Proceedings of International Workshop

on

Financing Modalities of the Clean Development Mechanism (CDM)

- Identify the financial barrier on CDM project and find out possible solution -

27-28 June, 2005

Jakarta, Indonesia

Co-organized by UNEP RISØ Centre on Energy, Climate, and Sustainable Development (URC), Denmark

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)

Japan Bank for International Cooperation (JBIC), Japan

Institute for Global Environmental Strategies (IGES), Japan

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Executive Summary

FINANCING MODALITIES OF THE CLEAN DEVELOPMENT MECHANISM (CDM)

A 2-DAY WORKSHOP SUMMARY

Crowne Plaza, Jakarta, Indonesia, June 27-28, 2005

Aims
- To explore the financial feasibility behind CDM projects as well as existing constraints from viewpoints of financial institutions;
- To consider possible solutions to mitigate such barriers;
- To identify policy options taken by host countries for project developers and financial institutions in implementing CDM projects.

Objectives
1. To identify the risks and issues on financial appraisals when CDM projects are to be implemented;
2. To consider ways of risk mitigation;
3. To find out policy solutions to solve those problems to project developers and government of host countries.

Expected output:
Identified financial barriers on and possible solutions to CDM projects.

Hosted by:
- Institute for Global Environmental Strategies (IGES), Japan
- UNEP RISØ Center on Energy, Climate and Sustainable Development (URC), Denmark
- United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)
- Japan Bank for International Cooperation (JBIC), Japan

Workshop Materials
Electronic forms of Presented materials are available at IGES website (URL: http://www.iges.or.jp/en/cdm/)

Opening Remarks

Ms. Liana Bratasida, Ministry of the Environment, Indonesia, after touching on the background information on CDM and Indonesia, expressed her view that there requires both national and international commitments to support financing CDM projects. Acknowledging that the financial issue is only a tip of the iceberg and there would be more issues to tackle, she urged the identification of roles for governments to play in resolving the financial barriers as well as the roles for financial and business sectors.

Dr. Tae Yong Jung, Project Leader of the Climate Policy Project of IGES, gave a brief summary of how this workshop was conceived with Dr. Chung of UNESCAP and Dr. Lee of UNEP-RISØ. He emphasized on having stories from both sides—Annex I and Non Anne-I countries, to identify real barriers for financing CDM projects. He expressed his appreciation for the Government of Indonesia for hosting the workshop as well as the co-organizers, UNESCAP, UNEP-RISØ and JBIC.

Mr. Rae Kwon Chung, Director of the Environment and Sustainable Development Division of UNESCAP, gave a brief introduction to his organization and highlighted the importance of financing issues for CDM due to the role that the private sector plays. He remarked his support for promoting CDM.

Dr. Myung-Kyoon Lee, UNEP Risø Center on Energy, Climate and Sustainable Development (URC), explained the CDM capacity building activities the UNEP RISO has been engaged in the past three years. He summarized the current carbon market situation with the emergence of EU-ETS and some of the barriers he has observed with the implementation of CDM. He emphasized the importance of establishing financial modalities for all stakeholders.

SESSION 1: Introduction of workshop

Mr. Rae Kwon Chung, Director, Environment and Sustainable Development Division, UNESCAP

Based on his personal experience, Mr. Chung provided audience with some historical insight to the process involving a round of negotiations prior to the adoption of the unilateral approach to CDM.

- Unilateral approach to CDM, which was only recently approved by CDM Executive Board, can be a Market Instrument for developing countries to participate in Emission Reduction of GHGs.
- Points of departure: 1) Implications and impacts of CDM design have not been fully understood even by the negotiators. 2) If properly designed, unilateral CDM can function as a market or economic incentive for voluntary participation by developing countries.
- Current realities are such that CDM is still being regarded as a limited CER producing convenience mechanism. CDM can alter the conventional market paradigm by incorporating emission reduction into the price mechanism, and further understanding of its full benefits vis-à-vis voluntary emission reduction by non Annex-I countries need to be established.

Dr. Myung-Kyoon Lee, UNEP Risø Center

- A brief introduction on the Capacity Development for the Clean Development Mechanism (CD4CDM), i.e. aims, objectives, strategies, key output, current progress, publication, and expansion plan.
- Dr. Lee shared the lessons learned and recommendations from this institute, as well as issues for further support. Some of the lessons and recommendations he emphasized included the importance of mutual trust and self-confidence in local partners as a key to overcome many barriers in practice; necessity of addressing the issue of long-term perspectives and incorporation of climate change in national development plans.

