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African Bankers' Carbon Finance and Investment Forum

Plenary 3: Introducing the Clean Development Mechanism (CDM) through Case Studies by Successful Investors & Project Developers

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Presentation Outline

- Camco
- UNFCCC, Kyoto Protocol, CDM project cycle and process
- Current CDM status – overview, number of registered projects, tCO2e registered, registered projects (by sector, region and country)
- Case studies
- Conclusions

Camco

- A leading international centre of expertise in the field of sustainable energy and climate change:
  - Advisory services, carbon, investments
  - 20-year legacy
  - Extensive experience throughout Africa
  - Listed on the London Stock Exchange
  - Over 240 staff worldwide, operating out of 15 offices
  - Across 11 countries – Austria, Bulgaria, China, Kenya, Malaysia, Russia, South Africa, Tanzania, UK, USA, Vietnam

Energy Business Awards ASIA 2007 Silver Award Environmental Markets

Environmental Finance AWARDS 2007

Energy Business Awards ASIA 2008 Gold Award Environmental Markets

Top 30 offset provider as featured in ENDS 2008

CO_2 Carbon Market AWARDS 2007 - 2008 - 2009

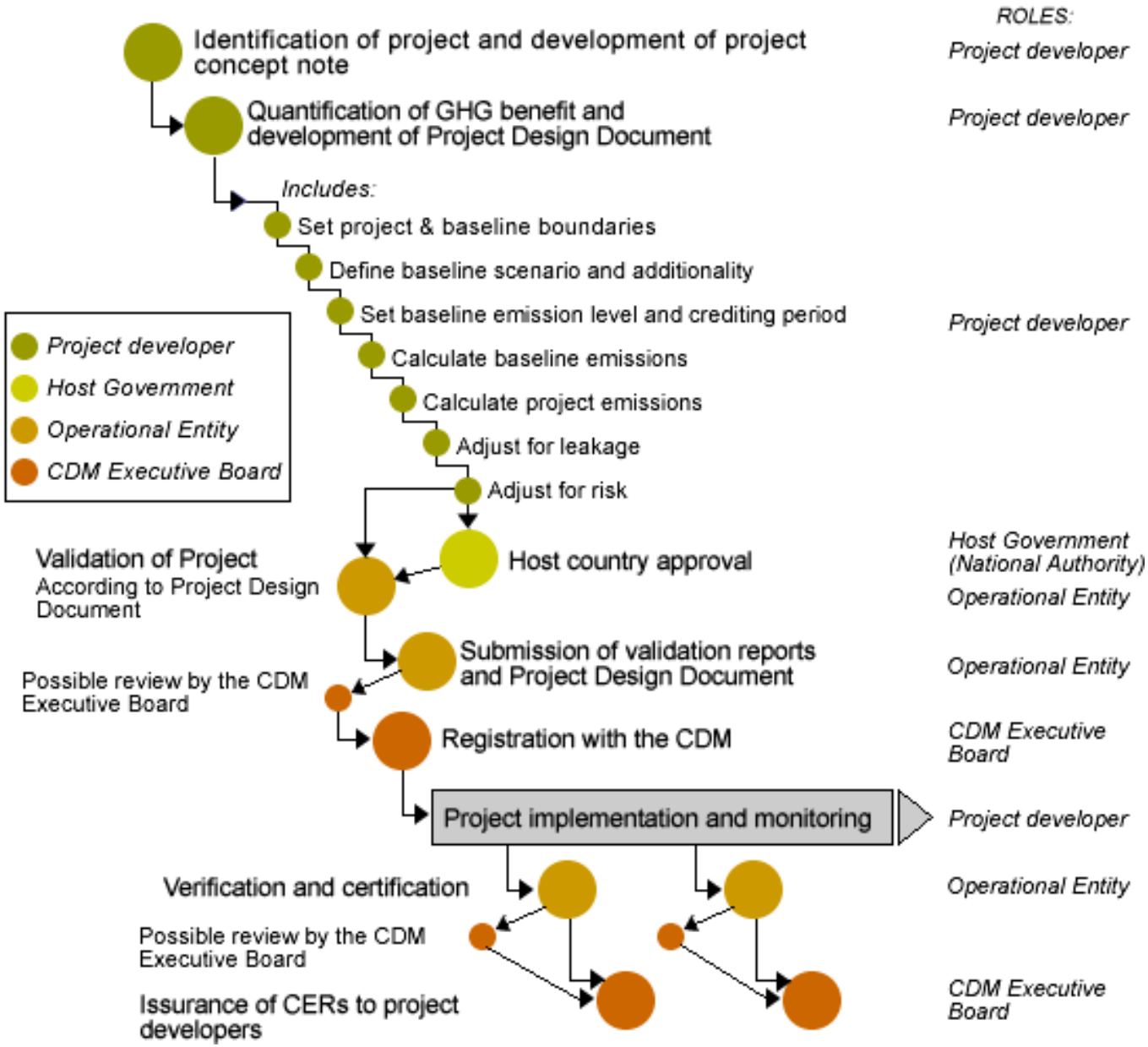
Environmental Finance AWARDS 2009

UNFCCC, Kyoto Protocol, Kyoto Mechanisms - context and history

- **1992 UNFCCC adopted 194 parties**
- **COP 3 - Kyoto 1997 – international watershed**
- **Evolution of EU ETS from January 2005**
- **COP15 Copenhagen – Copenhagen Accord**
- **COP 17 South Africa**
- **Kyoto Mechanisms (191 participating countries to date):**
  - Flexible mechanisms – to assist in achieving emissions reduction targets: Joint Implementation (JI), CDM, Emissions Trading
  - Annex I Countries (developed) can participate in all three, Non-Annex I (developing) countries: CDM
  - CDM purpose and objective to:
    - Assist non-Annex 1 Parties in achieving sustainable development
    - Contribute to ultimate objective of the UNFCCC
    - Assist Annex 1 Parties in achieving compliance with “part” of their emissions reductions targets
    - Lead to the transfer of environmentally safe and sound technology and know-how

