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The Terrestrial Carbon Group

How to Include Terrestrial Carbon in Developing Nations in the Overall Climate Change Solution

Presentation by Ralph Ashton
at UNFCCC Meetings in Accra, August 2008
terrestrialcarbon.org

Overview of Presentation

1. The Terrestrial Carbon Group and its objective
2. The role of terrestrial carbon in avoiding dangerous climate change
3. The international response so far
4. Guiding principles for action (market and non-market)
5. Proposed market-based system
6. Planned work before Poznan
7. Q&A, Discussion, Suggestions

The Terrestrial Carbon Group

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With input from hundreds of people over the last year

The Role of Terrestrial Carbon

Human-induced climate change is caused by the build-up of greenhouse gases in the atmosphere

Greenhouse gases have only two other places to go:

1. The oceans
2. The terrestrial system (inc land and vegetation)



Atmosphere

Up to 25% of the solution
(emissions & sequestration)



Oceans



Terrestrial System

The Response So Far

1. There is more to terrestrial carbon than forests*:
 - Eventually include all greenhouse gases from the terrestrial system
 - Start with carbon and CO₂ in peatlands, forest, and lands that can become secondary forest
 - Other pools and land uses can be phased in as information, methodologies, techniques and technology allow

* Note: deforestation and the degradation of forests and peatlands in the tropics of developing nations currently cause the vast majority of terrestrial carbon emissions

The Response So Far

2. It's messy out there:

- Afforestation and reforestation
- Deforestation
- Forest degradation
- Sustainable forest management
- LULUCF
- AFOLU
- CDM
- Voluntary and compliance
- Election vs mandatory
- Annex 1 and non-Annex 1

The Response So Far

3. Reducing rates vs avoiding emissions:

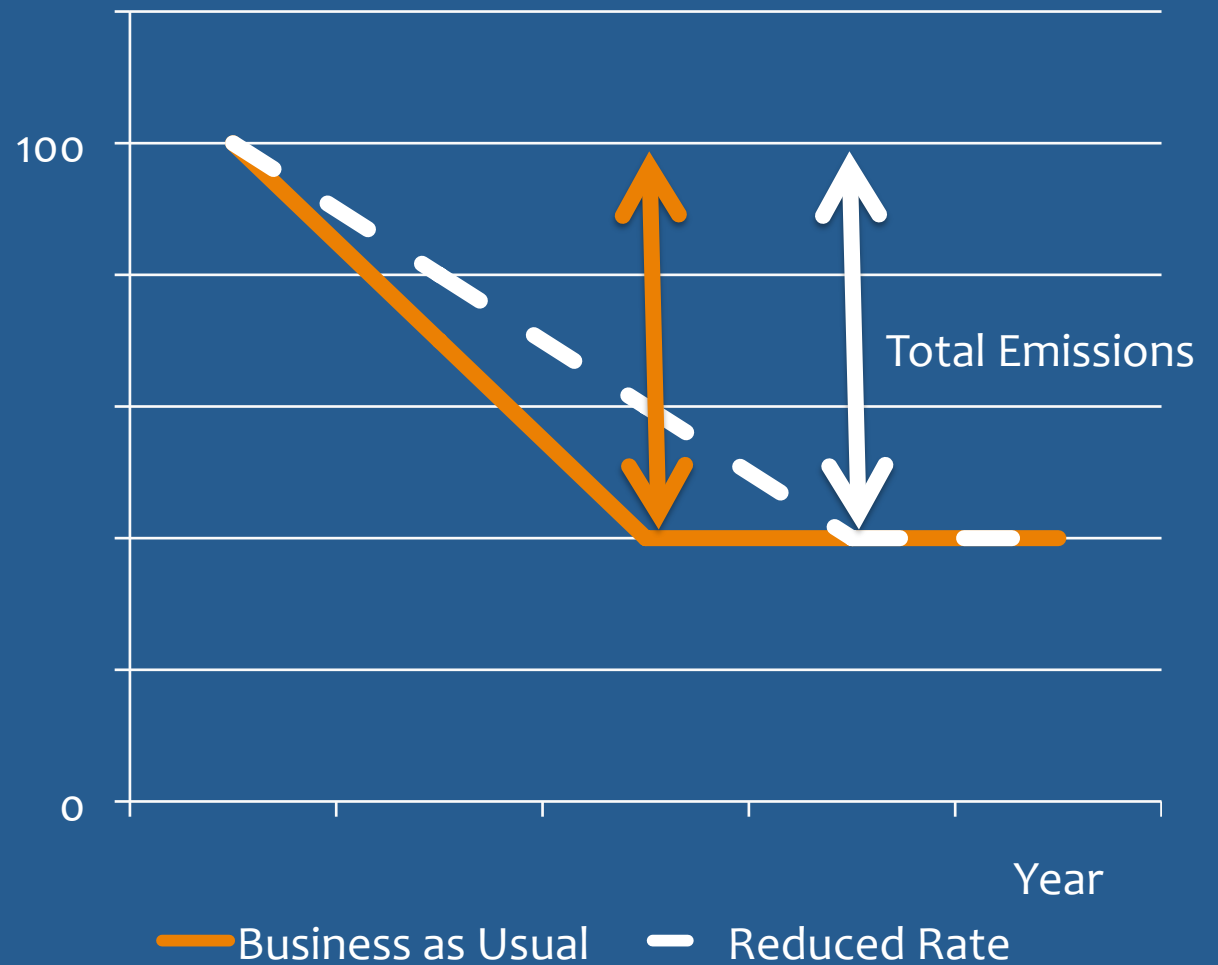
- Climate change is a greenhouse gas problem
- Reducing rates of deforestation is an important near-term goal
- **But**, it must be coupled with reducing greenhouse gas emissions from land use and securing long-term volumes of terrestrial carbon...