Mr. Tomonori Sudo, Senior Policy Researcher, IGES and **Ms. Yukimi Shimura**, Country Officer, CDP Programme, IGES

- A brief introduction on IGES by Ms. Shimura: background information, IGES' climate change research and CDM capacity building activities.
- Mr. Sudo addressed a wide array of fundamentals in the CDM development: problems and risks of CDM as a Kyoto mechanism, characteristics of CDM, existing countries-players, role of financing, financial issues (e.g. financial flow and cash flow in CDM projects), "additionality" of CDM both as a concept and financial consequence.

Q/A (1)

Questions, clarifications, and comments raised and responded to in the session revolved around the following issues:

- Need for building the capacity of lawyers in Indonesia (by Ms. Bratasida, Deputy Minister of Environment, Indonesia);
- Ways to encourage other developing countries, for instance China, through incentives to promote and actually implement CDM projects;
- How the IRR concept can be more expounded;
- How to overcome the risks surrounding CDM implementation;

- How to support the national government, and whether the Indonesian Chamber of Commerce can be assisted in raising awareness towards and financing of CDM projects (by Mr. Ilyas, Indonesian Chamber of Commerce)
- There is no such fixed regulation but market mechanism on the IRR. CDM is a new concept, yes, but project implementation isn't. India was once in a state of qualms, but is progressing ahead now with the first CDMs being launched. China will certainly join the wagon. CDM is still fluid and flexible. The most important thing to do with workshops like today's is provide strong recommendations to Governments.
- Agencies of development such as JICA, GTZ should take part to thwart prolonged learning curves or indecisiveness in the part of bureaucrats.
- The need for capacity building is huge and this is agreed to by many. In near future it should be addressed. Political resistance is also huge. The argument is if you already start your projects, why not set target. But Annex 1 countries have to realize that the most important thing is not target, but real actions towards GHG reduction.
- Settlements of problems can be done locally or nationally. How to simplify procedures is an urgent call.
- The future of CDM is a bit of a mixture between unilateral and bilateral approaches, with a level playing field envisaged.

SESSION 2: Introduction of candidate/potential CDM project

Mr. Tony Liwang, Vice President, SMART Research Institute (SMARTRI), PT SMART Tbk, Sinar Mas Group, and **Mr. Jun Ichihara**, Country Officer, CDM Programme, IGES

- Integrated Capacity Strengthening for CDM in Indonesia and its Model Project: (*Banter Gebang LF Bio-Gas Project*), which collects biogas from landfill by installing vertical & horizontal pipelines and generates electricity using the collected biogas

- **Identified Barriers to develop CDM:** No governmental incentive to facilitate CDM; lack of DNA; risk in changing policy/regulation; length of project; bundling CDM projects.

- **Identified Financial Barriers:** Fluctuation of the amount of biogas (Methane) to be generated; uncertainty in CER price (fluctuation – insurance); subsidy on the electricity price (compensation); currency risk; payback mechanism

Mr. Ouk Navann, Climate Change Office, Ministry of Environment, Cambodia

- Background; CDM Projects Pipelined in Cambodia. This includes 1) Angkor bio-cogen project with 1.5 MW rice husk-fired cogeneration plan generating roughly 45 thousand ton of Co_2-eq. reductions/year; 2) solar and wind power project in Mondul kiri Province with 1.4MW installed capacity generating 2.7 thousand ton of CO_2-eq. reductions/ year; and 3) land fill project with 85.8 thousand ton of CO_2-eq. reductions/year.

Mr. Pascual Beltran, Business Manager, Philippine Biosciences, Inc.

- Identified social, political, economic, and financial barriers to CDM within the Filipino context, although relevant to most developing countries, specifically regarding conversion of landfill gas to energy CDM projects.

