping - identifying problems, and ES)*

**tangible** and **sustainable reduction** or **avoidance** of **human-induced threats** to **ES** flows and associated stocks (and/or measurable recovery from past decline of ES) at relevant **spatial** and **temporal scale**, relative to a non-intervention (“business-as-usual”) **baseline**.

## II. Voluntary

*(analysing multistakeholders and power relationship )*

**engagement** of both **ES providers** and **beneficiaries** in a **negotiated** scheme through **free** and **informed choice** at the **individual** level.



# Four principles recognized within efficiency and fairness clusters

## III. Conditional

*(negotiation and implementation)*

**benefits** received by ES providers depend on **performance** measures **agreed** in **contracts** between parties, with conditions **known** and **understood** by **all** relevant **stakeholders**.

## IV. Pro-poor

*(all stages)*

**access, process, decision making and outcomes** of the schemes are **differentiated** by **wealth** and **gender** among ES providers and beneficiaries, and support a **positive bias towards poor stakeholders** in either group to comply with the **Millennium Development Goals** and as a step towards **long term sustainability**.



# What we learn?

- Good social mobilization
  - RES negotiation will succeed if the community **appreciates its opportunity, role and impacts** as “ES Seller”.
  - The communities should be **involved in the scheme voluntary** and **understand their bargaining positions based on optimal threat** and **cooperation** with others stakeholders.
  - Community based institution should have **well-functioning structure** in order to effectively support an operational RES mechanisms
- Correcting current policy criteria: consider other heterogeneity (on soils, geology, etc.) & other landscape elements (footpaths, roads, landslides & river bank collapse) in solving landscape problems.