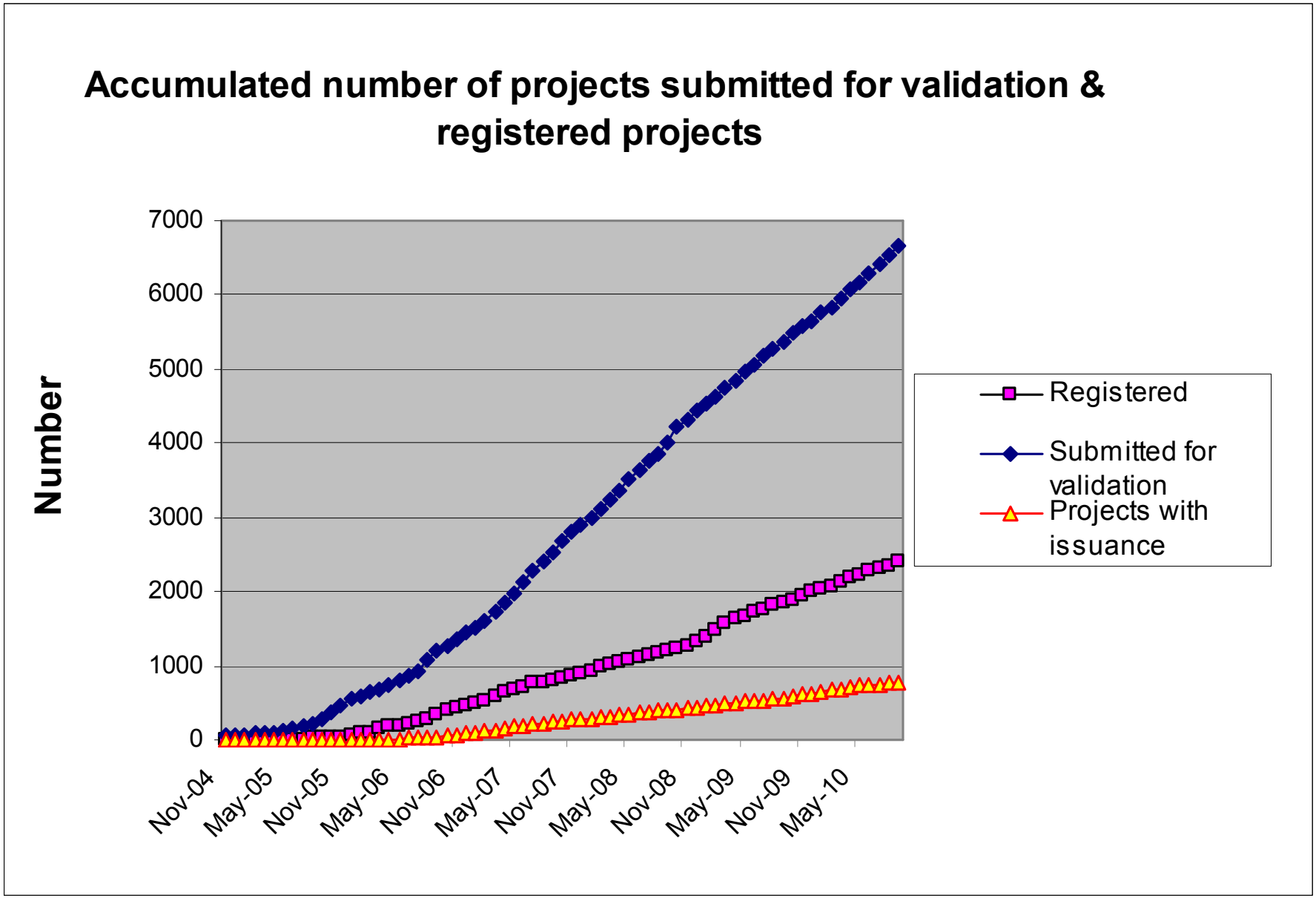
CDM project cycle and process

A SIMPLIFIED CDM PROJECT FLOW - THE PROJECT DEVELOPER'S PERSPECTIVE



Source: Embassy of Denmark, Pretoria, accessed online at http://www.ambpretoria.um.dk/en