- Proposed measures to address those barriers, eg. installation of regional landfills to serve a cluster of local government units; a pilot LFG project for energy facility to prove the viability of technology; regulatory incentives for renewable energy facilities, including priority dispatch of power; loan facilities with lower interest rates and softer terms; pool of renewable energy and gas experts to evaluate loan applications; integrate CDM as major component of renewable energy project; use emissions reduction purchasing agreement (ERPA) as an enhancement to loan applications; and bundle contiguous LFG projects to decrease CDM documentation cost

Mr. Hoang Manh Hoa, Senior officer, International Cooperation Department, Ministry of Natural Resources and Environment of Vietnam

- Background; CDM Projects Potential in Viet Nam. This includes 1) Rang Dong oil field associated gas recovery and utilization project with 674 thousand tons of CO_2-eq. reductions/year; 2) energy efficiency project in brewery in Thanh Hoa with 10 thousand ton of CO_2-eq. reductions/year; 3) landfill closure and gas recovery in Hai Phong city with 6.5 CO_2-eq. reductions/year; 4) reforestation project in north central part of Viet Nam with 27 ton of CO_2-eq. sequestration/year; and 5) Thank Hoa Rice Husk power plan in Tien Giang Province with 56 thousand ton of CO_2-eq. reductions/year; just to name a few projects in pipeline.

Mr. Chintan Shah, General Manager, SenergyGlobal, India

- Presented on some "realities" around CDM and CDM projects, while suggesting the importance of small scale CDM projects, arguing that the emergence of unilateral approach to CDM implementation by developing countries could only exist in theory but not in practice, for reasons related to registry and assumption that international transaction log (ITL) could only take effect after 2007/2008.

Q/A (2)

- Clarifications asked from a participant from Bengkulu, South Sumatra, Indonesia, about the financial scheme of NEDO to the project. It was explained that the project received a financing grant for 1 year from Tomen.
- Questions regarding barriers in proposing oil-palm related projects.
- Clarification asked to a point raised by Mr. Shah on whether CER could be transferred to EU.

SESSION 3: Donor's perspectives on financing CDM

Donor's perspectives on financing CDM (Three 20-minute presentations and a 40-minute discussion)

Mr. Toru Kubo, CDM Specialist, Asian Development Bank

- ADB is integrating CDM into its Project Cycle. Over 50 loans and technical assistances (TAs) were financed in 1994-2004 period in over 15 developing member countries in areas of: renewable energy, energy efficiency, and GHG reduction measures and technologies. Its REACH (Renewable Energy, Energy Efficiency and Climate Change) Program- Technical Assistance Program was started 2001, using four trust funds.

- **Prospective CDM Loan/TA Portfolio (2005-2006):** In China – coalmine methane (CMM) utilization, agricultural waste utilization & rural electrification and renewable energy; in Indonesia- geothermal and small hydro; in Samoa - micro hydro; in Pakistan - rural electrification and renewable energy; in India – hydropower.

- **Perspectives on Financing CDM:** ER prices surging; Kyoto Protocol coming into force; Clear penalties under EU-ETS for non-compliance; Uncertainty regarding "hot air" supply; Lack of political certainty beyond 2012; No market established yet for post-2012, therefore it will be difficult for financial sector to securitize ERs beyond 2012; Long lead-time to develop and implement projects; even if project identification initiated now, CERs can only be delivered from 2007 at the earliest; Few sectors that 3-6yrs of CERs can make significant impact on project cost/benefit; Lack of viable projects that can deliver by 2012!

- **Supply-wise**, developers among others are advised to develop concepts/PINs for projects with maximum emission reductions impact (CMM, LFG, livestock waste, agro waste). If short in cash-flow, they should maximize by investing on own and deferred selling. Multiple buyers need to be evaluated; if not, one should prioritize the buyers who provide up-front payment for the amount required for capital investment. It is important to look at projects that emission reductions can make a significant long-term impact and the project viability does not rely on emission reductions after 2012.

- **Demand-wise**, with over-supply of procurement vehicles available, their differentiation is necessary. It is time to consider equity, up-front payment, or loan backed by CER revenues, and potential upside of credits beyond 2012. Some buyers

may need to evaluate purchase of LULUCF credits; CER prices surging backed by "Linking Directive" of EU-ETS; Fact that EU companies cannot purchase LULUCF credits is an opportunity for non-EU entities.

Mr. Toshiro Nishizawa, Deputy Director General, International Finance Department I, Japan Bank for International Cooperation (JBIC)

- Provided an overview to CDM as a "mechanism to monetize environmental value", with CERs representing GHG mitigation contribution of a project, measured in metric tons of carbon dioxide equivalent. CERs are a second product (for example, after electricity) obtained by a CDM project.

- **Implications for and realities in the financial sector**: The sector's role is a key in promotion and development of CDM projects. Despite open global market opportunities, appetite is still low, due to CDM's unique risk structure; various institutional barriers; and the implementation complexity. Registry of CDM projects is a long and complex process, up to 3 years with procedural costs of c. $50,000- 250,000. Besides, the future of the CDM is unclear beyond 2012. From a financier's perspective, sales of CERs can secure additional income streams of projects. However, CDM projects entail 3 types of risks: conventional project risks; host country political risks; and additional CDM process risks.

