Biodiversity Compensation in Road Projects: Challenges in Latin America

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Biodiversity & Ecosystem Services In Impact Assessment

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Road Impacts on Wildlife

1. Habitat Loss
2. Mortality from Poaching and Traffic
4. Barrier to Movement

3. Population Subdivision
   - Less habitat available
   - Increased mortality
   - Less accessibility to mates, habitat, food, etc.
   - Decreased immigration; increased vulnerability to stochasticity

Reduced Tiger Population Size
Reduced Tiger Population Persistence

Mitigation Hierarchy

- **Avoid**: Alternative sites or technologies to avoid impacts
- **Minimize**: Actions to minimize impacts during design, construction, etc.
- **Rectify**: Actions to rehabilitate or restore the affected environment
- **Compensate**: Used as a last resort to offset impacts

The Break-Even Point

Impacts on Natural Habitats

+ Contribution

Offset Impacts

Mitigate Impacts

Avoid Impacts

No net loss

Net positive outcomes

Break-Even Point
The Multi-level Approach

Policies

Plans

Programmes

Projects

Mechanisms for:
Minimization
Mitigation
Compensation/offsets

Strategic
Environmental
Assessment

Screening
Best engineering in
Design
Construction
Operation
Three Pillars for Promoting Green Infrastructure

Policy Framework

Strategic Sector and Land Use Planning

Avoid
Minimize
Rectify
Compensate

Green Infrastructure

Best Practices in Engineering
The Olanchito - San Lorenzo Road in Honduras
Background

- 45 Km
- Unpaved section
- 150 Km² area of influence
- Primary land-use is cattle ranching
- Mostly private lands
Natural Habitat Issues

- Endangered endemic Honduran emerald hummingbird
- Patchy dry thorn forest
- Road increases land value
- Remaining thorn forest would be converted
Hummingbird Habitat Study

- Thorn forest main habitat, non legally protected
- 96% habitat between San Lorenzo – Olanchito
- Population 75 -250 birds
- 11 endemic plants, all threatened
- Endangered endemic iguana *Ctenosaura melasnostrena*
- 30,000 Ha in 1938, only 3,000 Ha left
- Cattle forest replaces understory with pasture
- Cattle ranching expansion: refrained by lack of money
Conservation Action Plan

- Impending land conversion requires CAP in place before bidding
- Does not forbid road upgrade
- Secures habitat for endangered & threatened species
- Environmental education component
- Provides guidelines for development
- Regulates future land-use
- Promotes ecotourism
- Monitoring program for all threatened species
Fragmentation of Dry Forest
Remaining Challenges

- Habitat fragmentation and long term conservation
- How much is enough on the face of limited resources?
- Big dry forest fragments vs small dry forest fragments
- Cumulative effects and other infrastructure projects in the area
- Rural poverty and unemployment
- Long-term financial sustainability
SAN FRANCISCO – MOCOA BY-PASS (COLOMBIA)

Financed by IDB
Ecological Importance
Alignment
Alignment
Alignment
VISUALIZACION DEL PROYECTO
Alignment
Alignment
Alignment
Alignment
SITUACIÓN ACTUAL

PROPOSICIÓN DE AMPLIACIÓN

Reserva Forestal Protectora de la Cuenca Alta del Río Mocoa (Acuerdo 14/84)

Proposed Offset

1. Estrategia de Ordenamiento Ambiental del Territorio

Figura: 09
Dentro del área de reserva habitan 1.505 personas agrupadas en 327 familias, que realizan prácticas agropecuarias.

El DMI sirve como zona de amortiguamiento de las actividades económicas de Mocoa.

Reserva Actua 34.600 Has

Ampliación Reserva Forestal Protectora 65.289 Has (propuesta de ampliación de 189%)

Distrito de Manejo Integrado (Propuesto) 50.656 Has

Reserva Forestal Protectora Productora 5.770 Has (Propuesta)
Challenges

- Weak capacity at regional and local level
- Mining and oil concessions in protected areas
- Indigenous communities land claims
- Engineering challenges still need resolution