



# THE ROLE OF CARBON MARKETS FOR FARMERS AND RURAL INSTITUTIONS

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# The Kyoto Protocol has provided the regulatory context

Carbon markets are driven by policy decisions

## 1. A cost-effective instrument

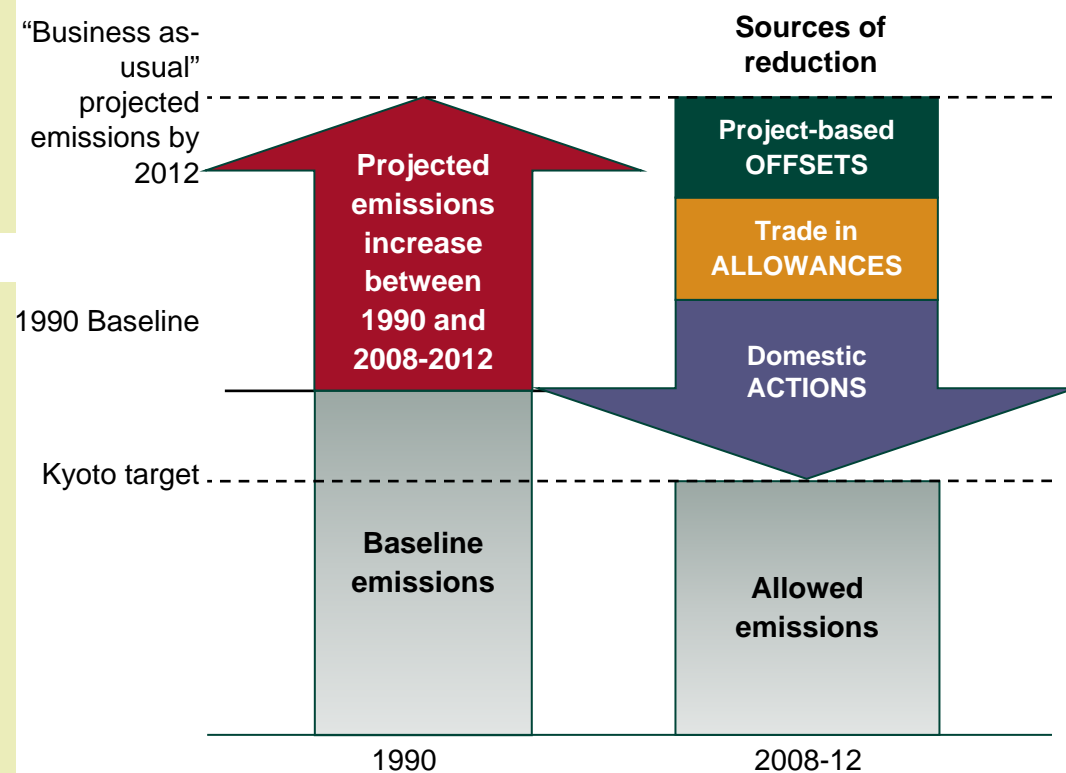
- ◆ Lowering the cost of reducing greenhouse gas (GHGs) emissions through trading
- ◆ Sending a price signal to encourage less carbon-intensive lifestyles and investment decisions.

## 2. Born from the Kyoto Protocol

- ◆ Industrialized countries signatory to the Kyoto Protocol (1997, entry into force Feb. 2005) commit to country-specific targets that collectively reduce their GHG emissions by at least 5.2% below 1990 levels on average over 2008-12, through:
  - Domestic actions;
  - Trading of allowances;
  - Purchase of emission reductions credits.

