Institutionalising

Carbon Trading in India

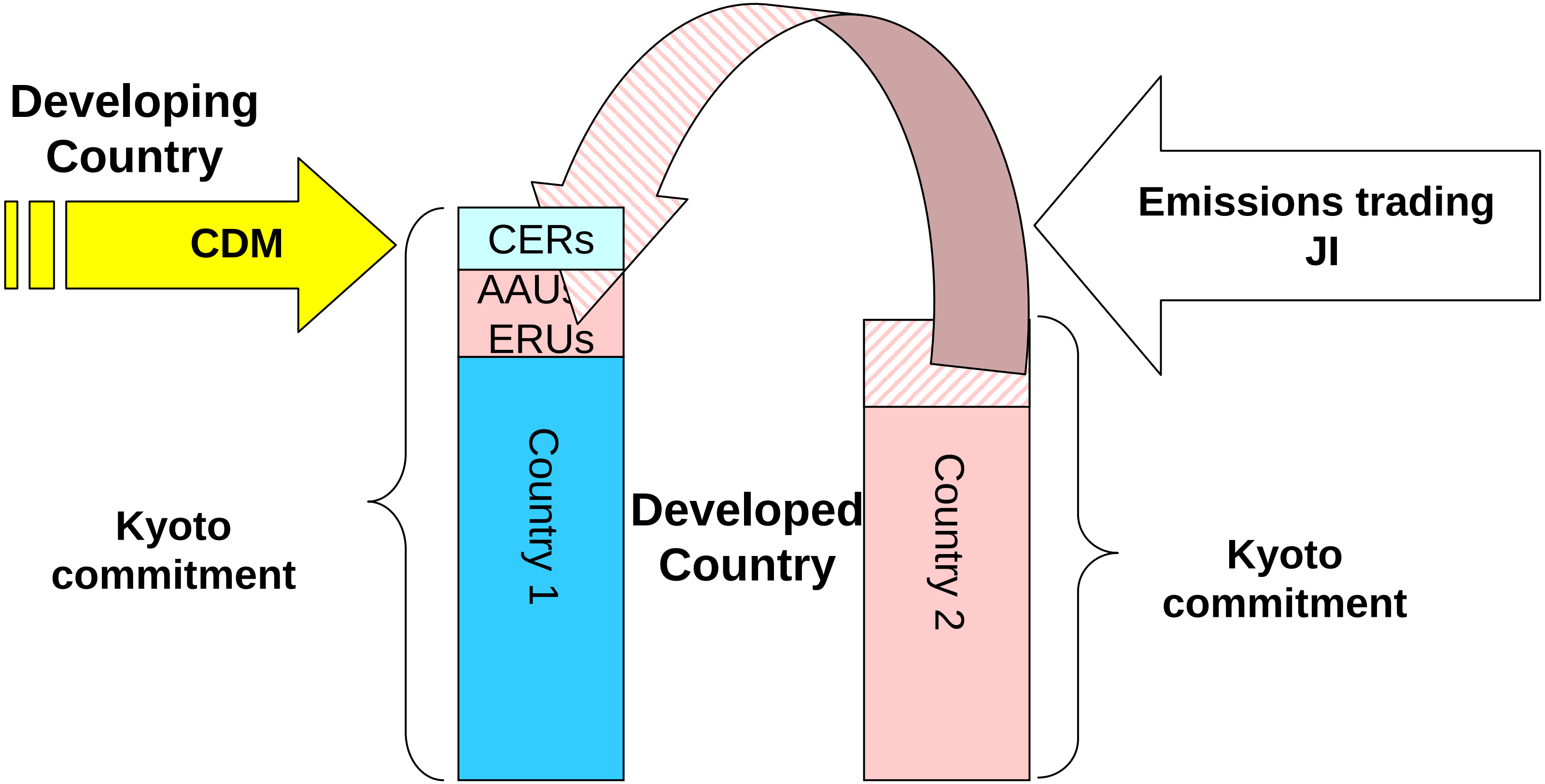
Umamaheswaran

Environment Specialist, GTZ CDM - India

Indo German Energy Programme

Bureau of Energy Efficiency

Carbon Trading



***<u>Global Carbon Market</u>**- 415 - 1250 