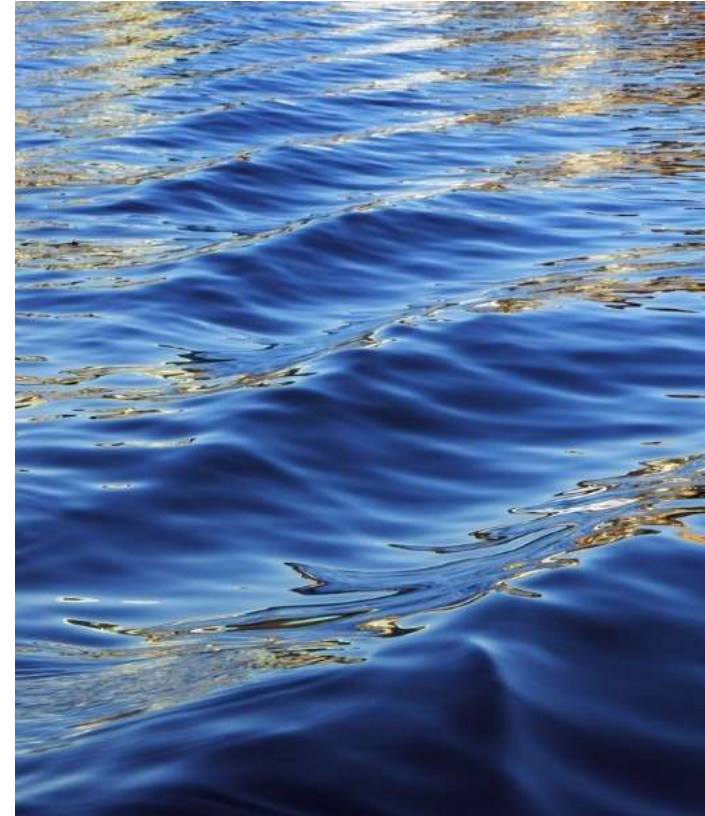


THE CASE FOR
CONSERVING AND
REGENERATING
ECOSYSTEMS
THROUGH THE
CREATION OF
“ECOSYSTEM
EQUITY LINES OF
CREDIT”

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Economics is...

- The most misunderstood discipline!
- Not about money...
- The social science of decision making

Q: Why do we have to make decisions?

A: Scarcity of resources

Q: How do we make decisions?

A: $B > C$

Q: How do we get people to change their decision making (i.e. their behavior....)



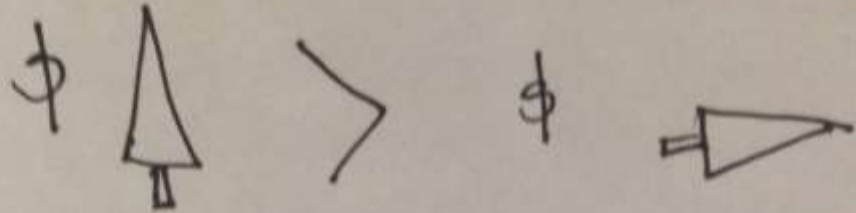


Deforestation...

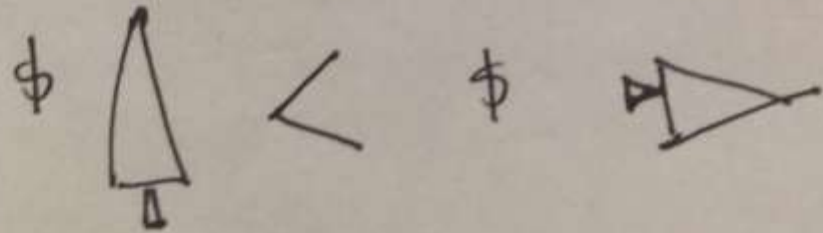
Globally the largest cause of deforestation and forest ecosystem loss is the conversion of forest resources by smallholders (FAO).

Smallholders are rational decision makers, and until the value of conserving and regenerating forest ecosystems is greater than the return to forest conversion, smallholders will continue to convert forests into marketable products and land for agricultural production.