Carbon Funds

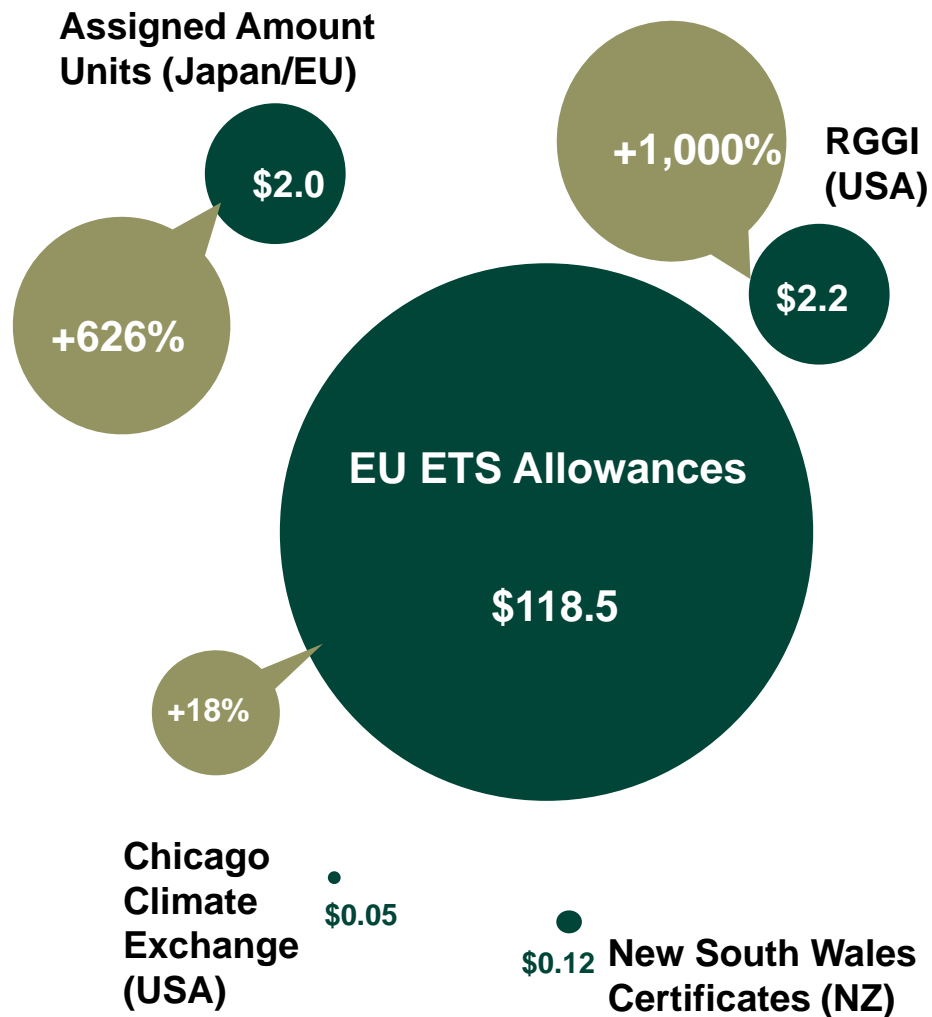
## Developed country emission reduction



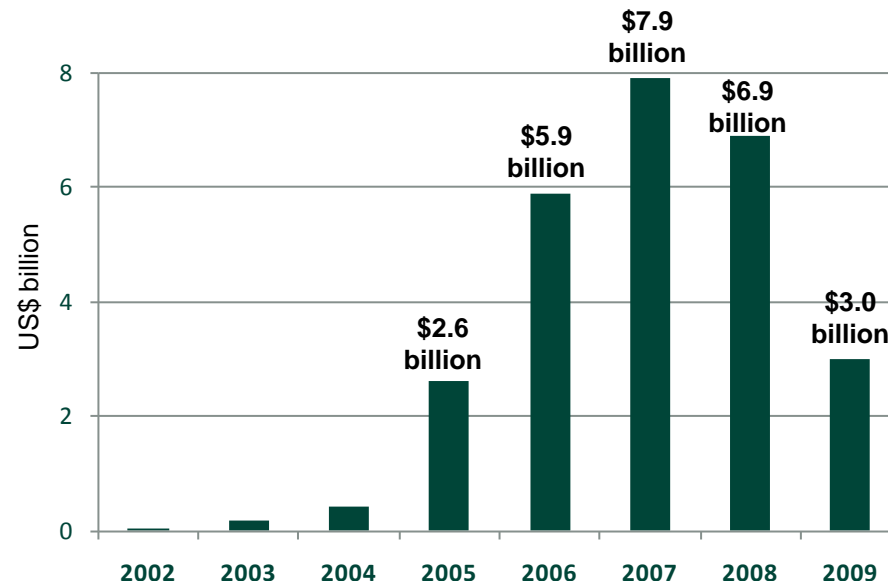
# Carbon markets have grown substantially since 2000