MTCO2/ yr*

***<u>CDM</u>** - 150 MTCO2/ yr worth 750 - 1500 million Euro*
w.r.t current prices of 5-15 Euro/t CO2

Source: Grubb 2003

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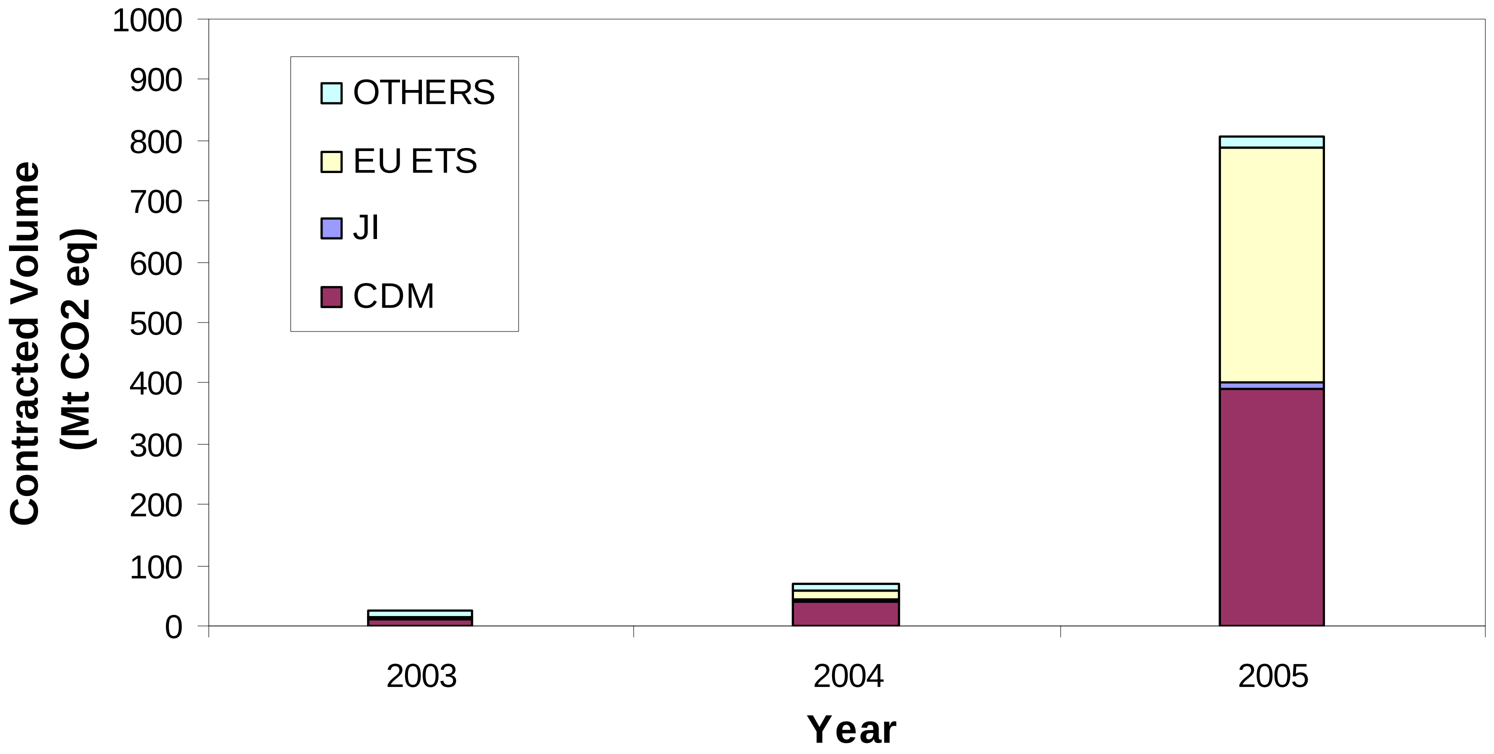
Carbon Trading International Scenario