Current CDM status – overview



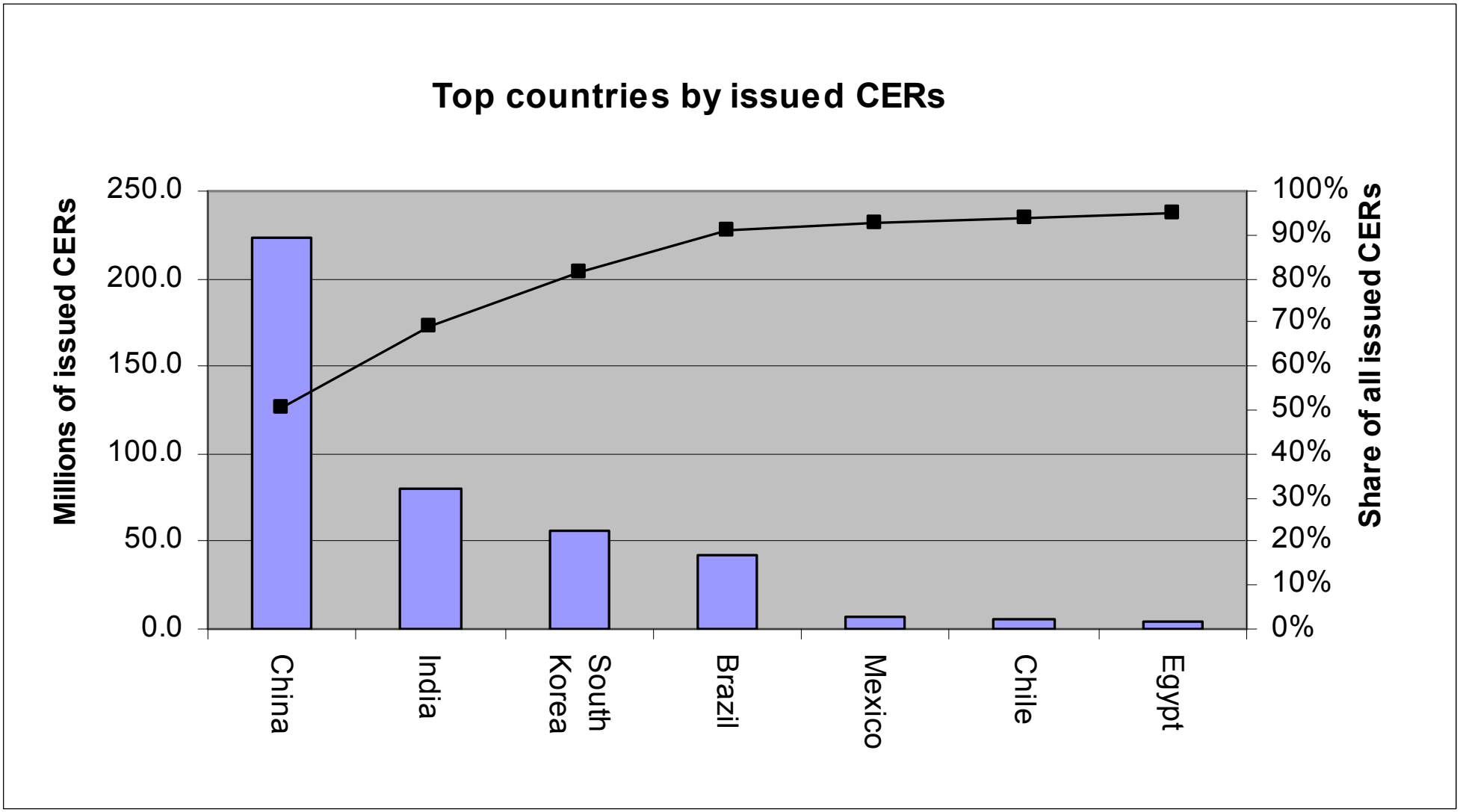
Source: *UNEP Risoe Centre, 2010*

Current CDM status – overview

							For all projects		
Total in the CDM Pipeline	**Number of small-scale**		**Number of full scale**		**Number of all projects**		**kCERs**	**2012 kCERs**	
Latin America	394	**15.3%**	495	**16.7%**	889	**16.1%**	86,004	384,341	**13.6%**
Asia & Pacific	2,075	**80.7%**	2,298	**77.7%**	4,373	**79.1%**	612,468	2,269,174	**80.2%**
Europe and Central Asia	24	**0.9%**	37	**1.3%**	61	**1.1%**	13,809	40,996	**1.4%**
Africa	57	**2.2%**	86	**2.9%**	143	**2.6%**	29,505	98,956	**3.5%**
Middle-East	20	**0.8%**	43	**1.5%**	63	**1.1%**	10,011	34,505	**1.2%**
	2,570	**100.0%**	2,959	**100.0%**	5,529	**100%**	751,796	2,827,972	**100%**