The Response So Far

... Otherwise:

- Same area of forest will be destroyed, but over a longer period
- Same volume of greenhouse gas will be emitted, but over a longer period

% Year O Volume



The Response So Far

4. Much of the current discussion does not fully account for the dynamic links between:
 - Population
 - Demand for food, fibre, fuel, carbon, and land
 - Prices for those commodities
 - Land use decisions

Global Context

- 50% the Earth's land surface is used for agriculture, at least 33% of which is degraded
- Protected areas are not immune from illegal and government-sanctioned use
- Global population is increasing from 7 billion in 2010 to over 9 billion by 2050
- Per capita consumption of food, fibre, and fuel is increasing

Prognosis

- Over the coming decades, vegetated land in developing nations will be increasingly threatened with conversion to:
 - Agricultural and plantation use
 - Human settlements
 - Infrastructure
- The exception will be land that is:
 - Effectively protected by law
 - Protected by biophysical conditions
 - Protected by economic constraints

Nine Principles (Market / Non-Market)

1. Maximise long-term terrestrial carbon volumes
2. Maintain existing terrestrial carbon and create new terrestrial carbon
3. Include all types of terrestrial carbon (using a phased approach)
4. Use a mix of complementary approaches (market and non-market, public and private)
5. Take action on terrestrial carbon in addition to reductions in greenhouse gas emissions from all other sources across the world
6. Recognise sovereignty over land management
7. Build appropriate national and international institutions
8. Avoid perverse outcomes
9. Adapt to best available information

Proposed Market System: Highlights

- Voluntary to join the system
- Applies to developing nations with different terrestrial carbon circumstances (eg, high & low deforestation rates, low historical deforestation rates, reforestation, etc)
- Nations determine national-level implementation
- Does not restrict economic use of land, but opens up one new economic development option – carbon credits
- No need to sell underlying asset (eg, land, forest, carbon)
- Sets a credible business as usual terrestrial carbon emissions scenario for a nation
- Based on a simple, robust methodology using easily compiled data

Proposed Market System: Highlights

- Addresses additionality, leakage, permanence, and flooding
- Rests on national terrestrial carbon accounting and monitoring, but allows:
 - National-, sub-national-, and project-level activities
 - Private sector and civil society participation
- Builds on existing monitoring infrastructure (including satellite systems)
- Builds on existing methodologies and standards developed under the UNFCCC and Kyoto Protocol for carbon quantification and terrestrial carbon accounting
- Provides certainty to buyers and sellers credits
- Limits perverse outcomes