Is it?



Or is it?



depends

Payments for Ecosystems Services (PES)

Market-based incentive

Changes the value of resources which provide vital ecosystem services

Types:

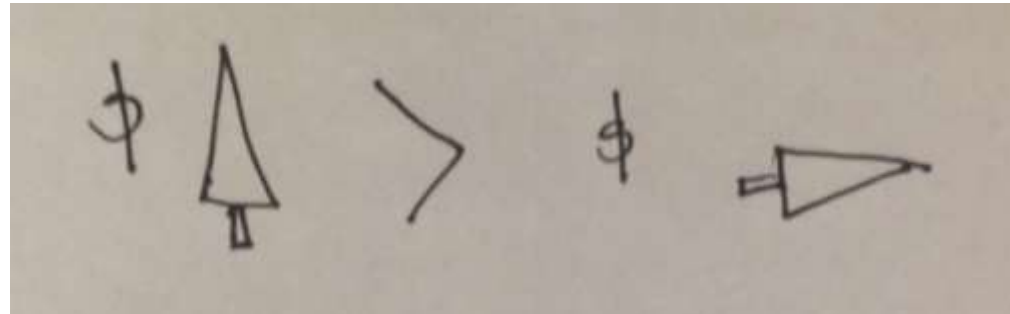
- Direct financial payments to ecosystem service resource managers
- Financial support for specific community goals
- In-kind payments – seeds, fertilizer, etc.

Reasons for PES

- Biodiversity protection
- Natural resource regeneration
- Regulation and protection of watershed services
- Carbon sequestration and storage services
- Marine and coastal protection

Successful PES

Direct financial payments > opportunity costs of loss of use of
alternative



Costa Rica's PES Program - Payment Levels and Categories, 2012

ACTIVITY	SUBCATEGORIES	US\$/HA/ CONTRACT	ANNUAL PAYMENT (US\$) PER HECTARE
Protection (2–300 ha); contract and payments for 10 years	Forest protection (general)	US\$640	US\$64
	In conservation gaps	US\$750	US\$75
	In zones of importance for water	US\$800	US\$80
Reforestation (1–300 ha); contract for 15 years and payments for 5 years	Reforestation	US\$980	US\$196
	With native species and species in danger of extinction	US\$1470	US\$294
Regeneration (2–300 ha); contract and payments for 10 years	In degraded areas with forestry potential	US\$410	US\$41
	In areas that qualify for 'additionality' under Kyoto standards (CDM)* <i>dropped for 2013</i>	US\$640	US\$64
Forest management (2–300 ha); contract and payment for 10 years		US\$500	US\$50
Agroforestry (350–5000 trees); contract for 5 years, payment for 3 years	Agroforestry services	US\$1.30/tree	US\$0.43/tree
	With native species and species in danger of extinction	US\$1.95/tree	US\$0.65/tree

(Porras, Barton, Chacón-Cascante, & Miranda, 2013)

Ecuador's SocioBosque PES Program - Payment Levels and Categories, 2012

Individuals with more than 20 ha in their overall land title			Individuals with less than 20 ha in their overall land title			Communities and associations for forests			Communities and associations for páramo		
Range of ha		Amount (US\$)	Range of ha		Amount (US\$)	Range of ha		Amount (US\$)	Range of ha		Amount (US\$)
1	50	30.00	1	20	60.00	1	100	35.00	1	50	60.00
51	100	20.00				101	500	22.00	51	100	40.00
101	500	10.00				501	1,800	13.00	101	900	20.00
501	5,000	5.00				1,801	5,000	6.00	901	3,000	10.00
5,001	10,000	2.00				5,001	10,000	3.00	3,001	10,000	4.00
> 10,001		0.50				> 10,001		0.70	> 10,001		1.00

(Raes & Mohebalian, 2014)

Necessary Conditions for Payments for Ecosystems Services (PES) Schemes...

- Well-functioning institutions (public, private, non-governmental)
- A continuous source of funding for payments, management and monitoring costs, etc.
- Ecosystem manager 'eligibility' (i.e. landholder, titled landholder)

*** Question: However! What happens when conditions do not hold?**



Answer! EELOC!