The carbon markets are divided into the allowances market under mandatory or voluntary cap and trade and the project-based (offsets) transactions

Size & year on year growth of **allowances** markets (2009, US\$ billions)



Size of primary market transactions (**offset** origination)



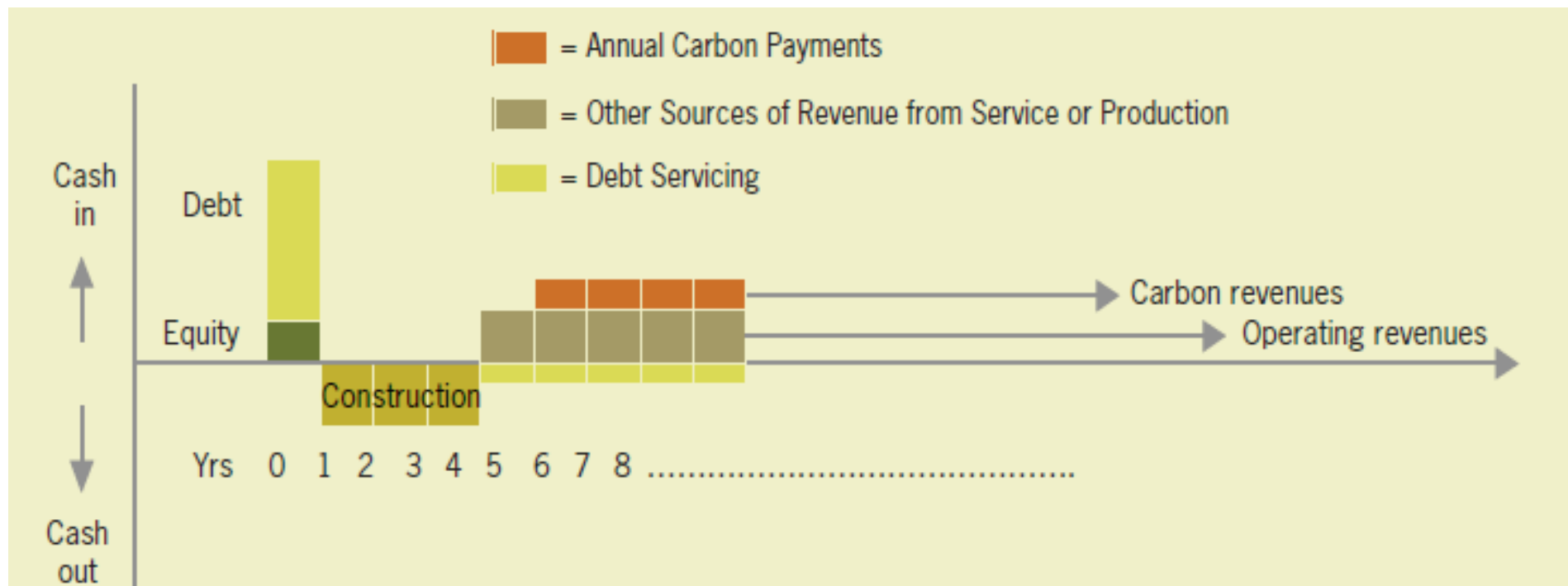
Vintages up to 2012

Source: WB State & Trends of the Carbon Markets, 2010

- ◆ The amount of contracts for offsets under the Kyoto Protocol's (KP) flexibility mechanisms, CDM & JI grew to a peak of \$7.9 billion in 2007.
- ◆ The downward trend is largely due to the lack of time to contract new offsets before the end of the KP's first commitment period, (12/31/2012) and the economic downturn.

# How carbon finance works

The system requires predictability on the future carbon payments



- ◆ Carbon revenues provide an additional revenue stream that:
  - reward more GHG-friendly investment and purchase decisions,
  - create an incentive for good management / operational practices to sustain emission reductions over time,
  - enhance the financial viability of the project,
  - leverage capital for underlying investments by
    - addressing the initial investment barrier;
    - providing incentives to overcome social inertia, lack of awareness, transaction costs and financing of programs, etc.