Source: *UNEP Risoe Centre, 2010*

Current CDM status – overview



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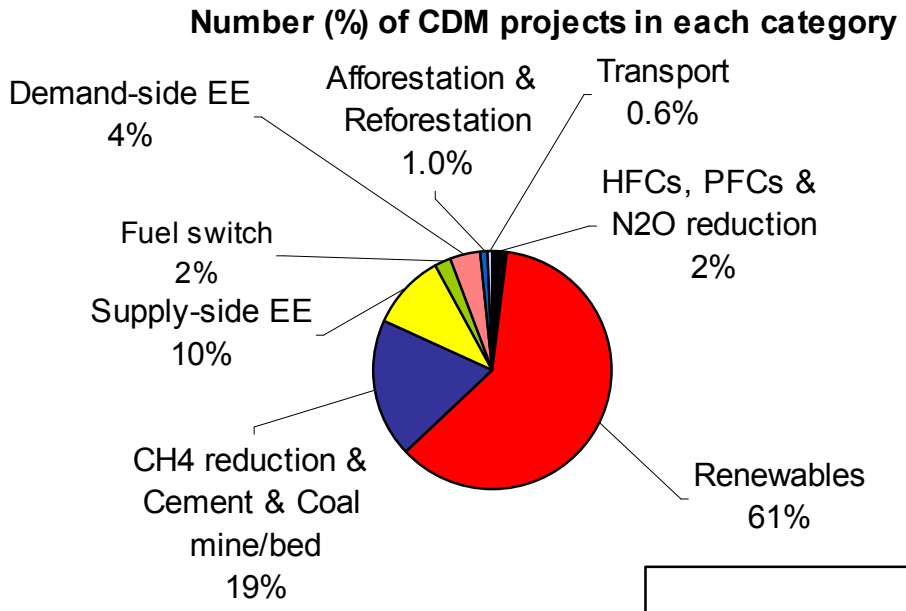
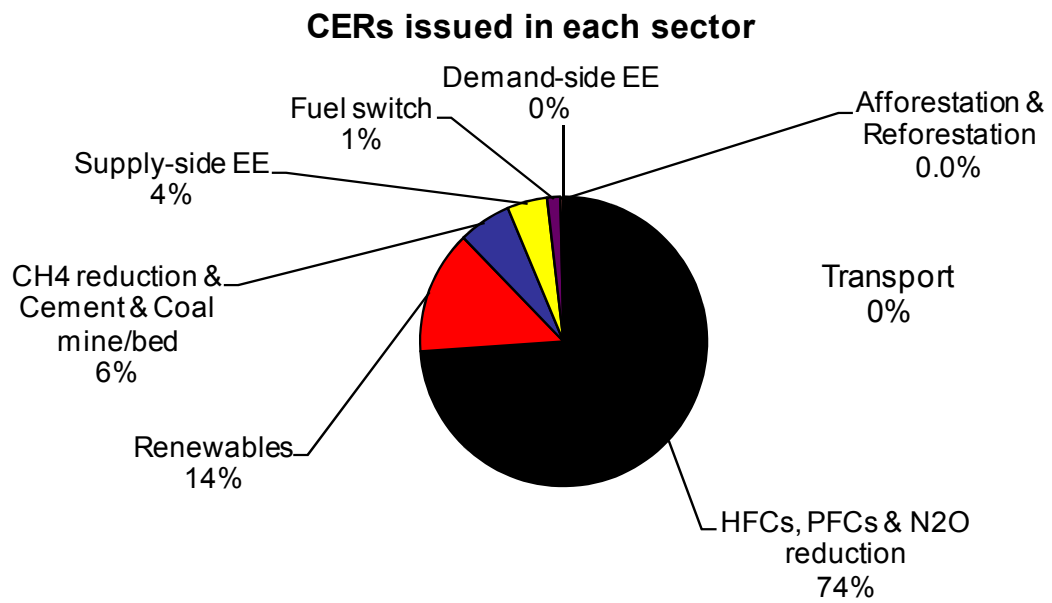
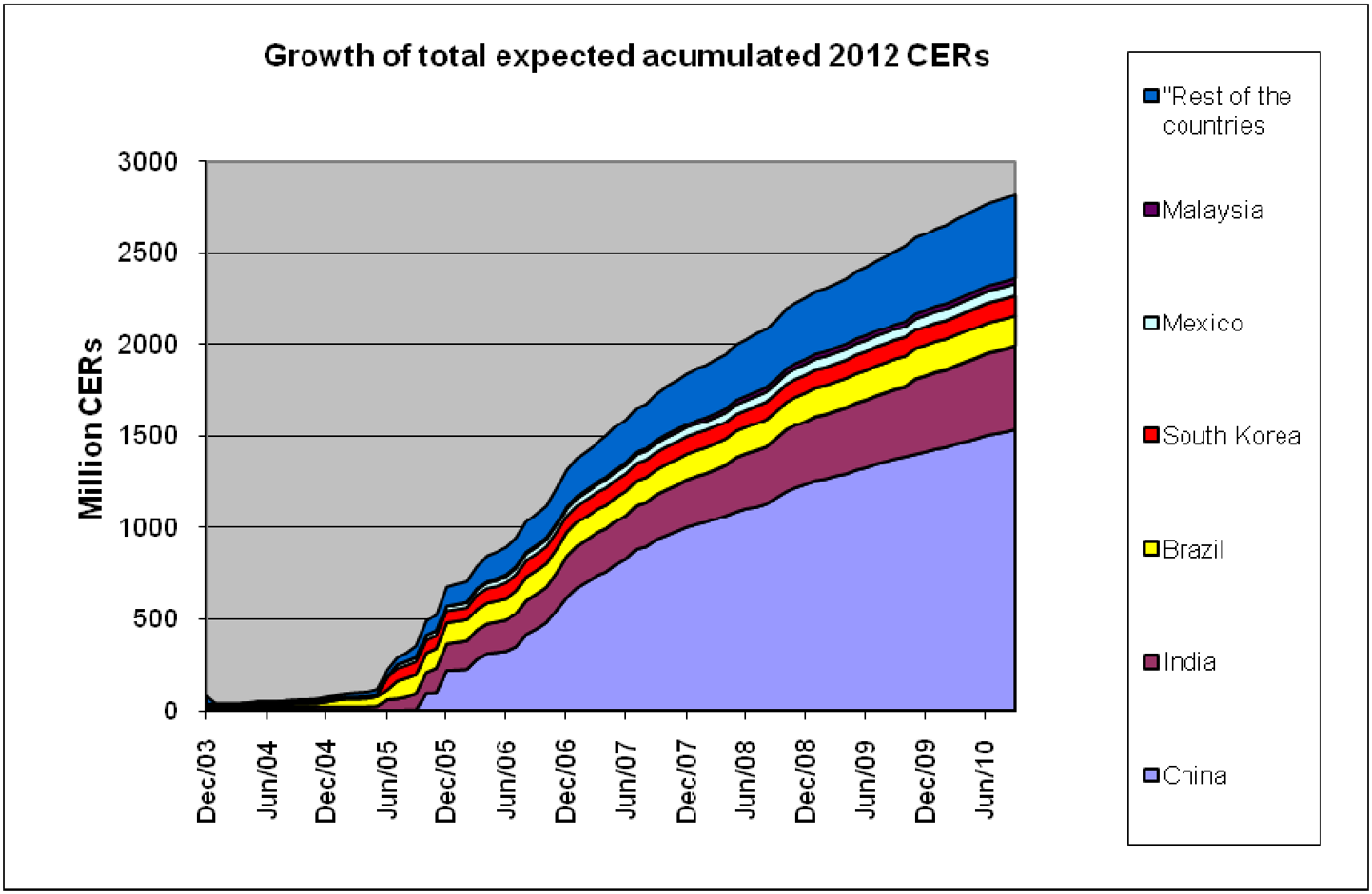




