Supporting Low-Carbon Growth Opportunities in Developing Countries: How Can Better Data Help?

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Outline

1. Development benefits from low-carbon growth opportunities
2. Where are the data gaps to help capture these benefits?
3. Accessing and leveraging carbon revenues
4. Facilitating and monitoring the use of evolving climate financing

Development Benefits from Low-carbon Growth Options

Greater energy efficiency & diversification of energy base

Increased competitiveness through technological innovation

Improved air quality and reduced congestion

New business and income-generating activities

Access to additional financing (e.g., carbon revenues)

Extending Scope and Improving Reliability of Datasets can help:

Improve understanding of low carbon growth opportunities and develop more reliable projections

- identify multiple benefits and opportunities for sustainable development
- assess mitigation potentials (volumes, incremental costs and co-benefits)
- assess best policy options to facilitate these cost-effective options
- Facilitate and better leverage carbon finance and other climate funds
- understand pros and cons of options discussed at climate negotiations

Monitor progress on the path to a low-carbon growth

- Bali Action Plan: "nationally appropriate mitigation actions by developing countries in a measurable, reportable, verifiable manner"

Towards a WBG Strategic Framework on Climate Change and Development (SFCCD)

To integrate climate change and development challenges, without compromising – and rather enhancing – growth and poverty reduction efforts through:

- country, regional, and global operations
- a multi-sectoral, multi-dimensional approach
- the use of a strong and balanced results framework
- working with other development partners
- resource mobilization in addition to the current ODA levels
- staying neutral to UNFCCC process while representing impacts on developing countries

SFCCD Pillars

1. Make effective climate action – both adaptation and mitigation - part of core development efforts
2. Address the resource gap through existing and innovative instruments for concessional finance
3. Facilitate the development of innovative market mechanisms
4. Create enabling environment for and leveraging private sector finance
5. Accelerate the deployment of existing and development of new climate-friendly technologies
6. **Step-up policy research, knowledge management and capacity building**

On-going WBG initiatives to improve data and capacity

Major existing products: World Development Indicators database, Little Green Data Book, State and Trends of the Carbon Market

Ongoing initiatives in the context of low-carbon growth:

Analytical work

- WDR 2010 on Climate Change
- 6 Low carbon studies (Brazil, China, India, Indonesia, Mexico, South Africa)

Analytical tools & data

- Mainstreaming CC in datasets (WDI, Green Book) & indicators
- C-footprint initiative, to build capacity with staff and clients in understanding GHG implications of WBG operations
- Data portal: GIS dataset with information relevant to adaptation and mitigation