Global carbon market transactions worth €9.4 billion in 2005



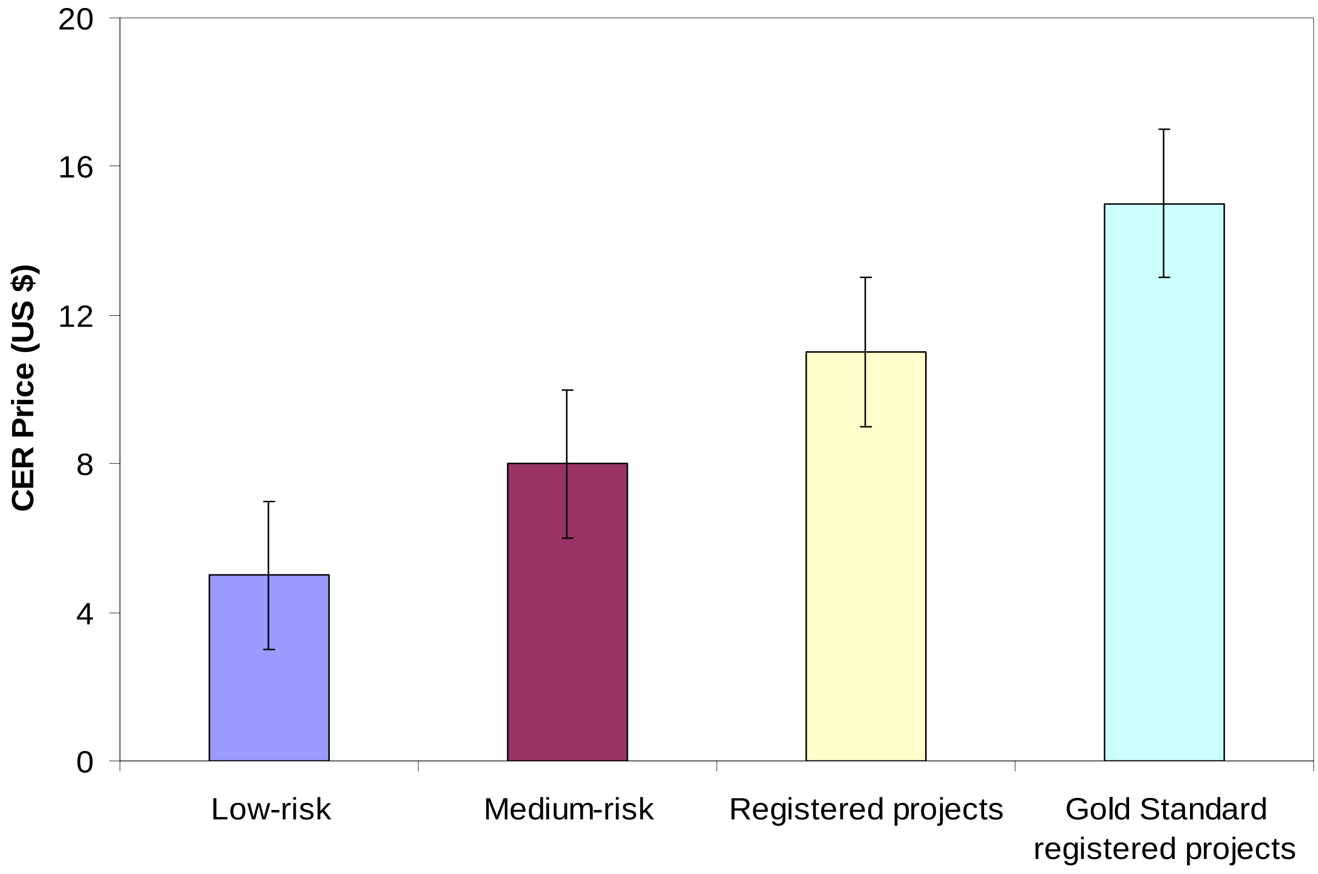
Source: Carbon 2006, Towards a truly global market, Point carbon

Traded Value & Volume

Year	2004		2005	
Market	[Mt]	[€ million]	[Mt]	[€ million]
EU ETS total	17	127	362	7,218
CDM	60	188	401	2,035
JI	9	27	28	96
Other	8	34	7.8	52
Sum	***94***	***376***	***799***	***9401***