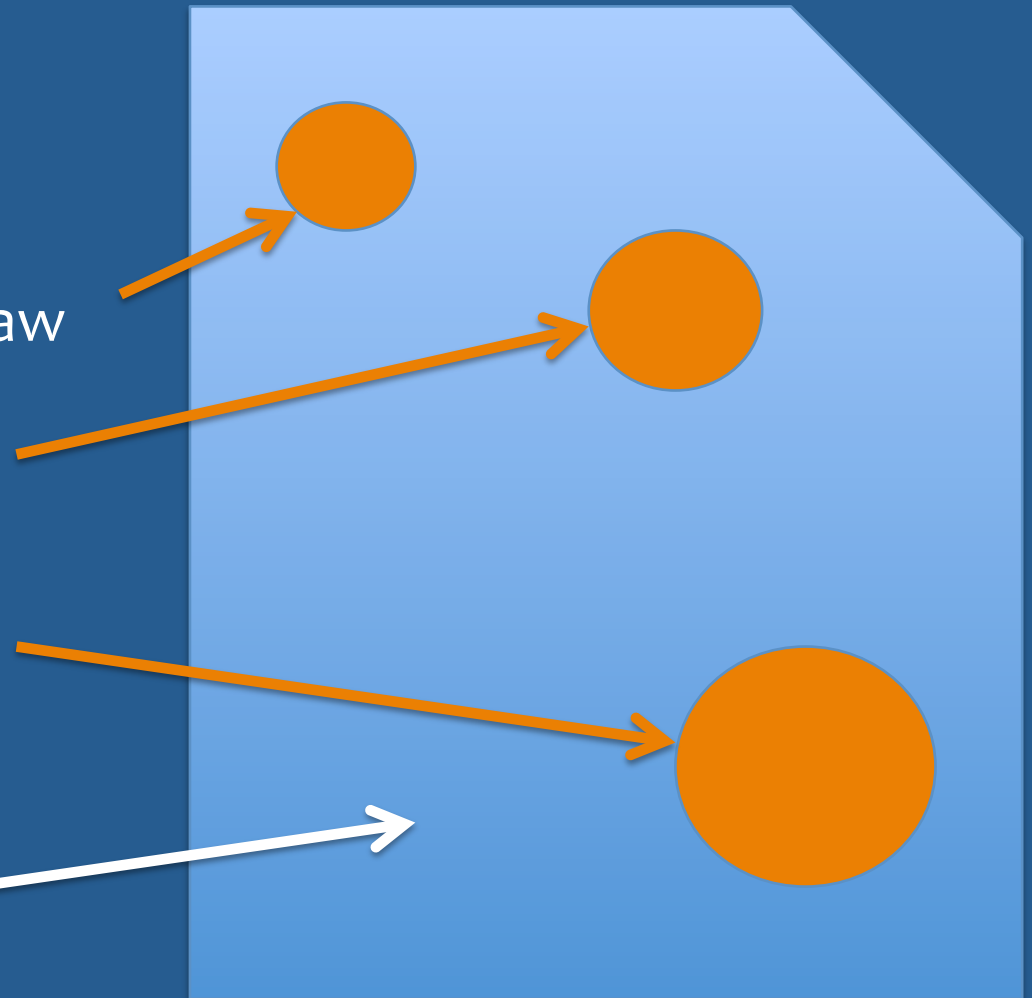
Proposed Market System: Overview

- Place a nation's total terrestrial carbon into 2 categories:
 - Terrestrial carbon that is effectively protected from being emitted (“Protected”)
 - All other terrestrial carbon (“Tradable”)
- Once a nation elects to join the system:
 - “Protected” terrestrial carbon must be retained
 - “Tradable” terrestrial carbon can be emitted
- System provides short-term and long-term incentives to retain “tradable” terrestrial carbon and create new terrestrial carbon
- System recognises that land management decisions are made within nations

Proposed Market System: Methodology

Map a nation's terrestrial carbon into two categories:

- “Protected”
 - Effectively protected by law
 - Protected by biophysical conditions
 - Protected by economic constraints over next 50 years (dynamic)
- “Tradable”
 - Everything else



Proposed Market System: Accounting

- Nations may emit agreed volume of the original “Tradable” terrestrial carbon (an annual terrestrial carbon budget) each year with no penalty
- If the nation:
 - Emits less in a year, can sell difference as terrestrial carbon credits
 - Emits more in a year, cannot participate in the system until it reverses the excess emissions
- A nation can generate credits for any new terrestrial carbon it creates
- To safeguard permanence of avoided emissions, nation must always maintain volume of terrestrial carbon equal to:
 - Initial “Protected” terrestrial carbon
 - Any “Tradable” terrestrial carbon sold as credits or new terrestrial carbon sold as credits
- But, not geographically explicit, so can swap land or buy credits elsewhere to keep terrestrial carbon accounts in balance

Planned Work Before Poznan

Working independently and with others:

- Economic modeling:
 - Scenarios
 - Based on data and assumptions
- Analysis and consolidation of proposals:
 - Categorise
 - Common elements: core rules for early action
- What else do people see as useful?