- **Recommendations**: Simplify, standardize and streamline the CDM process; Provide prompt and clear guidance on the CDM regulations beyond 2012; Foster the development of institutional CDM capacities in host and investor countries; Rethink the interpretation of *additionality*.

- **About UNEP FI**: The United Nations Environment Programme Finance Initiative is a partnership between UNEP & financial sector (180 financial institutions worldwide) and its mission is "to identify, promote, and realize the adoption of best environmental and sustainability practice at all levels of financial institution operations".

- **UNEP FI Asia Pacific Task Force:** Launched in January 2005, UNEP FI Asia Pacific Task force focuses on: setting of "sustainability" priorities for the Asia Pacific financial sector; creating a critical mass of Asia Pacific members that are able to exchange ideas and best practice facilitated by a UNEP FI network; and integrating a triple bottom line approach to the operations of the Asia Pacific financial sector.

- **About JBIC**: an official financial institution providing policy-based financing to implement Japanese Government's external economic policy; A UNEP FI member, as Chair of the UNEP FI Asia Pacific Task Force Outreach Group since April 2005; supports projects to alleviate greenhouse gas (GHG) effects through various operational instruments.

- **Its projects in renewable energy**: Export loan for geothermal power plant in Mexico, June 2000; Guarantee for private placement bonds to finance geothermal projects in the Philippines, June 2000; ODA loan to Zafarana wind power generation project in Egypt, December 2003; ODA loan to Lahendong geothermal power plant project in Indonesia, March 2004; ODA loan to Ulubelu geothermal power plant project in Indonesia, March 2005.

- Its **CDM candidate projects**: Wind power generation project in Zafarana, Egypt, December 2003 (ODA); geothermal power plant project in Lahendong, Indonesia, March 2004 (ODA); geothermal power plant project in Ulubelu, Indonesia, March 2005 (ODA); methane gas recovery project in Shanxi Province, China, March 2005, supported by untied loan

Mr. Yoichiro Matsushita, Deal Manager, Japan Carbon Finance Ltd.

Introducing: **Japan Carbon Finance, Ltd**

- **Main Business**: To purchase CERs and ERUs issued until 2012 from CDM/JI projects; **Fund Pool**: Called "Japan GHG Reduction Fund (**JGRF**)", all can be spent to purchase

ERs; **Committed Fund Amount:** Approx. US$ 140 million; **Establishment**: December 1, 2004; **Location**: Tokyo, Japan; **Fund Providers**: Policy-lending Institutions (Governmental Banks) and 31 Major Japanese Private Enterprises.

- **Services:**
  Assistance for Project Development:
  JCF are ready to bear following costs for development of CDM/JI projects in principle with a certain ceiling amount: (No need to refund in principle) PDD preparation; validation; initial verification.

  Purchase of Carbon Credits (CERs, ERUs): JCF commits purchase of carbon credits under ERPA (Emission Reduction Purchase Agreement) at a fixed price, payment on delivery principle. Purchasing price is decided project-by-project basis.

  Upfront Payment: Upfront Payment for carbon credits can be considered.

- **Purchase Method (Ref.):** Other buyers' case or sweep method (in both cases, purchase volume is 70% of original assumption in PDD)

- **Risks in development & implementation of CDM projects:** 1) Risks specifically involved in CDM projects; 2) registration risks; 3) Risks in Fluctuation of CERs Volume; 4) Risks in Monitoring, Verification and Issuance of Credits; 5) Risks in Additional Policy by CDM Executive Board; 6) Political Risks in Host Country; 7Risks in Administrative Process for Credit Transfer; and 8) Risks in Renewal of Crediting Period.

- **General Principles:**
  No Need to Compensate, even in case of shortage of carbon credits in spite of best endeavors by project participants. project participants are not required to make up for the shortage (with Credits from other projects or sellers); and to pay any penalty to JCF. Project development costs are borne by JCF, thus there is no need to refund to JCF (JCF will not deduct these amounts from payment of credits in future.)