# The World Bank's involvement in carbon finance

An early mover which helped catalyze the carbon market and drive innovation

## Objectives

- ◆ To pioneer flexibility mechanism 5 years before entry into force of the Kyoto Protocol
- ◆ To assist in building, sustaining & expanding the reach of carbon markets
- ◆ To experiment approaches and methodologies beyond existing regulatory framework
- ◆ To strengthen capacity of developing countries to benefit from carbon market
- ◆ To ensure carbon finance contributes to sustainable development

## Means

- ◆ Pioneer: The Prototype Carbon Fund (2000) established before there was a carbon market
- ◆ Learning-by-doing approach & diversification
- ◆ Model: create demand through the establishment of carbon funds – and then originate projects
  - Often purchase post-2012 vintages
  - WB's environmental & social safeguards
- ◆ Investing in capacity building

## Impact

- ◆ Carbon fund capital increased over time from \$160 million in 2000 to ~\$2.5 billion now
  - 26 public sector and 55 private sector participants from 3 continents
- ◆ Developer of – and contributor to – new methodologies

## Global reach – 200 projects in 56 countries...



# The World Bank has established public-private partnerships to pioneer carbon markets (and still growing...)

## 19 public sector partners



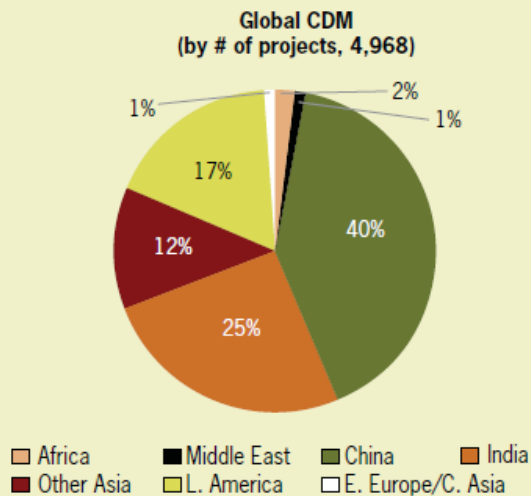
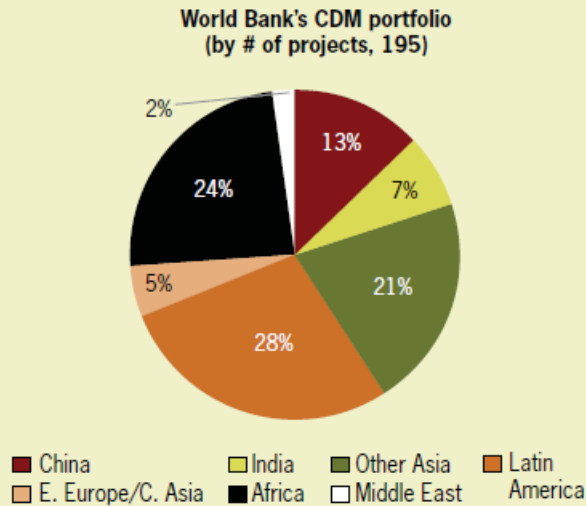
## 54 private sector partners