Ecosystem Services Equity Line of Credit

- Creates financial equity for smallholders' resource conservation and restoration efforts
- Much as the equity in a house can collateralize a line of credit (e.g. a home equity line of credit, or HELOC), the valuation of ecosystem conservation and regeneration efforts as equity could create collateral for smallholders to use to access a line of credit

1 year loan			
	Interest rate (%)	Repayment (\$/month)	Annual Savings
\$500	30.5%	(\$48.87)	\$ -
	15.0%	(\$45.13)	\$ (44.85)
	10.0%	(\$43.96)	\$ (58.90)
	5.0%	(\$42.80)	\$ (72.75)
	Interest rate (%)	Repayment (\$/month)	Annual Savings
\$1,000	30.5%	(\$97.73)	\$ -
	15.0%	(\$90.26)	\$ (89.70)
	10.0%	(\$87.92)	\$ (117.81)
	5.0%	(\$85.61)	\$ (145.51)
	Interest rate (%)	Repayment (\$/month)	Annual Savings
\$2,000	30.5%	(\$195.47)	\$ -
	15.0%	(\$180.52)	\$ (179.40)
	10.0%	(\$175.83)	\$ (235.62)
	5.0%	(\$171.21)	\$ (291.02)

Credit Based PES

Approach	Description	Example	Environmental conditionality		
			Strength	Coupled to activity	Reward
Selective lending	Credit is only provided to inherently environmentally friendly activities	There are a number of funds that selectively lend to biodiversity-friendly SMEs, with a particular focus on Latin America (Conservation International, 2013; EcoEnterprises Fund, 2012; Proyecto CAMBio, 2013)	Weak	Yes	Access to credit
Concessional lending	Selected activities receive credit with reduced interest rates	In 2000–06, the former German Technical Cooperation Agency (GTZ) funded a short-term project in Colombia where farmers were given low-rate loans to finance the uptake of sustainable agricultural practices, with the ultimate aim of reducing eutrophication of the Fúquene Lagoon (Annex 2 in Greiber, 2009)	Weak	Yes	Favorable terms
Covenants	Meeting environmental conditions are either a requirement to become a member of a lending institution or are included as covenants in the loan contract	Resolutions 3,545 and 3,583 published in 2008 by the Brazilian National Monetary Council made access to rural credit in the Amazon Biome conditional on borrowers adhering to environmental (and legal) regulations (Assunção <i>et al.</i> , 2013)	Weak	No	Access to credit
Environmental mortgage	The total capital available for lending is correlated to and changes depending on the condition of the natural capital to be conserved	Originally suggested by Mandel <i>et al.</i> (2009). Potential pilot projects are being scoped and assessed in Peru, Ecuador, and Madagascar (Josh Donlan, <i>personal communication</i>)	Strong	No	Access to credit
Credit-based PES	The repayment on credit is reduced only after confirmation that an environmental condition is met	Wetlands International's Bio-rights program provides credit that converts to PES (i.e., –100% interest rate) once conditions for mangrove or wetland restoration are met. Projects have been implemented in Asia and Africa (Van Eijk & Kumar, 2009; Wetlands International, 2009)	Strong	No	Favorable terms

Conclusions & Recommendations

- Valuing smallholders' participation in ecosystem conservation and regeneration efforts as equity and providing an opportunity to smallholders to leverage this ecosystem equity to access credit has the potential to provide a more viable and cost-effective approach than PES schemes in slowing the conversion of forests and in protecting valuable ecosystems
- Where ecosystem managers do not have access to PES, EELOCs could provide an alternative incentive to manage vital resources
- Unlike PES schemes, EELOCs are not dependent on a continuous sources of funding
- EELOCs can support the integration or balancing of ecosystem conservation with poverty reduction efforts
- PES and EELOCs do not have to be mutually exclusive, they can be used in conjunction
- EELOCs need to be tailored to local conditions, market interest rates, etc.



Thank you!

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