

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



The Portland Katoomba
Presented by: Mike Burnett
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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:

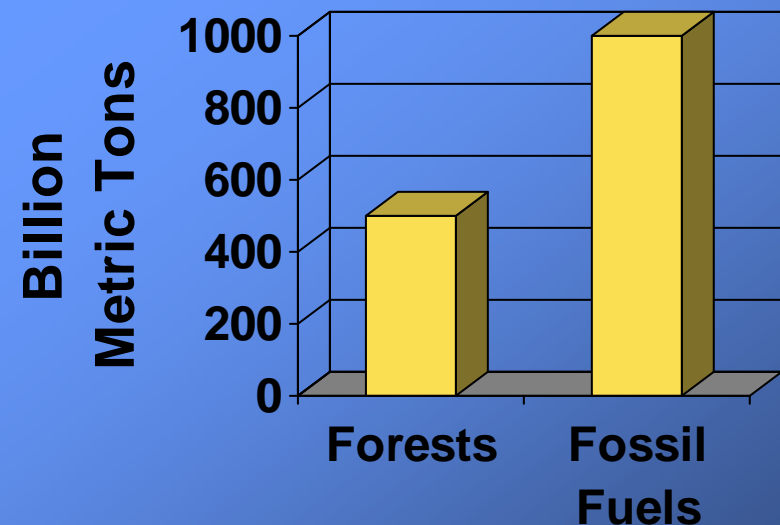
▶ 500 billion metric tons

◆ Fossil fuels:

▶ 1,000 billion metric tons

● Thru end of 20th Century

Cumulative CO₂ Accumulation



Significant Liquidation of Forests

= 20 Year's Worth of Current Fossil Emissions

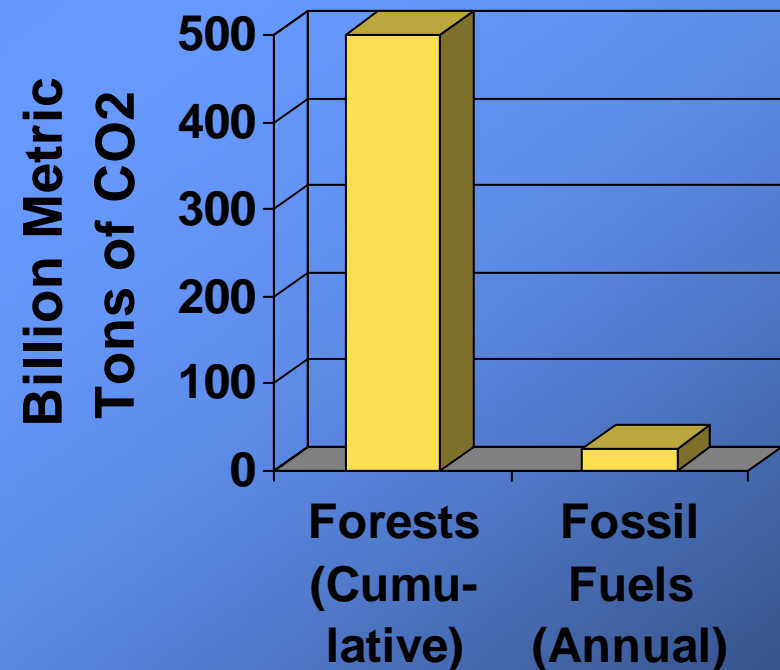
● CO₂ accumulated in atmosphere from deforestation:

✦ 500 billion metric tons

● Annual CO₂ from fossil fuels (2002):

✦ 24.4 billion metric tons

CO₂ Contribution



Forest Stock Dwarfs Emissions

> 60 Year's Worth of Current Fossil Emissions

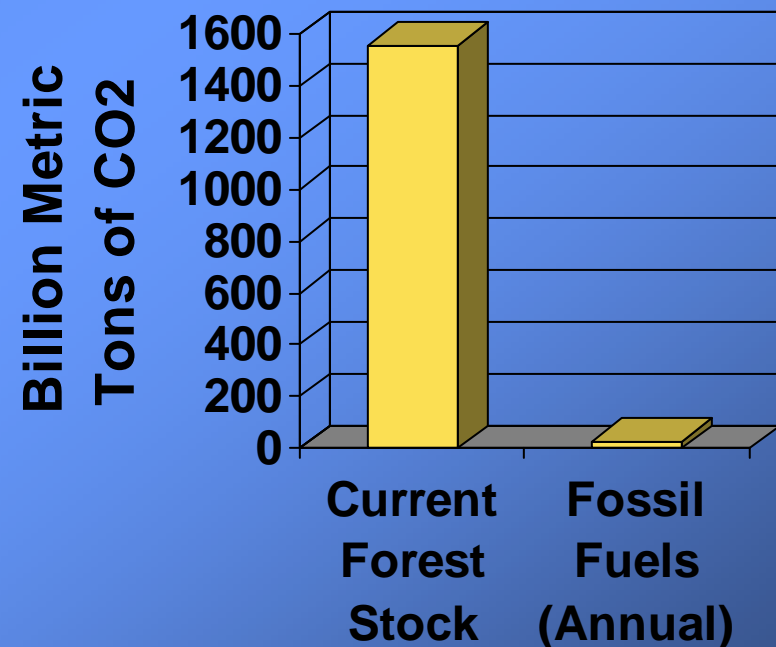
● CO₂ currently in forest standing stock (above ground):