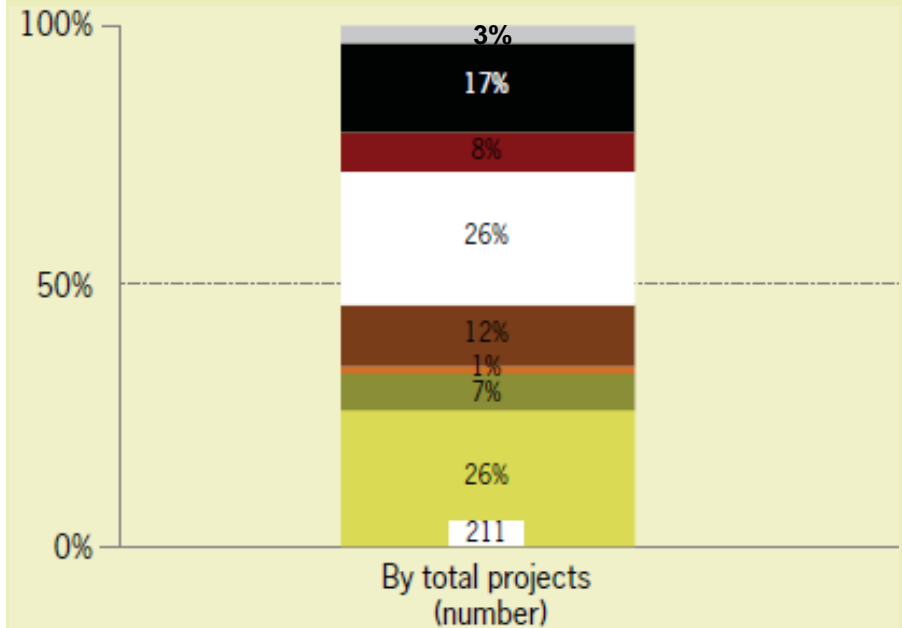
# The World Bank's existing portfolio

Diverse in terms of geographic and technological distribution

## Geographical distribution of World Bank CDM projects vs. Global CDM projects



## World Bank carbon finance projects (by technology)



- Power-Renewables: Biomass energy, geothermal, hydro, solar, tidal, wind
- Power-Other: EE supply, energy distribution, fossil fuel switch
- Industrial gas: HFC, N2O, PFCs & SF6, CO2 capture
- Industry: Cement, Coal bed / mine methane, EE industry, EE own generation
- Waste management: Methane avoidance, landfill gas
- EE Demand side: EE household, EE service, fugitive emissions
- Forestry: afforestation, agriculture & reforestation
- Transport

# Examples of rural CDM projects

## A broad geographic and sectoral distribution



### Household biogas digesters

Over 50,000 households in **China** and **Nepal** are provided with a biogas digester that displaces more carbon intensive traditional domestic fuels such as firewood, coal, coke and crop residues. The project reduces the time spent by women collecting firewood, improves indoor air quality and creates jobs.



### Solar Home Systems

Carbon Finance and micro finance will help rural households in **Bangladesh** afford solar home systems that will displace use of kerosene and diesel for lightning and other energy needs, creating jobs, offering healthier home and work environments and reliable electricity for micro-enterprise development.



### Natural regeneration of forests

Carbon finance has incentivized 3,000 farmers organized into 7 cooperatives in **Ethiopia** to set aside land previously used for unsustainable grazing & fuel wood collection; Provides for forest stewardship with added benefits of groundwater replenishment and reduced erosion.



### Agriculture soil carbon

Carbon finance is being brought for the first time to 40,000 farmers in **Kenya** as they are introducing sustainable land management practices such as mulching, cover crops, minimum tillage, crop rotation, compost management, to improve soil conditions and therefore productivity.

# Some decisions and rules create barriers in poor countries and for rural projects

Addressing them could help improve the CDM's potential for rural populations



## Difficulty in integrating situations of suppressed demand

Baselines tend to assume continued low / poor quality of energy services which is not compatible with sustainable development



## Treatment of projects that replace non-renewable biomass

Conservative decision on treatment of non-renewable biomass disproportionately affected sub-Saharan Africa and projects in poor communities



## Treatment of forestry projects and exclusion of agriculture

Only Afforestation / Reforestation allowed under the CDM which is too limiting, and land-use credits are excluded from some significant markets



## Transaction costs & onerous requirements

Streamlined methodologies and registration procedures are crucial for small projects. Documentation requirements should recognize differences in practices and contexts

# Access to financing is also often challenging

Lack of tools and insufficient knowledge are the main factors



## Limited financial resources

Banks and other financing institutions in developing countries are not yet familiar with the concept of carbon finance which shows in their reluctance to finance underlying investments in some cases



## Limited risk-mitigating infrastructure

Financial instruments for mitigating risk, such as insurance, guarantees, etc. are also limited for access by poor rural communities



## Closing the gap between investment and carbon revenue flows

Growing delays in the CDM process (now about 2 years between registration and first CER issued) increases lag between start of investment and carbon revenue flow



## Lack of capacity

Farmers, rural institutions and local financial institutions alike lack knowledge of a relatively complex carbon finance transaction

# Changes are needed in the regulatory environment

Carbon markets have the potential to provide needed resources for rural communities in the coming decades

## 1. Policy clarity

- ◆ On the global post-2012 regime
- ◆ On domestic use of offsets in cap-and-trade systems