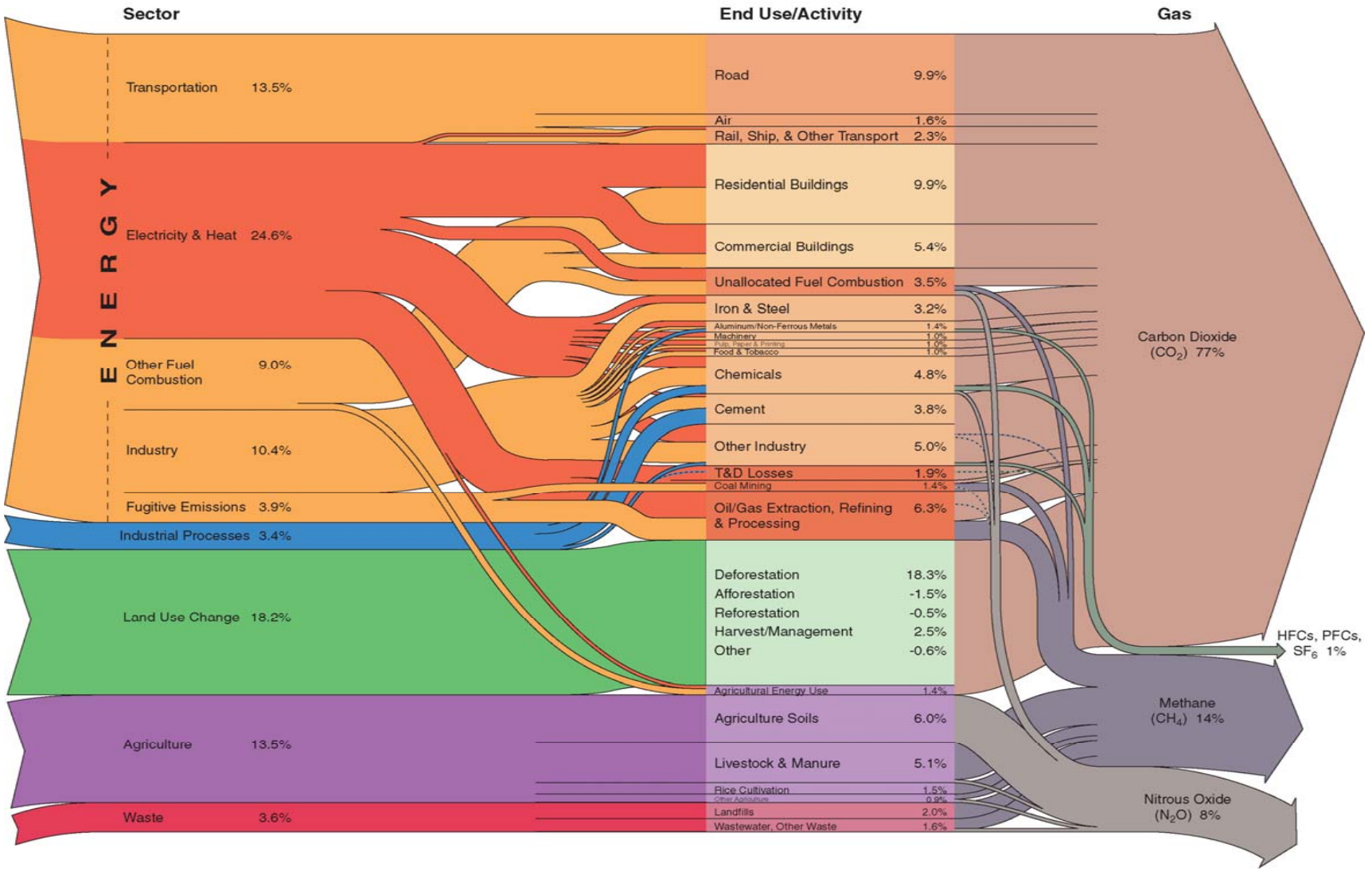
Capacity building

- In the context of country-level programs, such as low-carbon growth studies, EE indicators TA project, etc.
- In the context of innovative financing instruments, such as the FCPF and the CPF (devoted funds)

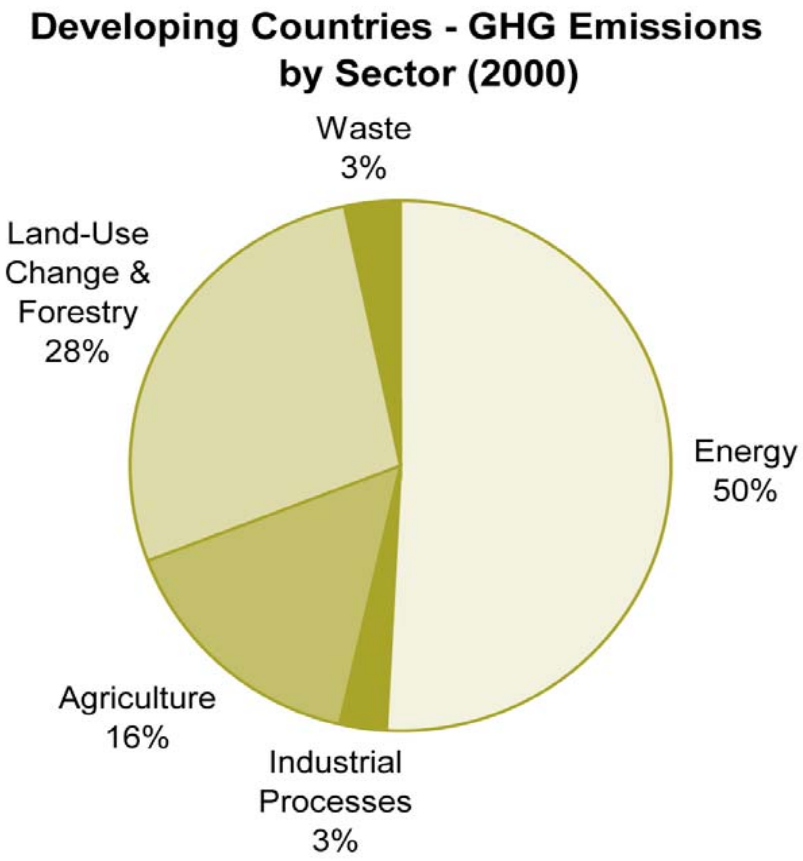
Where are the data gaps?

- **Lessons from WBG Analytical and Operational work** in developing countries points to the importance of strengthening data collection and reporting in the areas of:
  - GHG emissions across all gases and sources
    - National Communications are usually outdated, need more frequent update, reporting and integration with official statistics
  - Technical and economic mitigation potentials per sector
  - Physical and economic data on technologies
  - Financial flows in low carbon technologies
  - Carbon finance
  - Climate-friendly policies and measures
- **Select illustrative examples** follow

Sources of GHG are cross-sectoral



How to grasp major pro-development mitigation opportunities in developing countries?



Source: **WRI / CAIT.**

Agriculture, Forestry and Land Use (AFOLU) account for almost 50% of emissions in low and middle income countries

Forestation, avoided deforestation and agriculture activities can have significant development benefits, while reducing emissions and enhancing resilience to CC

Still using old (2000) and not very reliable data!

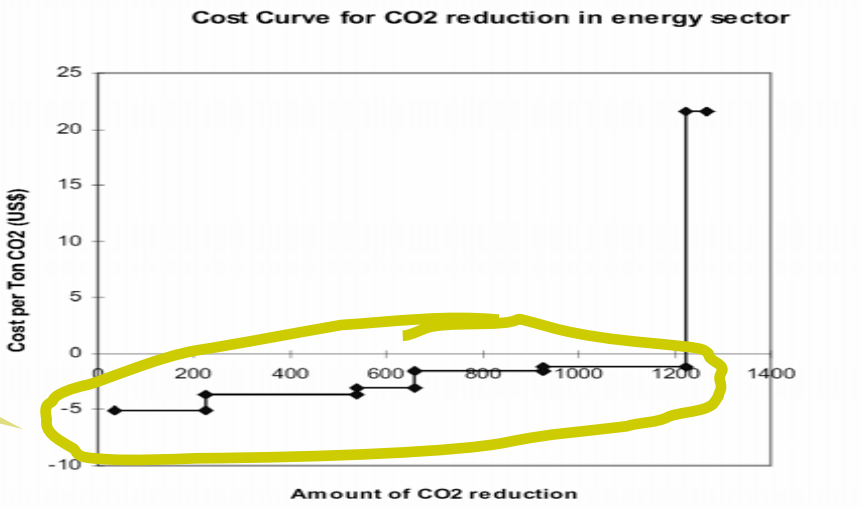
Data gaps (and methodologies) are a significant constraint to access Carbon market for AFOLU activities

- –improve data for land cover (areas, activities, cover type)
- –improve inventories for emissions from AFOLU activities

How to assess cost-effectiveness of key lower carbon options?