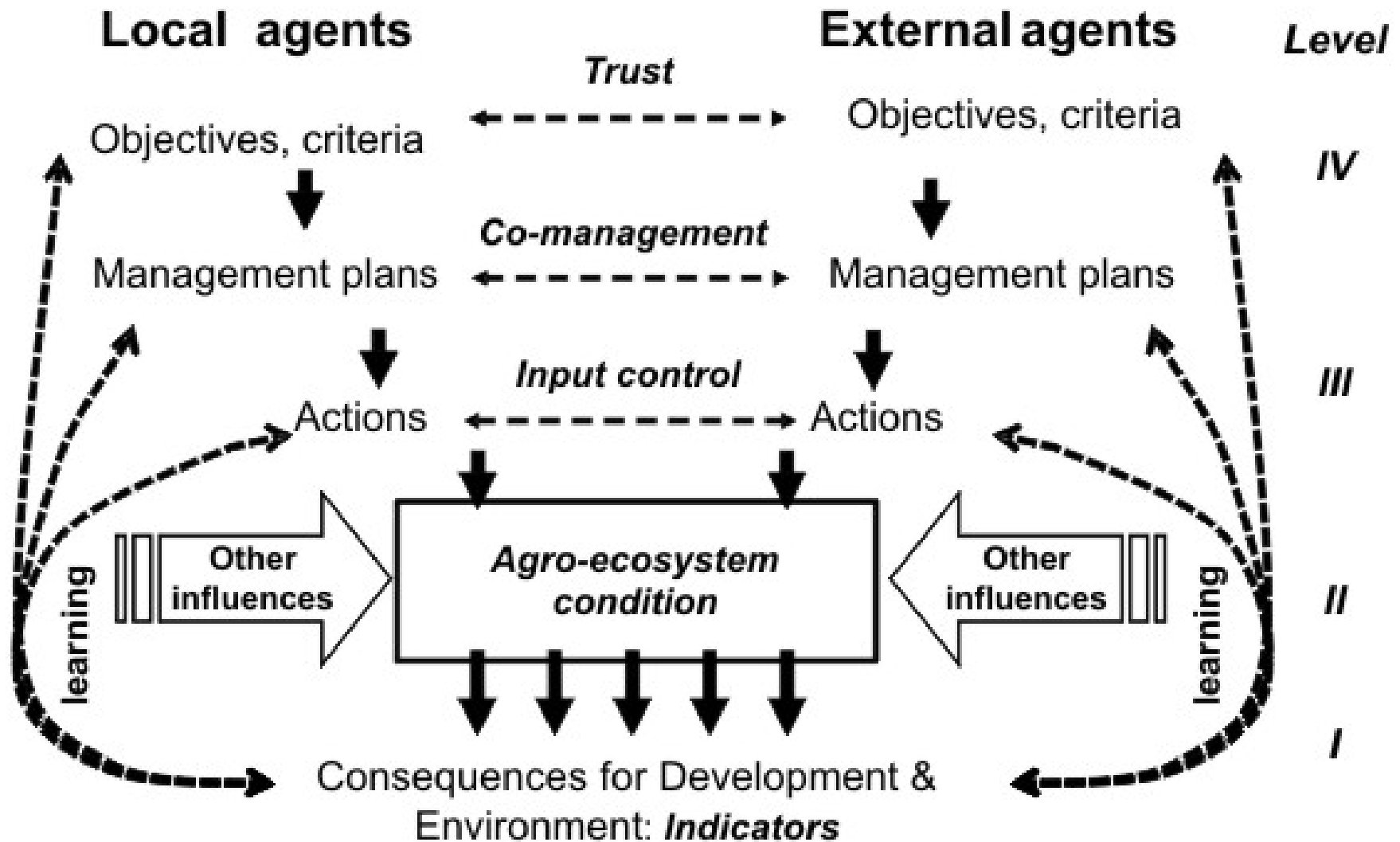




# Poverty and Environmental Trade-off

- Not targeting specifically poor farmers but erosion hot spots (although in average, the income per capita in this area below \$2/day)
- Outcome based conditionality (effective gain in ES benefit) is not a pro-poor approach due to high uncertainty in ES provision
  - For example, landslide in more upper stream (forest area) can jeopardize the efforts made by the community. This causes cancellation of the reward.
- Rewards for ES can only be achieved if there is a synergy between natural, human and social capital

# FOUR LEVEL OF 'CONDITIONALITY'





# RUPES-I synthesis



## CES: Commoditized Environmental Services

- **Direct** interaction ES providers & beneficiaries
- Recurrent monetary payments: **supply** and **demand**
- **No** explicit poverty target
- **Actual** ES delivery & direct marketability:
- Conditionality Level I

## COS: Compensating for Opportunities Skipped

- Paying for **accepting restrictions**
- Achievement of a **condition** of (agro)-ecosystem or **effort** (or restrictions in input use).
- Poverty target **added** with certain conditions
- Conditionality Level II/III

## CIS: Co-Investment in (landscape) Stewardship

- **Entrust** the local resource management
- Full trust of **management plan** & **local monitoring** with high **social capital** level
- A **flexible** contract, broad sanctions and a monitoring requirement
- Conditionality Level IV

'Real' ES,  
recurrent

Proxies,  
recurrent

Plans/ACM,  
investment

# PAYMENT OR CO-INVESTMENT FOR ES?

- A strict interpretation of realistic, conditional and voluntary PES (paradigm CES or commoditized ES) appeared problematic in most sites and situations.
- Monetary incentives may be counterproductive for public pro-social activities
  - undermine existing norms
  - not sufficient and/or durable enough to offset this loss of intrinsic motivation.
- PES schemes may need to address a livelihoods approach that considers the five capital types (human, social, physical, financial and natural) in their interactions across scales.
- Replacing the “payment” concept by “co-investment” language is an effort to appeal to both social and financial concepts.

# CO-INVESTMENT AND SHARED RESPONSIBILITY

- A language of CIS: “**co-investment**” and “**shared responsibility**”
  - conducive to the type of respect,
  - mutual accountability and commitment to sustainable development
  - reference to social exchange rather than financial transactions
  - opportunities for phased strategies.
  
- An evolutionary process ....

After creating a basis of **respect** and **relationships** through the paradigm of CIS there may be **more space** for **specific follow-ups** in the paradigm of CES for **actual delivery of ES** to meet **conservation objectives**.





# Thank You

**More information about RUPES**

## **RUPES Program**

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# Rules of The Games

- **Operational Fund :**
  - funding physical and non physical activities (meeting etc) to reduce sediment in river.
  - excess of operational fund for maintaining activities (check dam etc)
  
- **Reward Fund :** an appreciation of efficacy member in reducing river sediment.

Fund will be allocated to element of sub village group as operational fund.

- a. Sub Village ( 10) %,
- b. Mosque ( 10) %,
- c. Community ( 60) %, through
- d. River Care Forum ( 10) %,
- e. Young fellow Organization of (5) %,
- f. Woman Organization ( 5) %

Especially for community fund will be counted by number of active day attendance in mutual assistance and other program