Bringing Forest to the Mainstream Economy - institutional frameworks and economic instruments to reduce deforestation: Costa Rica 1991-2001 FUNDECOR
Introduction

FUNDECOR is a non-governmental organization founded in 1991 to protect and increase the Costa Rican forests located in the country's central plateau. The forest coverage of this territory is one of the largest in Costa Rica, and comprises many of the country's National Parks.
ACTUAL LOCATION OF THE CENTRAL VOLCANIC MOUNTAIN RANGE AREA (ACCVC), COSTA RICA
Introduction
CENTRAL VOLCANIC MOUNTAIN RANGE CONSERVATION AREA (ACCVC)
NATIONAL PARKS MAP

KEY

1. Juan Castro B. Nat’l Park 14,312
2. V olcan Poas Nat’l Park 6,506
4. Volcan Irazu Nat’l Park 2,310
5. Volcan Turrialba Nat’l Park 1,577
6. Guayabo Nat’l Monument 233

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6.506
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233

(Ca)

1. Park.
2. Park.
3. Park.
4. Park.
5. Park.
6. Volc an Turrialba Nat’l
8. Juan Castro B. Nat’l
9. V olcan Poas Nat’l
10. Braulio Carrillo Nat’l
11. Volcan Irazu Nat’l
12. Guayabo Nat’l Monument
13. Park.

04/12/2003
Where has FUNDECOR focused?
Which are the main natural resources of the ACCVC and what could affect them?

**Natural Resources**
- Water
- Biodiversity
- Carbon fixing
- Scenic-tourism beauty

**National Parks**
- Self-sufficiency of the parks
- Park boundaries
- Surveillance
- Land tenure

**Buffer Zone**
- Forest low economic value for forest owners
- Lack of protagonism of forest owners in SFM
- Lack of technology

**Threats**
- Concessions
- Delimiting parks boundaries
- Purchase of land
- Environmental Services
- Payment and Charging System
- Commercialization strategies of SFM’s wood production
- Group Certification
- Timber auctioning
- Advance purchase of wood
- Access to local and international green seal’s wood markets
- Reduced Impact Logging
- Web Sites for practitioners
- Biological monitoring of forestry operations
- Land registration and titling
- Financing the planning and implementation of SFM

**Solutions**
## Beneficiaries of forest products and services

<table>
<thead>
<tr>
<th>TYPES OF PRODUCTS AND SERVICES</th>
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Environmental services payment and charging system
Forest environmental services

Source: Tattenbach, 1999

- Water
- Scenic-tourism beauty
- Biodiversity
- CO₂
The public and private logic of Costa Rica’s environmental service payment program

- Environmental service is defined as *an environmental benefit (or cost) produced by the existence (or disappearance) of forest that is not captured by its owner, but by others*

  \[ P \geq C \quad \text{Private Logic} \]
  \[ V \geq P \quad \text{Public Logic} \]
  \[ V \geq P \geq C \quad \text{ESP feasibility range} \]
  \[ V = V_g + V_c \quad \text{Disaggregating values} \]
  \[ V = V_c + E_g \quad \text{country logic} \]
  \[ V_c = O_n + V_i \quad \text{disaggregating country values} \]
  \[ P_t \otimes O_n + R_i + E_g \quad \text{ESP program logic} \]
The public and private logic of Costa Rica’s environmental service payment program

- Environmental service is defined as *an environmental benefit (or cost) produced by the existence (or disappearance) of forest that is not captured by its owner, but by others*

  - $P \geq C$  Private Logic
  
  - $V \geq P$  Public Logic
  
  - $V \geq P \geq C$  ESP feasibility range
The public and private logic of Costa Rica’s environmental service payment program

- The total value of all environmental services $V$ is equal to the sum of the values that accrue only at the global level ($V_g$) and the values that accrue at the country level ($V_c$)

$$V = V_g + V_c$$

- A country total environmental service $P_c$ must be no more than the values that accrue at the country level plus the economic compensations obtained (exports) of the global environmental services $E_g$:

$$V = V_c + E_g$$
The public and private logic of Costa Rica’s environmental service payment program

- These country values are also decomposable into values that accrue at the national level $O_n$ and values that are only geo-specific and accrue at the local level $V_i$:

$$V_c = O_n + V_i$$

disaggregating country values

- A country should pay environmental service payment from general taxes $P_t$ less than the values that accrue at the national level $O_n$ plus the economic value revealed by the willingness to pay at the local level $R_i$ plus the economic compensations obtained (exports) of the global environmental services $E_g$:

$$P_t \leq O_n + R_i + E_g$$

ESP program logic
Internalization of environmental services
Group certification

FSC

SGS-Qualifor

Forest Owners
FUNDECOR's weighted presence by category of ToD Index: ‘96-'00

Forest under SFMgmt &/or ESP agreements

ToD Index

Low
Medium
High

HoCu  Guap  LaVir  VaCen  CaTu  SiqG  JCBla

Region

0.0%  10.0%  20.0%  30.0%  40.0%  50.0%  60.0%  70.0%  80.0%  90.0%
Bringing Forest to the Mainstream Economy

- **Green wood market**
- **Sustainable Forest Management**
- **FUNDECOR-FSC GROUP CERTIFICATION**
- **Local high-end wood products industry**
- **GEF (biodiversity)**
- **INTERNATIONAL TREATIES**
- **KFW (CO2)**
- **Environmental Services Payments**
- **FUNDECOR VOLUNTARY PRIVATE AGREEMENTS**
- **Municipal Waterworks**
- **Brewery Company**
- **Hidroelectrical Companies**
Monitoring of the effect of FUNDECOR operations
Monitoring of the effect of FUNDECOR operations

CUADRO N° 3.
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<th>DEFORESTACION</th>
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Deforestación Bruta: \(1-(B_{final}/B_{inicial})^{1/n}\)
Deforestación Neta: \(1-[(B_{final}+Reg)/B_{inicial}]^{1/n}\)

*Horquetas, La Virgen, Guácimo
**Juan Castro Blanco, Siquirres-Guácimo, Cartago-Turrialba
Monitoring of the effect of FUNDECOR operations
Monitoring of the effect of FUNDECOR operations

Annual gross deforestation by category of ToD index: 1996-2000
Deforestation as function of FUNDECOR’s relative presence

\[ \ln \left( \frac{d_r^{00}}{1 - d_r^{00}} \right) = a + bP_r \]

\[ a = -1.80591; b = -8.44113 \]

\[ R^2 = 0.94 / t_a = -11.402 / t_b = -7.906 \]