Vietnam's Marginal Abatement Cost Curve (MAC), energy sector, 2030

Energy efficiency is a cost-effective mitigation

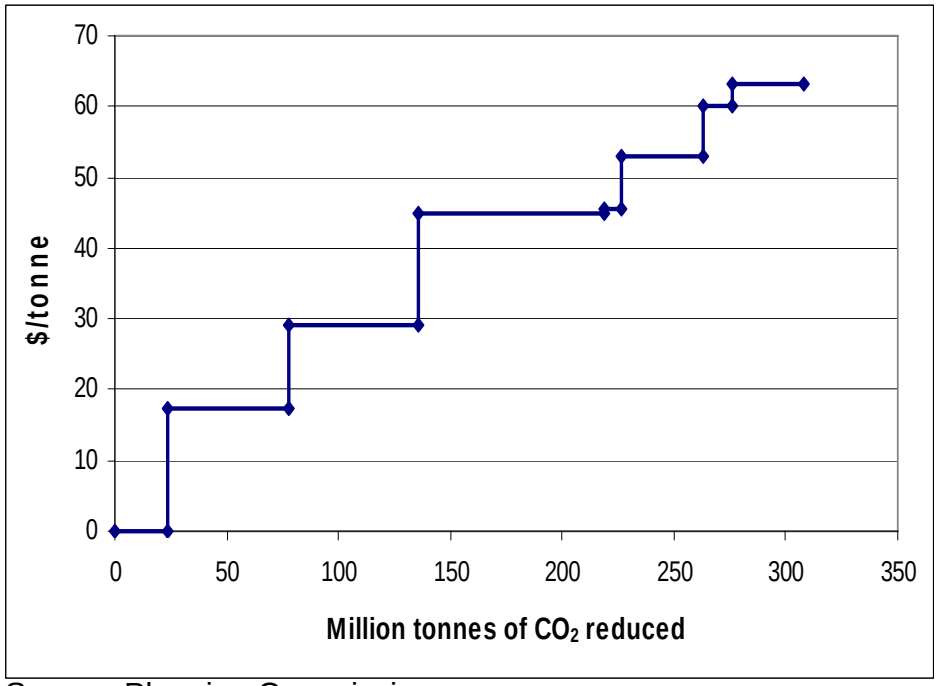


	Option	Amount of CO_2 reduced (Tg)	Cost of CO_2 reduction (US$)
1	Energy efficient Air conditioners	158	-4.42
2	Energy efficient refrigerator	266	-3.60
3	Compact fluorescent lamps	50	-3.38
4	High efficient electric motors	212	-3.02
5	Wind power plant	104	-1.94
6	Efficiency improvement in coal cooking	221	-1.75
7	Fuel Switching in existing thermal power plants	14	21.14

Source: UNEP (1999), Economics of Greenhouse Gas Reduction

..and to better understand cost implications of more expensive options?

India's Marginal Abatement Cost Curve, Power Sector, 2012-17



Source: Planning Commission

No.	Technology	Mitigation cost ($/ tonne)
1	Renovation and modernization	-ve
2	Coal ultra supercritical	17.4
3	Small hydro	29.1
4	IGCC based on Imported Coal	45.0
5	H-frame CCGT	45.4
6	IGCC based on Indigenous Coal	52.9
7	Biomass gasifier	60.0
8	Wind turbine	63.2

Major data gaps to devise effective programs for Energy Efficiency

- **Data needed for** the national low carbon growth strategies includes:
  - The pool of **appliances** (cook stove, TV set, heating/cooling unit…):
  - numbers and **efficiency** of these appliances
  - **costs** of upgrading
  - **housing** (share between old buildings – to be refurbished; new buildings – fortunately built along new standards; rate of ownership),
  - SMEs
  - **transport** (modal share, size and efficiency of fleet)

Examples of data needs to assess low carbon opportunities in the power sector

- Plant data
  - Updated Inventory of operating plants.
  - Proposed and planned new plants
- Extensive survey data on all sectors of the economy (industry, commerce, institutional, households, agriculture, etc.)
  - Current level of activity and future forecasts including changes in import/export of goods and activities
  - Total electricity usage
  - Energy usage from other fuels and off-grid
  - Appliances used: hours per day, efficiency, capacity, power consumed, technology level
  - Maintenance, rehabilitation and replacement programs; investment, timing, and expected efficiency/capacity improvements
  - Additional possibilities to improve efficiency/capacity showing investment, timing and expected efficiency/capacity improvements
  - Future trends in new appliances: energy consumption, efficiency, expected up-take, replacement of existing appliances
- Pricing/taxation measures and expected impact on demand
- Expected changes in the overall economy and impact on each sector

How to better access and leverage carbon revenues?