Source: Carbon 2006, Towards a truly global market, Point carbon

CERs Prices



Source: CDM Highlights 34, March 2006, GTZ

Agencies – Institutionalizing Carbon Trading

- World Bank
- German Technical Cooperation
- Canadian High Commission
- Institute for Global Environmental Strategies Japan (Sponsor: Government of Japan)
- United Nations Development Program
- Foreign Commonwealth Office, UK
- Asian Development Bank

~ 2.5 Million €

Technical, Institutional - Capacity Building

GTZ CDM – India activities

- Institutional Capacity building
- Technical Capacity building
- Capacity building of educational institutions

GTZ CDM - India activities

- Established GTZ CDM - India office in August 2003 in collaboration with Bureau of Energy Efficiency

- Build capacity of project consultants, and developers & other stakeholders (training for 50 consultants)
  - Financial support to to develop 10 PDDs in different sectors

- Several dedicated Capacity Building missions
  - Cement (Cement Manufacturing Association)
  - Power (National Thermal Power Corporation, Rural Electrification)
  - Petrochemical (Reliance India Limited & Indian Oil Company)
  - Pulp & Paper
  - Steel

GTZ CDM - India activities

- Capacity Building program with Industrial Associations
  - CMA
  - Assocham
- Support in development of baseline methodologies and PDDs
  - Renovation & Modernization of thermal power plants
  - Greenfield Supercritical Coal Power Plants
  - Bio-Diesel
- Data collection for power grid - Operating and Build Margin
- Development of Grid Emission Co-Efficient
- Development of Standardized ERPA – NLS, Kolkatta
  - Capacity Building for Educational Institutions & Students

Success stories of GTZ CDM - India Capacity Building activities

- Long term MOU with Cement Manufacturing Association for technical cooperation

- Reliance Industries established in-house CDM cell
  - 24 Potential Projects identified
  - 4 Projects got host country approval
  - 1 Project Registered
  - Business Diversification
  - Management decision to explore CDM opportunities for all new future projects

- Central Electricity Authority instructed public sector electricity companies to examine the CDM potential in all new power projects

GTZ CDM India/MoEF,GoI Technical Cell

Providing Technical Cooperation support to National CDM Authority, Ministry of Environment and Forest, Govt of India to help reduce transaction costs in early market development process (three-year technical cooperation)

Key work elements

- Providing technical assistance to Indian DNA on its day- to -day activities (2 dedicated technical persons)
- Collect and process information on Indian pipeline of CDM projects and methodologies
- Promote Indian CDM projects internationally, at trade fairs etc

Overview of Indian Projects

	HCA	Registered
No: of Projects	297	50 out of 180
Total CERs Envisaged	236,711,364 (end of 2012)	8,204,111 (per annum)
CERs Issued from Registered Indian Projects	N/A	2,115,979

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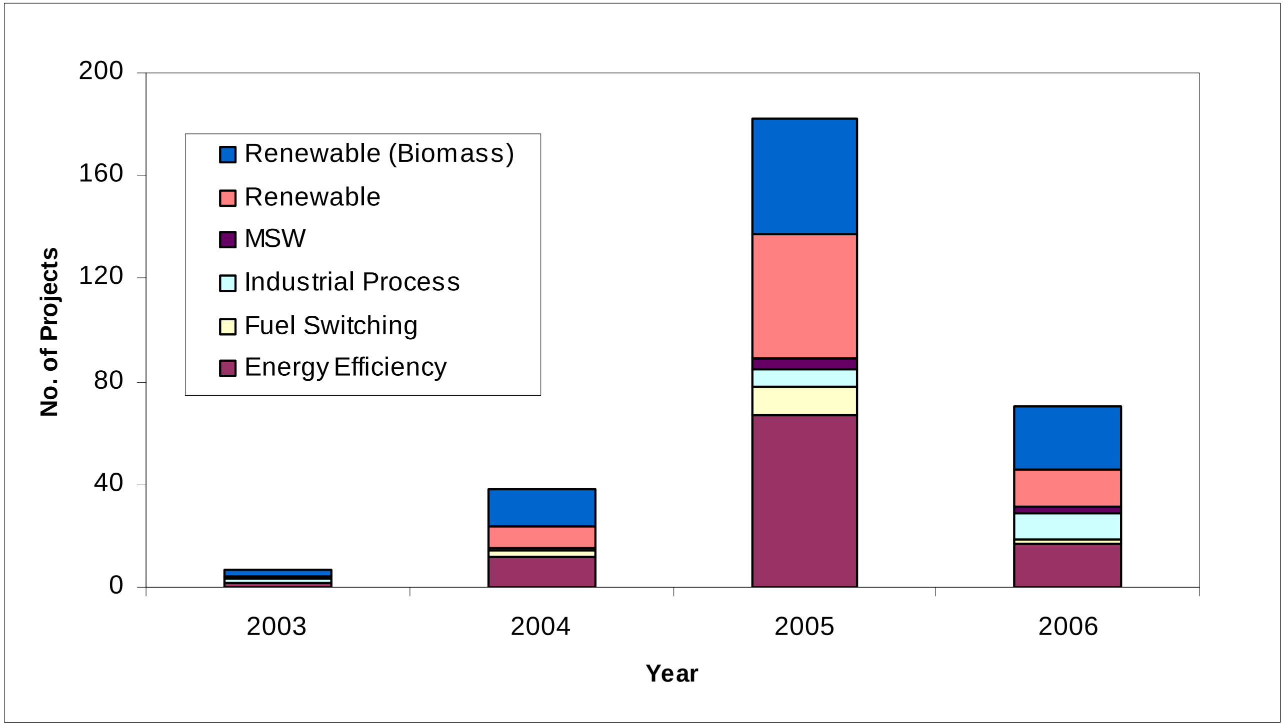
CDM Developments in India