Planned Modeling Before Poznan

	1(i). Maximum Volume	1(ii). Implications at Carbon Prices	2. Likely Volume at Carbon Prices
A. All Developing Countries Scenarios: <ul style="list-style-type: none"> • 20% Protected / 80% Tradable • 30% Protected / 70% Tradable • 40% Protected / 60% Tradable 	Global and by country All terrestrial carbon split into: <ul style="list-style-type: none"> • Vegetation / Soil • Forest / Non-Forest 	Global and by country What value of carbon credits would be generated at assumed carbon prices, assuming various % of Tradeable is “protected” (ie, sold as carbon credits)	Global and by country Volume of terrestrial carbon (or area of forest / non-forest) would be “protected”, based on: <ul style="list-style-type: none"> • Opportunity costs • Various carbon prices
B. Specific Country (TBC) Work with governments to map terrestrial carbon into Protected and Tradable	As above for specific country	As above for specific country	As above for specific country

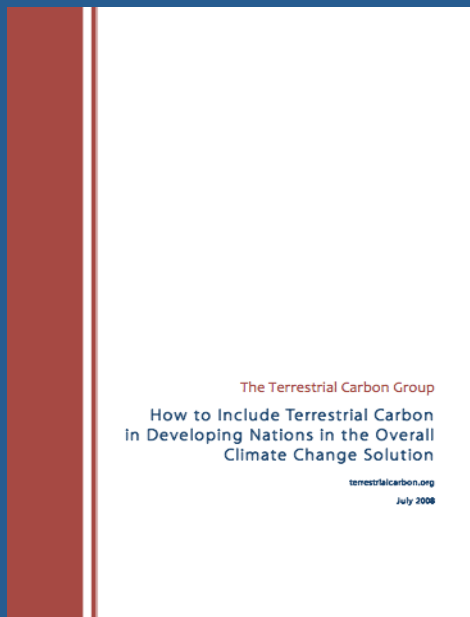
Action Before Copenhagen

Developing and developed nations, international agencies, private sector, and civil society can:

1. Continue to Get Ready
2. Recognise Early Action (agree details at Poznan)
3. Agree, Design, and Begin Implementing a National-Scale Demonstration
4. Resolve Outstanding Technical Issues

Q&A, Discussion, Suggestions

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Paper available at terrestrialcarbon.org

Proposed Market System: National Implementation Requirements

- Establish the infrastructure and expertise to collect (through remote-sensing using satellites and through on-the-ground surveying) and analyse terrestrial carbon data
- Agree methods to determine how much carbon is stored in a particular type of landscape and what happens to that carbon under different land uses
- Create and audit national terrestrial carbon inventories
- Effectively engage those who depend on forests and those who depend on deforestation and forest degradation
- Undertake a transparent process of clarifying rights to ownership and use of land, vegetation and carbon credits
- Establish credible and transparent systems and institutions to: measure terrestrial carbon; certify, verify and audit project- and national-level outcomes; monitor changes over space and time; produce national terrestrial carbon accounts; facilitate and oversee the stable, long-term disbursement of funds; and coordinate with international institutions
- Draft and enact regulations to establish terrestrial carbon registers, exchanges, dispute resolution and enforcement mechanisms, and regulatory oversight

Proposed Market System: Detail

- Creates property rights over the maintenance and creation of terrestrial carbon
- Issues terrestrial carbon credits in exchange for the maintenance and creation of terrestrial carbon above the business as usual terrestrial carbon emissions scenario
- Requires a national body to certify project-level activities that generate terrestrial carbon credits, national registers and exchanges for those credits, and an international oversight and coordination body
- Facilitates the international trading of terrestrial carbon credits
- Provides direct short-term and long-term incentives to change land use decisions so that business as usual terrestrial carbon emissions are reduced and business as usual terrestrial carbon sequestration is increased
- Provides indirect short-term and long-term incentives to maintain and better enforce protection of protected land (including forests and peatland) and the terrestrial carbon in and on it
- Includes mechanisms to address the existing non-enforcement of laws that impact on terrestrial carbon (particularly illegal logging and forest clearing)

Proposed Market System: Detailed Methodology

A “National Terrestrial Carbon Budget” is the agreed maximum CO₂e that a nation can emit as terrestrial carbon from land use between now and a certain date in the future

A nation’s National Terrestrial Carbon Budget would be set using the following methodology:

- Protected Terrestrial Carbon is any existing terrestrial carbon (whether on public or private land) that:
 - As at 6 December 2005, was subject to international, national, or sub-national law or policies that effectively prevent its release (this would not include terrestrial carbon that is subject to, or threatened by, illegal activity)
 - As at the date the nation joins the system, is inaccessible because of biophysical or economic constraints, and will, with a reasonable degree of certainty, remain so for the next 50 years (according to agreed international standards)
- All other existing terrestrial carbon as at the date the nation joins the system is Tradable Terrestrial Carbon

A nation’s National Terrestrial Carbon Budget is equal to the volume of the nation’s total Tradable Terrestrial Carbon as at the date the nation joins the system.

A nation’s Annual Terrestrial Carbon Budget is one-fiftieth of the overall Terrestrial Carbon Budget.