The State and Trends of the Carbon Market:

Issued by WBG since 2001, to **monitor and analyze** the activity of the global Carbon Market, with a **focus on the CDM and JI Markets**

- volumes transacted, prices and contract provisions
- projects types and host countries
- origin and profile of buyers
- major trends

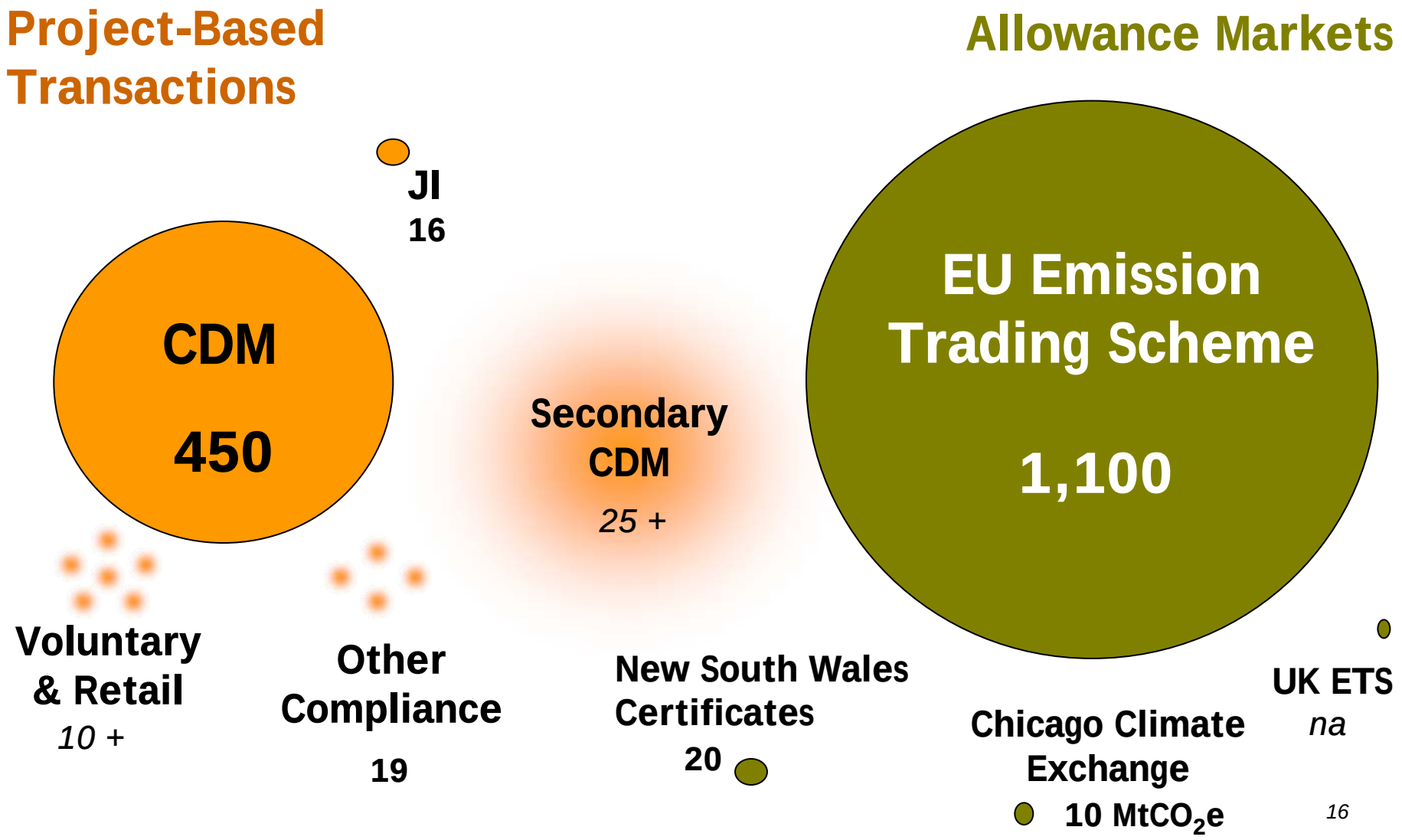
Significant data collection effort through interviews with market-players (natural buyers (Europe & Japan), fund managers, developers, sellers, DNAs, private equity funds, hedge funds, banks, traders & brokers), and a survey of carbon-related information (academic and professional literature)

Widely used for capacity-building in host countries by the CF-Assist program (WBI): downloaded > 15,000 times in 06