Projects Sectoral Developments



CDM Developments in India

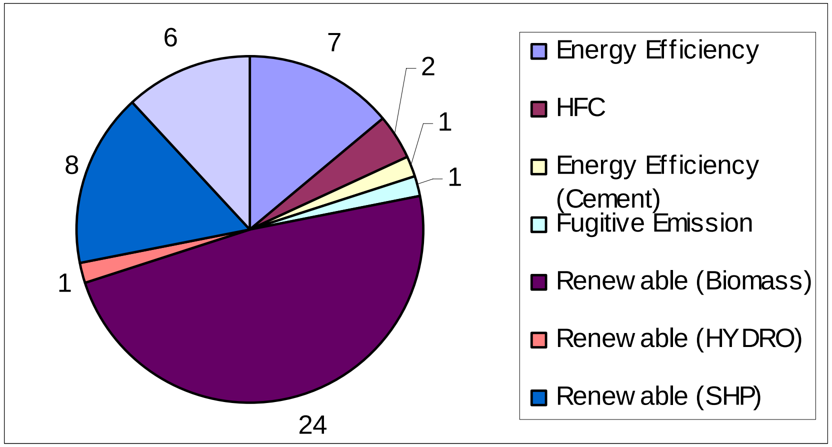
New Sectoral Developments

- Gas Flaring projects
- Fugitive emissions from wastewater treatment plants
- Projects from Petrochemical Sector
- Railways
- Transportation Projects

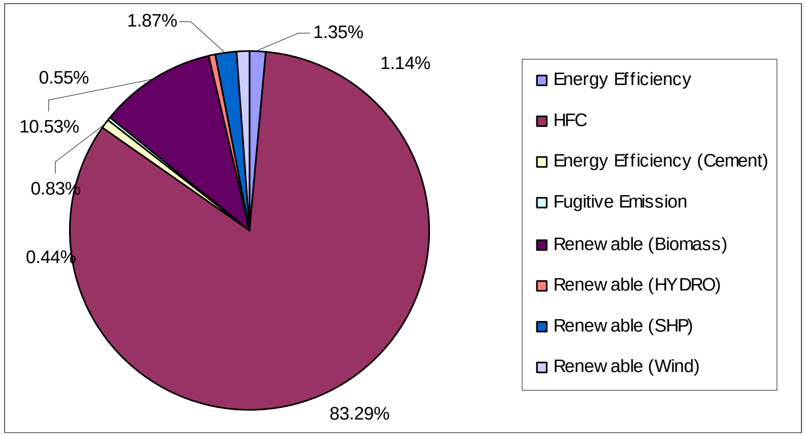
  Fuel switch from Petro-diesel to Bio-fuel
- Forestry – Moving in Big Scale