## 2. Reform of the Kyoto mechanisms

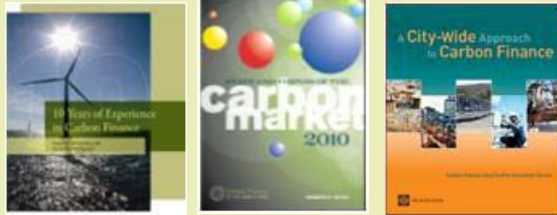
- ◆ Streamline & simplify processes
- ◆ Adapt mechanisms to allow rapid scaling-up
- ◆ Broaden eligible sectors to include agriculture (soil carbon)

## 3. Sustained capacity building

- ◆ Enhance engagement from developing countries in the evolution of mechanisms
- ◆ Strong host country policies & complementary financial instruments needed to leverage carbon finance for low carbon development

# The World Bank is responding to the current generation of challenges facing the carbon markets

## Build capacity, generate knowledge and share insights



- ◆ Building capacity
  - Annual State & Trends of the Carbon Markets
  - 10 Years of Experience in Carbon Finance
  - Convener of workshops and training
- ◆ Innovating carbon finance with pioneering frontloading mechanisms (e.g., carbon bonds)

## Scaling-up

### Carbon Partnership Facility



- ◆ Forward-looking & transformative
- ◆ Pioneer of programmatic approaches – innovate to broaden and deepen reach of CDM
- ◆ Utilize carbon finance to scale up systematic approaches to low carbon growth
- ◆ Public & private participants to gain critical learning & experience

## Pilot domestic trading

### Partnership for Market Readiness

- ◆ Contribute to enhancement of global mitigation efforts via market instruments
- ◆ Provide a platform for technical discussions and sharing lessons learned on new market instruments in developing countries

## Pilot REDD+

### Forest Carbon Partnership Facility



## Ensure carbon finance reaches underrepresented communities & sectors

### BioCF & CDCF



# The Forest Carbon Partnership Facility



Established partnership for meaningful exchanges on REDD+ issues\*  
(operational since June 2008)

## Mission

- ◆ Helps make forests worth more standing than dead, hereby mitigating climate change
- ◆ Helps forest countries prepare for future REDD+ financing by
  - ◆ Putting in place national systems (strategy, institutions, monitoring, reference level)
  - ◆ Demonstrating performance-based payments
- ◆ Readiness Fund – \$200 million raised to:
  - ◆ Prepare developing forest countries for REDD+ (monitoring, reference scenarios, strategies, management arrangements)
  - ◆ Inform UNFCCC negotiations on REDD+
- ◆ Carbon Fund – Close to \$150 million raised to date

## Participation

- ◆ 37 forest country participants (more may join next year)
- ◆ 11 donor participants (more joining)
- ◆ 5 Carbon Fund participants (more joining, from public and private sectors)
- ◆ Balanced governance structure (14 forest countries + 14 donors)
- ◆ 6 Observers, including Indigenous Peoples
- ◆ Roles of the Bank: trustee, secretariat and implementing partner (proposal to include UN agencies and MDBs alongside the Bank)
- ◆ Synergies with UN-REDD Programme, Forest Investment Program

\* Reducing emissions from deforestation and forest degradation, forest conservation, the sustainable management of forests and the enhancement of forest carbon stocks in developing countries.

# Bringing forward the World Bank's specialty funds

Continuing to build on the experimental work of the World Bank specialty funds to ensure that carbon finance reaches under-represented communities and sectors

## BioCarbon successor



- ◆ A BioCarbon successor is proposed which will continue its engagement in the forestry and agriculture carbon market and experiment outside mainstream carbon trading.
- ◆ A BioCF has gained considerable on-the-ground implementation experience and the lessons learned from this are currently being documented.
- ◆ A BioCF successor will continue the development of new methodologies by pioneering activities in areas not yet tested (and not yet eligible) for land use, e.g. combining carbon storage, food security & climate adaptation benefits.
- ◆ A concept note is currently under development and we are informally surveying interest from various potential participants.

## CDCF successor



- ◆ The CDCF is currently taking stock of lessons learned with the carbon market experience in micro-projects and least developed countries (LDC's)
  - There is a potential for projects with development co-benefits in the poorest countries
  - Scaling up requires sustained capacity building, up-front financing and deep reforms of the regulatory framework (e.g., the large hydropower potential in Africa is currently excluded from the CDM)
- ◆ A new proposal is under development which reflects these findings and will broaden our engagement beyond purchasing emission reductions.



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