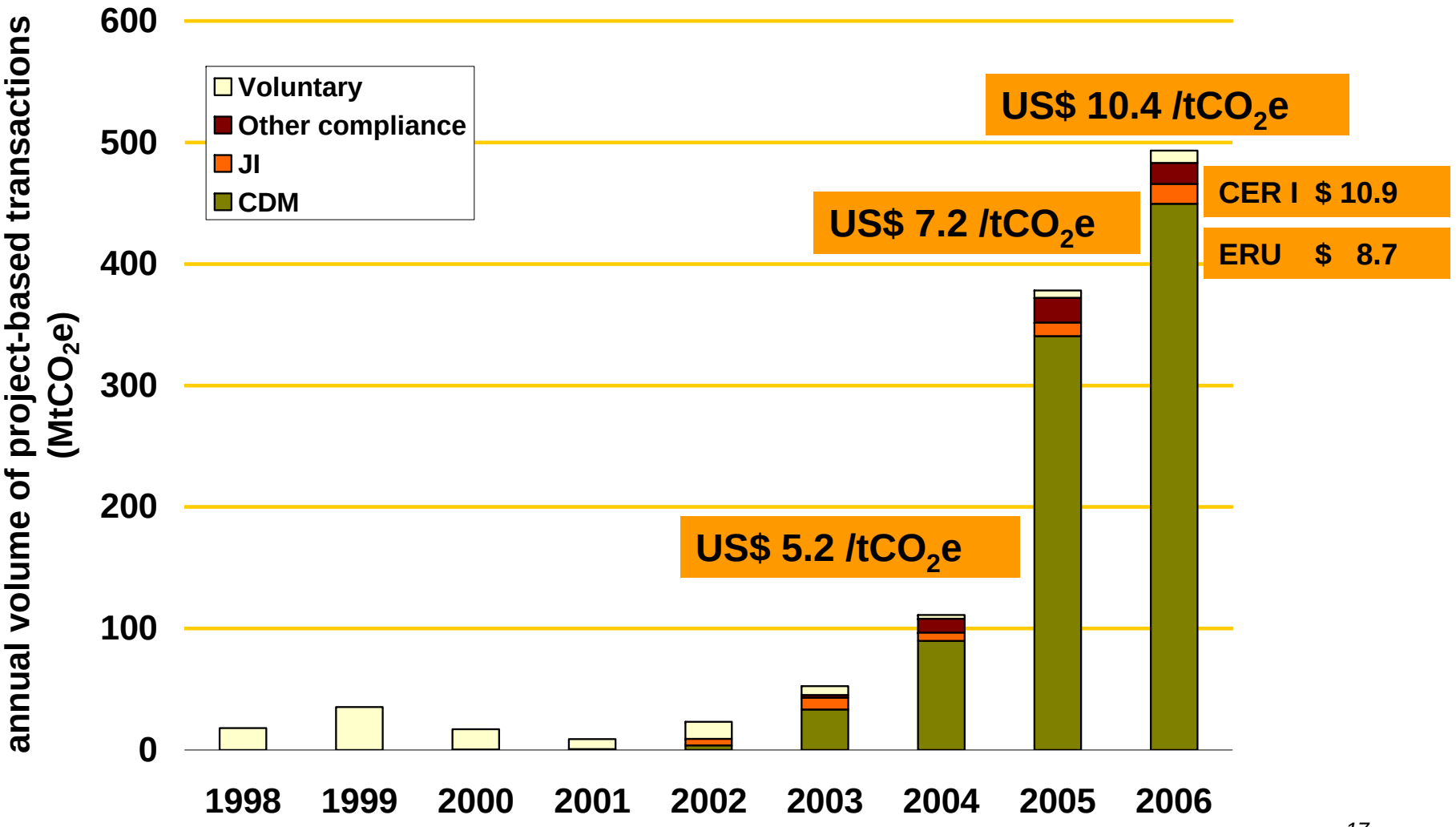
Next issue to be launched at Carbon Expo 2008, 7 May 08

www.carbonfinance.org

A Rapidly Growing Market
(volumes transacted in 2006, in $MtCO_2e$)