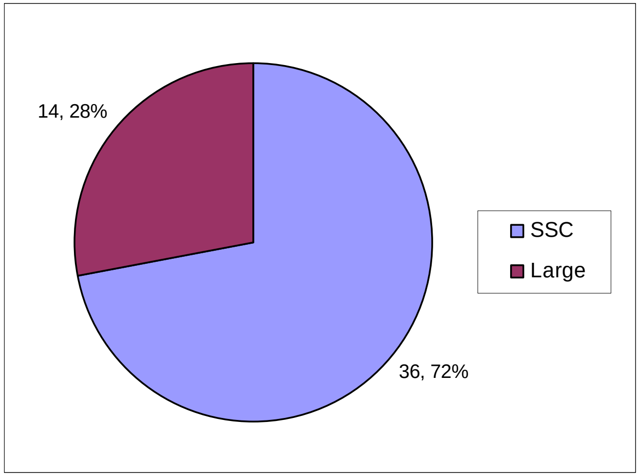
  (1000+ Acres identified for plantation)

Registered Indian Projects



Annually envisaged CERs from registered Indian Projects





Activity Scale of Registered Indian Projects

Major buyers of Carbon Credits

Governments	Multilateral Agencies	Financing Institutions	Private sector	Intermediaries	Brokers	Facilitators
Dutch	**World Bank**	IFC	**Shell**	**ACG**	**Natsource**	**Eco Securities**
Denmark	**Japan Carbon Fund**	**KfW**	**BP**	CCM	Evolution Markets	**ACX**
Austria	ICF	DEG	Japanese Power Cos (TEPCO, Kansai, Chubu…),	ICECAP	CO2.com	-
Finland	-	SBL	Electrabel	CCAP	500 PPM	-
Belgium	-	HSBC	Norsk Hydro	**CCC**	Future Forest	-
Japan	-	ABN Amro	RICOH	**Factor Consulting**	Climate Care	-
Germany	-	Rabo Bank	**Nuon**	-	Climate Trust	-
UK	-	-		-	-	-

Active Players in Indian market

Types of CDM CERs Deals

- Forward Contracts for (current practice)
  - For compliance (e.g electric utilities…)
  - For private sector investors (e.g World Bank)
  - For trading in the secondary market (e.g Shell)

- Upfront Payment (a few *but rare*)
  - CERs upfront payment on discount basis
  - Project Equity/Debt in lieu of CERs

- Spot Trading (yet to take place)

- Financing and hedging Instruments [Futures/Options, etc.,] (emerging currently)

Indian Market - Position

- Driven by consultant and government promote CDM actively
- Mostly projects are ***UNILATERAL*** (Expectation More)
  - Seller's claims 20 euro per CER *
- Mostly projects are ***SMALL SCALE*** (Pricing Risk)
- Sellers not *Much Informed* about Price Dynamics
- No transparency in pricing and sellers have little option
- Clarity needed on EU Allowance Vs CERs price
- Leads to cheap deal

* ACG April 2006, CII - International Enterprise Singapore (IES) Seminar, Climate Change & Clean Energy Solutions from Singapore, 24 Apr06

Risks

Regulatory Risks	*CER Risks*	*Institutional Risks*	*Miscellaneous Risk*
1. Regulatory clearances of the Project 2. Dynamics of CDM Regulatory Process (Validation, Registration)	***1. Project's Credibility*** of timely CER delivery 2. Constant Delivery of CERs 3. Variations in Baseline 4. Project Failure	1. Creditworthiness of Seller and Buyers 2. Stability of the political and investment climate of the project parties 3. Identification of suitable buyers willing to share the risk	1. Environmental and social compliance + additional benefit 2. General Market Risks

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Legal Issues

- Buyers and Sellers Deal needs to be well defined
- CERs ownership needs to be well defined for bundled project
- Current regulation does not allow forward trading and CER not a commodity as per FCI
- Independent Transition Log - Delay
- Clearance and Settlement – FI role imperative

Summary

- Standardization of ERPA, Contracts and Processes in the market
- Integration of Carbon Finance (*Equity & Technology*) with Project Financing
- Innovative Financial instruments *(Venture Capital, Special mutual funds, Insurance)* - Needed
- CERs - Spot trading
- Government needs to REGULATE the market and Carbon Trading
- Post Kyoto strings to be cleared
- Explore opportunities for sector trading schemes *(Sectoral & Programmatic CDM)*
- Dedicated Capacity building needed for CARBON TRADING

