Developing a Quality Carbon Offset Market in the Pacific NW & Beyond

The Portland Katoomba
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Today’s Topics

A Brief Overview of Forest Carbon Offsets

- Forestry: Its Importance to Climate Change Mitigation
- Forestry Offsets: Types and Attributes
- Policies to Encourage a Forest Carbon Market
Forestry: Its Importance to Climate Change Mitigation
Forests: 2nd Largest CO₂ Source
Half As Large as Fossil Fuel Emissions

- CO₂ accumulated in atmosphere
- Deforestation: 500 billion metric tons
- Fossil fuels: 1,000 billion metric tons
- Thru end of 20th Century
Significant Liquidation of Forests
= 20 Year’s Worth of Current Fossil Emissions

- CO₂ accumulated in atmosphere from deforestation:
  - 500 billion metric tons

- Annual CO₂ from fossil fuels (2002):
  - 24.4 billion metric tons
Forest Stock Dwarfs Emissions
> 60 Year’s Worth of Current Fossil Emissions

- **CO₂** currently in forest standing stock (above ground):
  - 1,560 billion metric tons

- Annual **CO₂** from fossil fuels (2002):
  - 24.4 billion metric tons

![Bar chart showing CO₂ quantities](chart.png)

- **Billion Metric Tons of CO₂**
- **Current Forest Stock**
- **Fossil Fuels (Annual)**
Potential Forest Sink is Large

Small Percentage Changes Are Significant

Since deforestation has been such a major source of carbon dioxide build-up, it is also a sizable potential sink.

Relatively small increases in forest stock have the potential to contribute to mitigation of fossil-based emissions.

~1.6% of forest stock is equivalent to annual global fossil fuel CO₂ emissions.
Forestry Offsets: Types and Attributes
What is an Offset? (theory)

Specific Project That Reduces GHG Levels

The baseline case

Baseline emissions

Offsets

The project case

Project begins

Project ends

CO2 emissions

years
Ecuador Rainforest Reforestation

*An Offset Project (Practice)*

- Reforest 600 acres in biological reserve
- Rare, endemic trees
- Biodiversity “hot spot”
  - One of Conservation International’s top five global conservation targets
- 99-year conservation easement with clear intent for permanent preservation

Partners: Conservation International & Jatun Sacha Foundation

Project statistics:
- Tons: 65,500
- Term: 99 years
What is an Offset?

Concept Originated in Accounting in 1769

- Dictionaries tell us that an offset...
  1. Cancels out emissions...
  2. That are recorded in a GHG ledger (or the atmosphere)...
  3. With an end effect as if the cancelled emissions had not occurred.

- A “compensating equivalent”
  - Offset quality is essential
Quality Offsets: Additionality

Projects Must Create New Emissions Benefits

- Mitigation measures that would not occur without offset project funding
  - Excludes common practice, regulated activities
  - Money making projects eligible, if other barriers

- Types of barriers offset funding overcomes
  - Capital unavailable
  - Investment hurdle rate
  - No economic return
Quality Offsets: Quantification

Experts Prepare Baseline Studies and M&V Plan

- **Baseline study**
  - Build in expected changes from business as usual

- **Monitoring & Verification Plan**
  - Measurement technique
  - Periodic measurement
  - 3rd party verification
  - Funding plan
    - Escrow to ensure sufficient M&V funding

- **Results used in contracts to verify delivery**
Forest Carbon Offset Types

*Differing Attractiveness to Offset Buyer*

- **Avoided deforestation**
  - Also termed forest conservation or forest preservation

- **Afforestation**
  - Planting trees on land that has not previously been forested

- **Reforestation**
  - Planting trees on land that recently been logged

- **Forest management**
  - Altering the approach to harvesting from timberlands so that biomass is increased
Forest Carbon Offset Types

*Nutshell of Offset Profile*

- **Avoided deforestation**
  - Immediate pulse of “saved” carbon, but subject to leakage

- **Afforestation**
  - Carbon builds slowly in the near- and mid-term

- **Reforestation**
  - Carbon builds slowly in the near- and mid-term

- **Forest management**
  - Harvest adds to complexity of quantification and monitoring
Quality Offsets: Permanence
Forestry’s Most Challenging Offset Criteria

- Permanent emissions reductions last forever: Avoided emissions
- Sequestered emissions reductions might be returned to the atmosphere, typically inadvertently
  - Fire, insects, disease, and illegal harvest
- Contrasting catastrophes:
  - Tornado in wind farm
  - Fire in reforestation
Policies to Encourage a Forest Carbon Market
Policy to Encourage Market 1

*Infrastructure to Help Accumulate Forest Carbon*

- Forest industry and environmental groups should work together
  - Lack of cooperation may market for ecosystem services and inclusion of forests in carbon trading
- Establish cap-and-trade system that allows for forest carbon offsets
  - Pursue a regional trading system
Policy to Encourage Market 2

*Infrastructure to Help Accumulate Forest Carbon*

- Legal development
  - Forest carbon sequestration **ownership** rights
    - Distinct from land and timber property rights
  - **Enforcement** mechanisms
    - How and who?
Policy to Encourage Market 3
Infrastructure to Help Accumulate Forest Carbon

- Institutional development
  - Mechanisms to address permanence
    - Temporary crediting, insurance, pooling, discounts
    - Strategies to reduce catastrophic forest fires
  - Develop or encourage trading platforms, including market exchanges
    - Create market liquidity and transparency
Policy to Encourage Market 4
Infrastructure to Help Accumulate Forest Carbon

- Invest intellectual capital needed to support market development
  - Develop rigorous and transparent protocols
    - Forest carbon measurement
    - Treatment of carbon stored in wood products
  - Develop technical assistance providers
    - Monitoring and verification services
A Viable Forest CO₂ Market

The Time to Start is Now

- Relatively small changes in forest carbon stock can contribute to – or mitigate – fossil CO₂ emissions

- The 4 kinds of forest carbon offsets face significant but addressable challenges

- There is much policy and institutional development needed to create a viable market for forest carbon
Thank You!

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