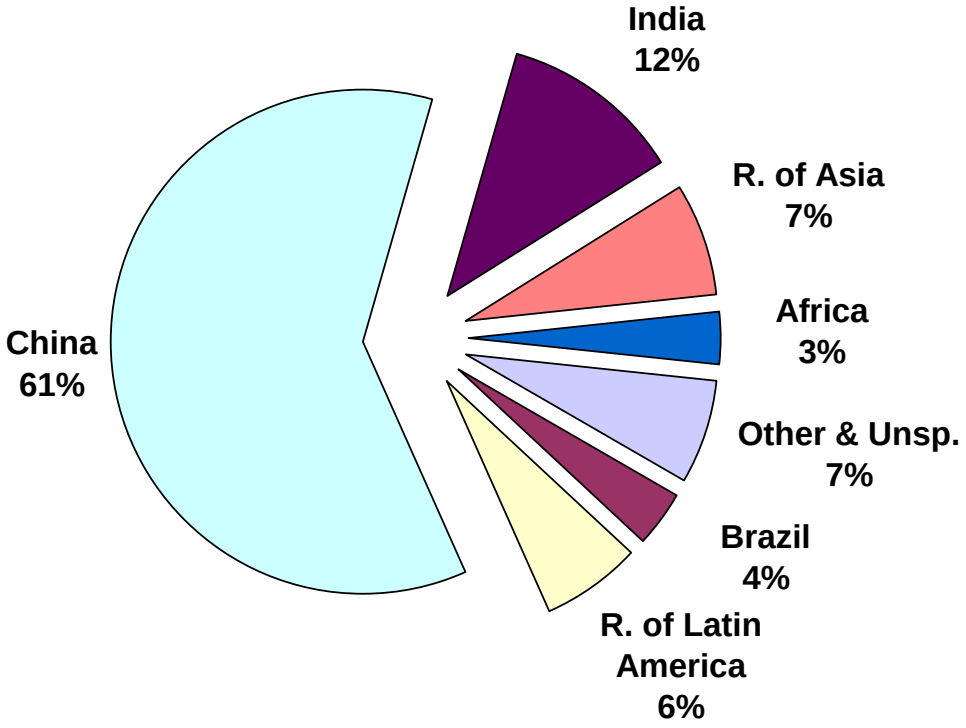


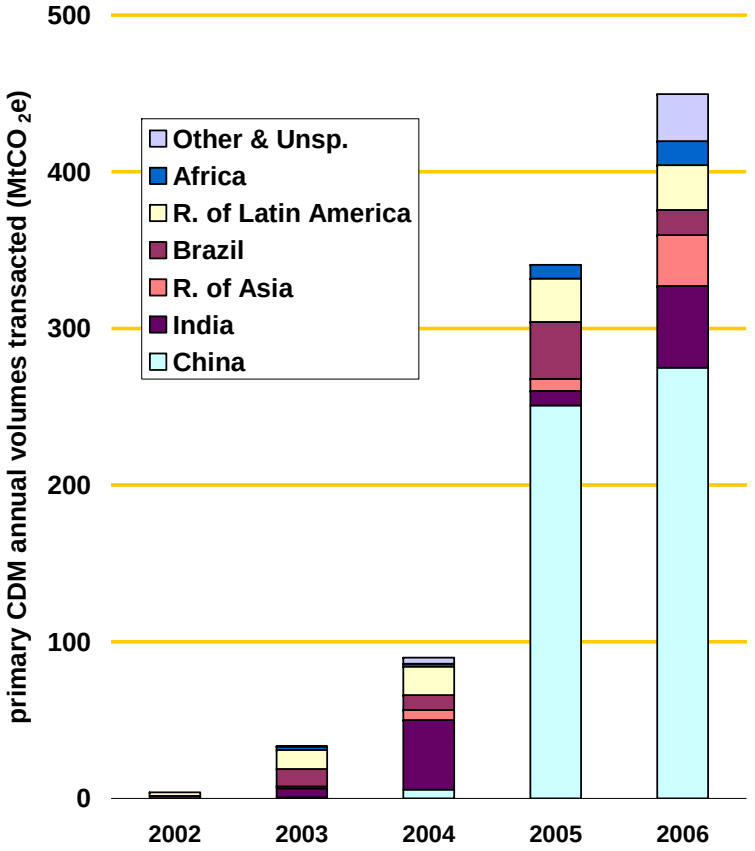
Prices & volumes up for project-based credits



CDM Sellers
China leads supply

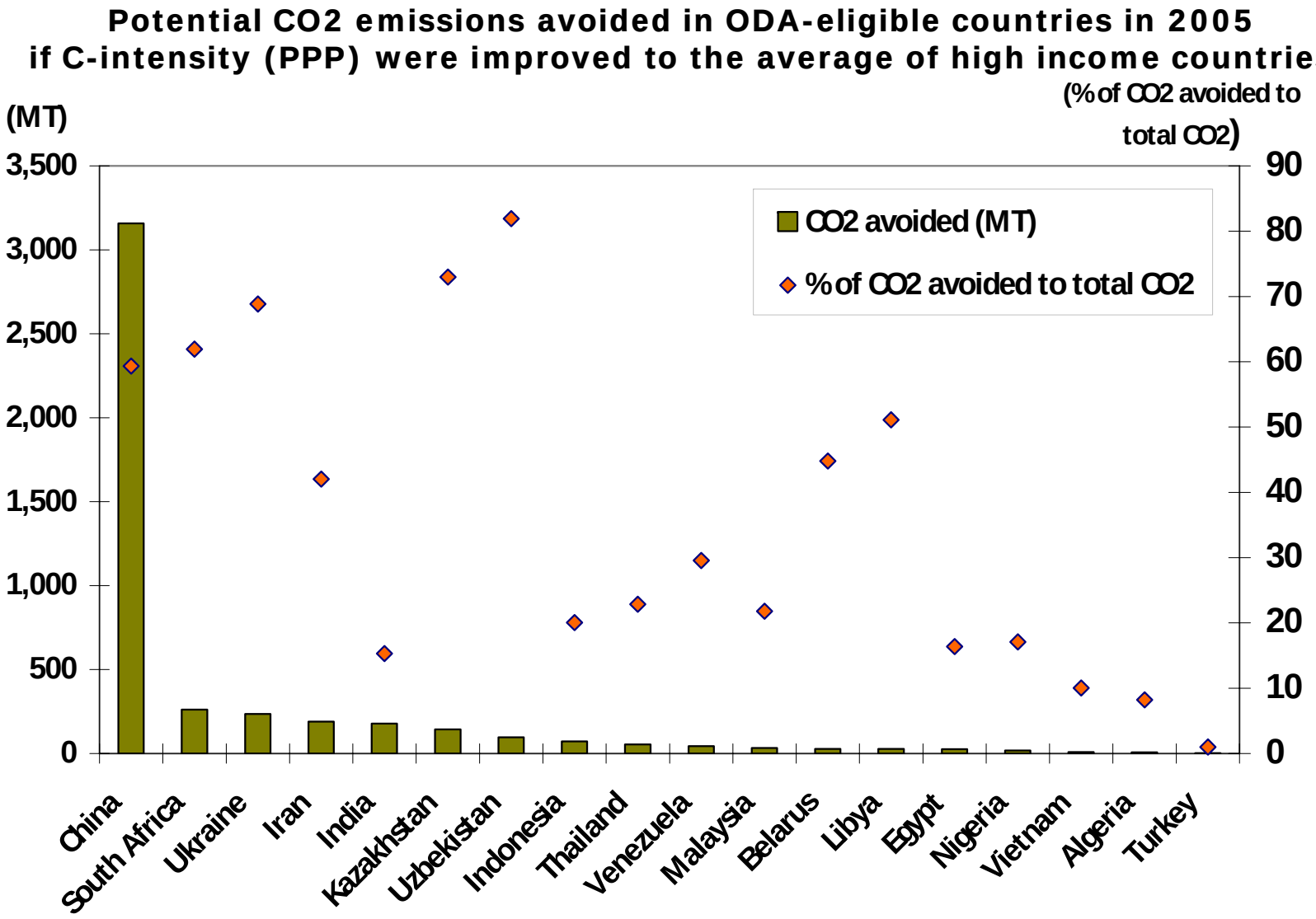
(share of volumes)