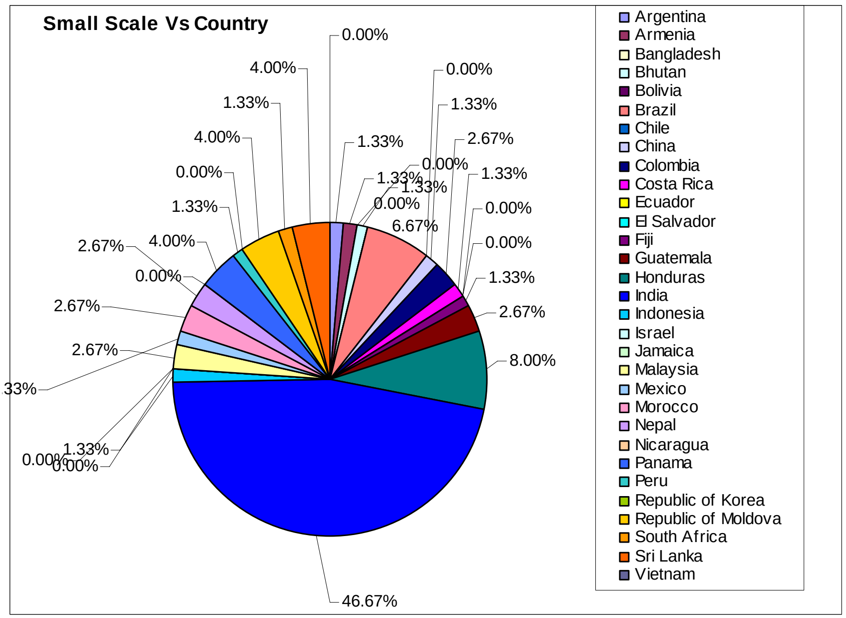
CER Value Addition needed and to be sold beyond CER

Thank you for your attention

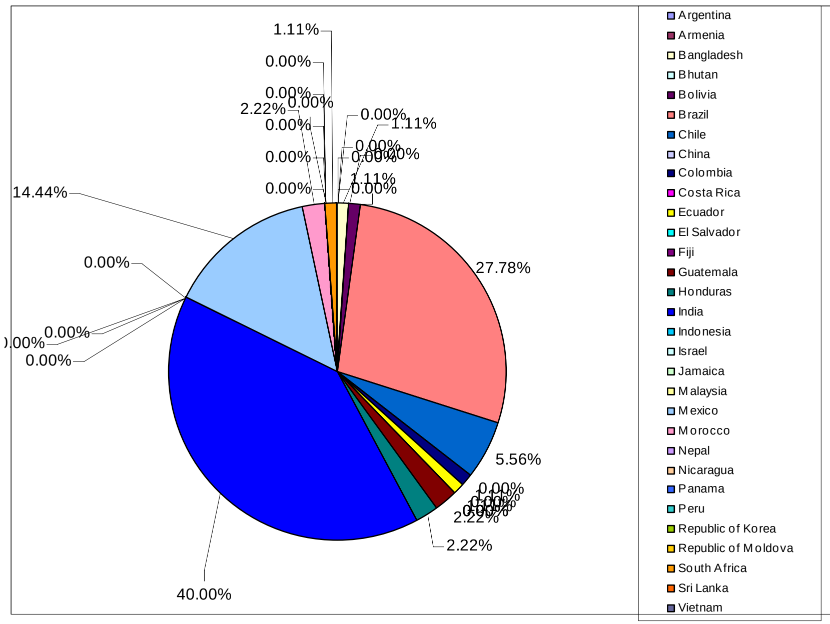
Umamaheswaran
Environmental Specialist
GTZ CDM-India
A-33, Gulmohar Park
New Delhi - 110049. India
Ph: 0091-11-26611021, 26528840
Fax: 0091-11-26537673
E-mail: umak@cdmindia.com
Website: www.cdmindia.com

Backup Info – Slides

SSC Projects Vs Country



Unilateral Projects Vs Country



Buyers of Indian registered projects