Source: *UNEP Risoe Centre, 2010*

Current CDM status – overview



Source: *UNEP Risoe Centre, 2010*

Case studies

1. Grid-connected wind electricity in North Africa
2. Small-scale isolated grid & national grid-connected hydro-electricity in East & Central Africa
3. Biomass-generated electricity to replace diesel in isolated rural grid in Southern Africa

Grid-connected wind electricity in North Africa

Project location	North Africa
Technology	Wind turbines imported from Northern Europe
Capacity	60MW
Project developers	JV between state renewable energy agency & local private investors
Status of project	Wind farm constructed, operating since early-2009, dispatching 40,000 MWh into the grid
tCO2e displaced and CERs generated	Grid emission factor (GEF) ~ 700kg/MWh; Approximately 150,000 tCO2e displaced and CERs generated

Grid-connected wind electricity in North Africa

- Key risks and lessons learned
  - Low dispatch factor - Wind due to intermittency, difficult to meet same type of “base load” as hydro, biomass or fossil fuels
  - High GEF - grid-connected renewables in region / country generate high tCO2e displaced and CERs
  - Technology risk - State-of-the-art, off-the-shelf, robust, proven and reduces technological risk, easier to quantify risk for CER generation
  - Feed-in Tariffs or subsidies - no subsidies or feed-in-tariffs provided, only additional financial support for project is CERs, IPP tariff in this case is low (makes “financial additionality” easier to prove, getting CERs easier)
  - CDM risks
    - 3rd wind CDM project in area and country (1 project registered), therefore more difficult to prove that CERs necessary for project’s financial viability
    - validation over 12 months (with inflation and foreign exchange, tariff dropped 20% in that period), registration another 18 months due to delays at UNFCCC, CERs now not only essential, but, insufficient to give owners profit (same for the other 2 projects, discouraging other investors from the CDM)
    - not technological, political or financial risk that discourages investors using CDM, but “CDM risk” due to extensive delays in registration