Jan. 2006 to Dec. 2006

Compare with where biggest reductions could occur …

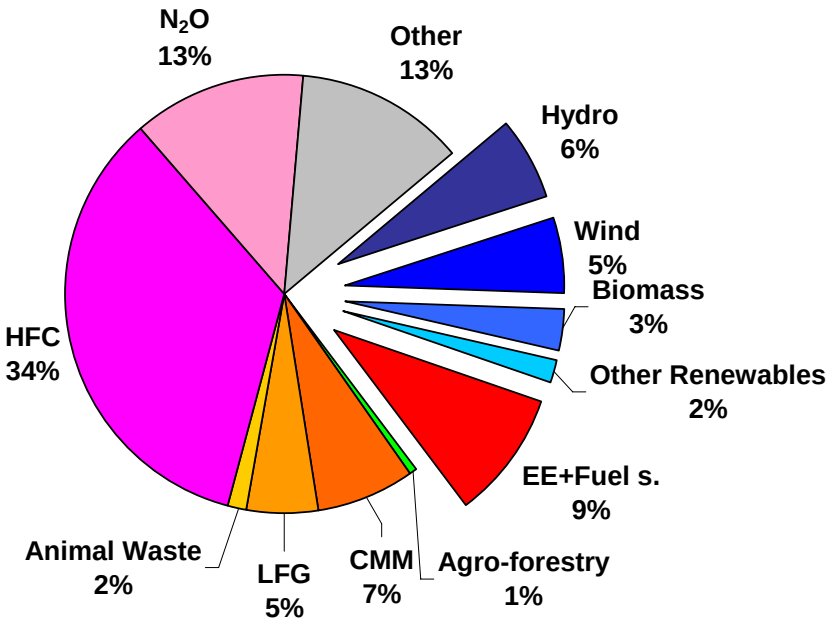


CDM Asset classes

Share of Clean Energy Rises

(share of volumes)

Clean energy: 25%



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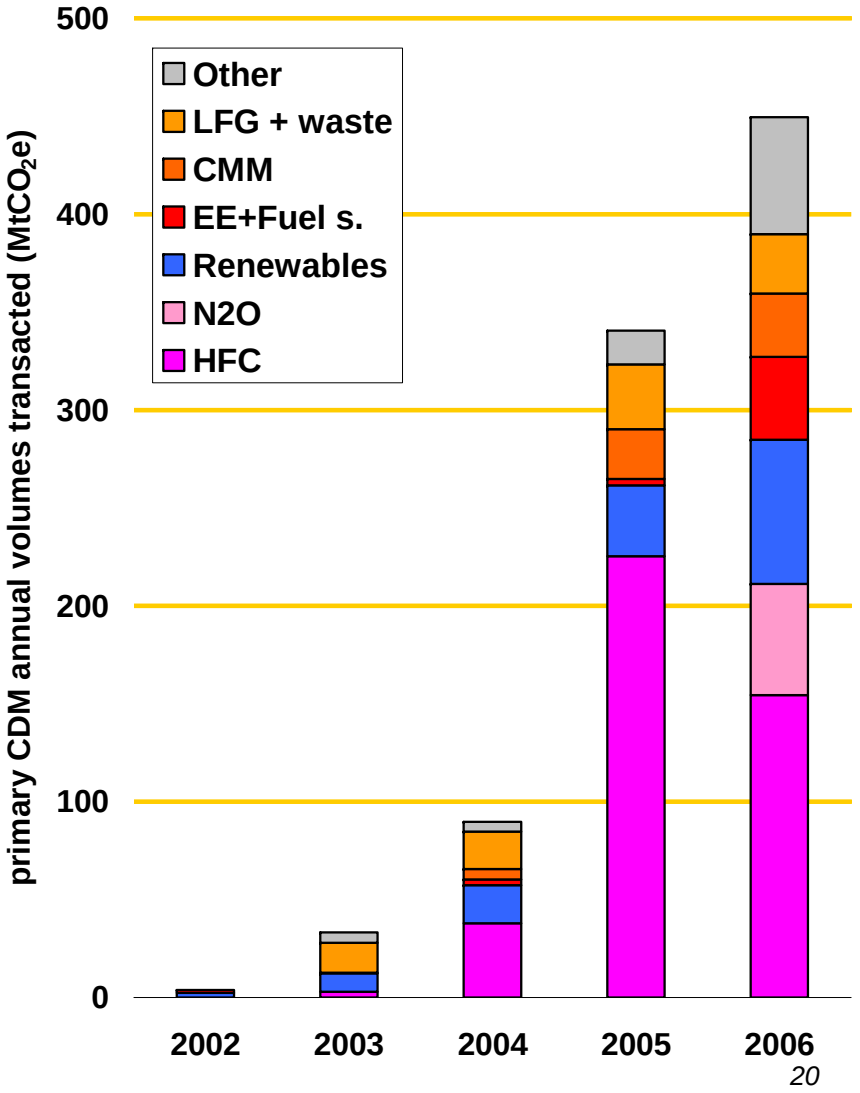