◆ 1,560 billion metric tons

● Annual CO₂ from fossil fuels (2002):

◆ 24.4 billion metric tons

CO₂ Quantity



Potential Forest Sink is Large

Small Percentage Changes Are Significant

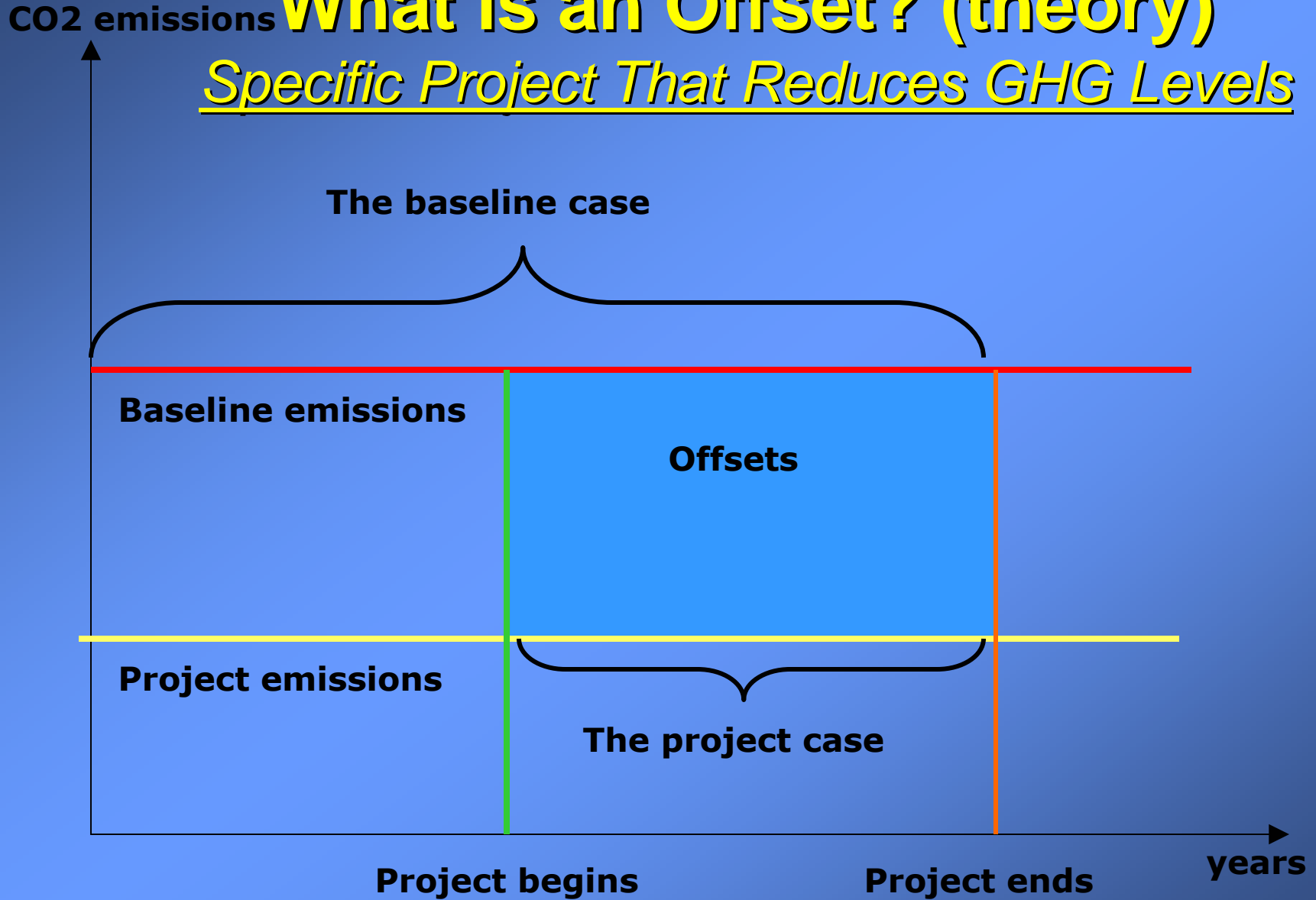
- ◆ Since deforestation has been such a major source of carbon dioxide build-up, it is also a sizable potential sink
 - ◆ Relatively small increases in forest stock have the potential to contribute to mitigation of fossil-based emissions
 - ◆ ~ 1.6% of forest stock is equivalent to annual global fossil fuel CO₂ emissions



Forestry Offsets: Types and Attributes

What is an Offset? (theory)

Specific Project That Reduces GHG Levels



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

❶ Avoided deforestation

- ✦ Also termed forest conservation or forest preservation

❷ Afforestation

- ✦ Planting trees on land that has not previously been forested

❸ Reforestation

- ✦ Planting trees on land that recently been logged

❹ 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!

Mike Burnett

Executive Director

The Climate Trust

Phone: 503-238-1915

Fax: 503-238-1953

mburnett@climatetrust.org