Small-scale isolated grid & national grid-connected hydro-electricity in East & Central Africa

Project location	East and Central Africa
Technology	Hydro
Capacity	5MW (28,000 MWh per year)
Project developers	Local investors running isolated factory on diesel (project will replace diesel & be connected to national grid)
Status of project	Project financed, under construction, due to be completed mid-2011
tCO2e displaced and CERs generated	GEF ~ 650kg/MWh; Approximately 20,000 tCO2e displaced and CERs generated

Small-scale isolated grid & national grid-connected hydro-electricity in East & Central Africa

- Key risks and lessons learned
  - Favourable policy environment – streamlined “small scale power purchase agreement” enabled project to register as an IPP & get licenses in less than 2 months
  - National utility buy-in – national utility agreed to connect to the new grid (and pay the company for connecting new consumers); purchase 100% of the electricity at a 15% premium over other IPPs (not a feed-in-tariff, but a premium price for “embedded generated” in isolated area with weak grid); provide technical assistance on design & construction of the grid; all took less than 3 months to negotiate and sign
  - CDM risks
    - took over 6 months to get LONO from DNA, for a project that will; bring electricity to over 30,000 rural residents for the first time, reduce imports of diesel, reduce expenditures by the factory on diesel, improve economic development in the region, connect to the national grid to improve overall national generation
    - validation fairly straightforward (less than 6 months), project is awaiting registration because failed its first “completeness check”, at least 3 month delay (even though it is a small-scale project)
    - again, not technological, political or financial risk that discourages investors using CDM, but “CDM risk” due to extensive delays in registration

Biomass-generated electricity to replace diesel in isolated rural grid in Southern Africa

Project location	Southern Africa
Technology	Biomass steam turbines using wood waste to replace diesel generators in remote, isolated grid
Capacity	2MW
Project developers	Local biomass production company
Status of project	Biomass boilers & turbines installed, connected to the existing grid (run by national electricity company), all independent diesel generators disconnected, area now 100% renewable electricity (16,000 MWh per year generation)
tCO2e displaced and CERs generated	GEF ~ 1 t/MWh, Approximately 160,000 tCO2e displaced and CERs generated

Biomass-generated electricity to replace diesel in isolated rural grid in Southern Africa

- Key risks and lessons learned
  - Stakeholder buy-in – project designed with close co-ordination with local community, local, & national government; investors, supported by local government leaders & MPs, made strong, compelling case to national government to get: small-scale PPA, EIA, local & national financing, regulatory approval, etc., all streamline and in place to make it happen quickly
  - Project feasibility – diesel generation become financially & technically unsustainable for the national utility in this isolated, though economically important, area; private owners of ag-processing, fisheries, tourism and commerce purchased & installed own diesel generators because national utility could not provide sufficient supply (cost of generation was close to US$ 0.50/kWh, over 7 times the national tariff)
  - CDM risks – DNA engaged from project start, well written PDD meant DOE could validate project in 2 months, additionality arguments supported by all government bodies, project to CDM EB on small-scale “fast track”, project should be generating CERs within 8 months of registration request

Conclusion and lessons learned from case studies

- Project feasibility:
  - Project participants (developers / investors) must have technically, technologically, financially & politically sound projects – they must do their homework
  - CDM component must be designed to specifications of CDM EB, UNFCCC
  - African CDM projects smaller than India, China, Brazil, and are complicated by a variety of factors that have always discouraged direct foreign investment
  - UNFCCC, EB, need to differentiate small-scale projects in LDCs, & streamline & simplify the process
- Stakeholder engagement and buy-in:
  - Government must understand CDM, to mobilize all government resources to co-ordinate & make it happen, government must have awareness of CDM & capacity to understand & support it (with institutional support lined up - DNA & other key agencies)
  - International partners (donors, international development finance, NGOs, etc.) must work with governments and project participants to build capacity in DNAs, awareness in government and, most fundamentally, confidence in the private sector to make CDM work

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