The development dividend

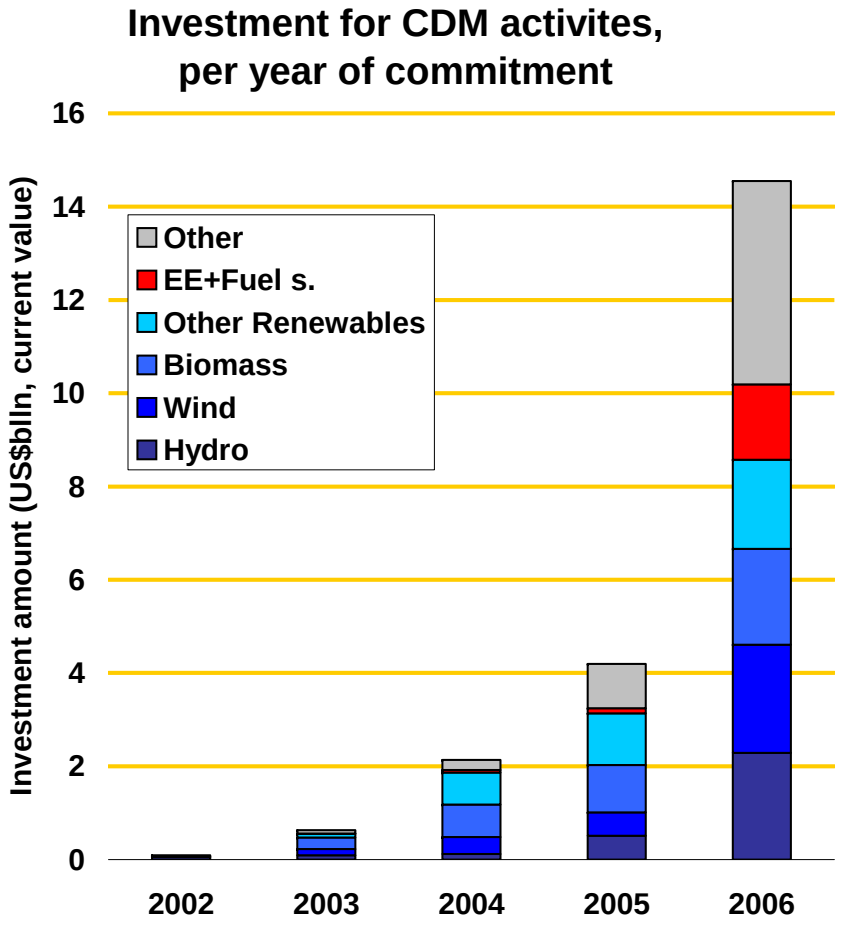
Cumulative CDM deals = US$ 7.8 billion, leveraging about US$ 22 billion capital.

US$ 16 billion leveraged for clean energy in developing countries since 2002 (of which US$10 billion in 2006).

US$ 21 billion invested for clean tech in developing countries in 2006.

Significant contribution of CDM vis-à-vis clean energy investment in developing countries

Not to the scale of what is needed to tackle mitigation (US$ 110 billion per yr.)



Facilitating Carbon Finance

- Statistical gaps and lengthy and costly collection processes are among the barriers to more projects development
- Making data available at country level (w/possible regional breakdown) in collaboration with host countries could facilitate:
  - streamline **baseline** (e.g., grid emissions factors),
  - make **benchmarking easier,**
  - compute **deforestation baseline.**

Taking advantage of new climate financing instruments: directing to right areas, leveraging, monitoring, etc.

- Forest Carbon Partnership Facility (FCPF)
- Carbon Partnership Facility (CPF)
- Climate Investment Funds (CIF) – a joint initiative of MDBs
- MIGA –use of guarantees for carbon credit delivery
- IFC- Structured financing packages blending CF with loans and guarantees
- WB Treasury - bonds at reduced rates to advance to projects with climate benefits
- Financing programs by the MDBs and UN agencies have

Measure financial flows

- UNFCCC estimates that by 2030 financial flows to developing countries should be on the order of $100 billion annually to finance mitigation (80% from private sector)

- Need to quantify:
  - investments flows in low-carbon technologies, with public/private breakdown, and foreign/domestic origin,
  - in particular with a link to carbon finance (what is the actual leverage of CF?, how can it be augmented?).

More quantitative information on the national policy front

There are **many leverages to a sustainable low carbon actions**:

- win-win instruments: e.g., rationalizing subsidies, using "green" taxes, energy efficiency standards, consideration of climate financing in public funding.
- enabling environment to direct investments and financial assistance into low-carbon activities, including improved governance and fiscal responsibility.

Statistical implications:

- complement data on tax revenues/subsidies expenditures on energy and other goods and services, with a *breakdown* between C-intensive ones and climate-friendly ones.
- prepare review (and update) similar to IEA's Energy Policies of IEA countries
- show *development* benefits (e.g., # of people electrified through leaner energy, savings from EE appliances, etc.)

Concluding remarks

Harmonize and extend data collection relevant for low carbon growth, building on existing national programs:

- Key fields: GHG emissions, physical and economic data on technologies, financial flows, and policies and measures
- Agree on key variables & harmonize definition
- Link to indicators capturing the development dimension (e.g., # of people served)
- Integrate around existing platforms and datasets