- **Merits for Projects**

  Additional Cash Flow: Improvement of project viability with additional cash inflow by selling CERs in US$; securing of stable profitability by getting commitment for purchase of CERs; front-loaded revenue in sweep method

  Assistance in Development: Saving of development costs (PDD, validation, initial verification etc.); getting of assistance and orientation for development of CDM projects;

  Possibility of Parallel-purchase / Equity participation: A part or all of the remaining carbon credits may be purchased by our fund providers in collaboration with JCF; participation as investors by some our fund providers may be possible.

  Collaboration with and Support from JBIC & DBJ: Strong ties with Japanese Government issuing Written Approvals for CDM/JI Projects; Cooperation and strong ties with Host Governments and Development Financial Institutions; Underlying Financing from JBIC, such as: Export Loan , Overseas Investment Loan, Untied Loan, ODA Loan, etc.

- **Key Criteria at Screening of PINs/PDDs:**
  Fulfillment of Kyoto rules, additionality, environmental & social safeguard requirements, project feasibility, contribution to sustainable development of host country, and purchase conditions (volume of More than 50,000t-CO2e/year and early commissioning project are preferable).

Q/A (3)

- On ODA loan underlying finance, is it not against prevailing regulation? No deviation; CDM and ODA do not contradict each other; in fact, all the more justification.
- What if there is a shortage of products with many demands? JCF will resort to *option*.
- What about other social aspects such as poverty reduction?
- Why has not forestry been mentioned in this workshop? Low relevance to today's workshop, but among the most important concerns in the Kyoto Protocol.
- Will JCF monopolize CERs? Is there a plan to provide guarantee? How would it facilitate the private sector/private banks interested in it? These questions were left unanswered.

SESSION 4: Commercial Banks perspectives on Financing CDM

Mr. Rey Guarin, Sr. Assistant VP, The Development Bank of Philippines

- Development Bank of the Philippines (DBP) is a state owned development bank, an ODA fund on-lender, ISO 14001 certified, and environment Management Systems Compliant.

- CDM Projects can be funded through: 1) Leveraging the ODA via GFI for CDM Projects; 2) GFI On-Lending ODA via PFI for CDM Projects; 3) An Alternative to the ODA via GFI model Funding Scheme

- In enhancing the Investments Features of Underlying Projects using the Carbon Revenues, CDM Projects can be financially structured among others through: interest rate risks hedging, and shortening loan terms.

- Among lessons from DBP through its climate change program: Attracting Carbon Buyers and Investors; creating Good Guidelines or Best Practices on Search Time and Costs; Lowering CDM Project Development Costs; Improving Monitoring and Verification Processing Time and Costs; Maximizing funding availability by Leveraging Dedicated ODA Funds for CDM Eligible Projects; Enhancing Revenue Potentials and Risk Mgt. Capacities.

- Areas that can be improved among CDM Stakeholders are: 1) Awareness and Understanding Levels of CDM; 2) Institutional Capacity Building and Development; 3) Total CDM Project Development

- **Recommendations**:
  - Employ a Banker for CDM Project Aggregator;
  - Make carbon assets fungible and standardize features;
  - Link carbon asset price to SD impact;
  - Create Independent Carbon Asset Rating Agency;
  - Create new Investment vehicles with CDM oriented guidelines;
  - Accept CERs as new financial commodity among Financial Institutions;
  - Be transparent and provide access to information re Pricing of CERs;
  - Create a developing country Carbon Fund for bundling Small Scale Project, and as an asset and risk management tool

Mr. Masahiko Umezono, General Manager, Structured Finance Division, Bank of Tokyo-Mitsubishi, Tokyo, Japan

- Mitshubishi Tokyo Financial Group (MTFG) was formed in April 2001. Core subsidiaries include; The **Bank of Tokyo-Mitsubishi** (BTM), Ltd; The Mitsubishi Trust and Banking Corporation; Mitsubishi Securities, and; Union Bank of California. MTFG has started process to integrate its holding companies, banks, trust banks and securities with UFJ Holdings, Inc. It will create the world largest financial group in terms of its asset in October 2005. Total Asset: U$987 billion; Risk Adjusted Capital Ratio: 12.95%; the first and only Japanese bank listed on NYSE; Rating: S&P A-, Moody's A1. World's #6 Rank 6 with Assets of U$ 987 billion; Market CapU$) 64 billion.

- **MTFG's** perspectives on CDM
  - Climate change is one of the most serious environmental issues.
  - BTM will endeavour to develop financial solutions for global warming, thus enabling and encouraging our client base to further reduce their GHG emissions.

- BTM will continue to reduce its own emissions of GHGs as much as possible.
- BTM is ready to obtain CDM credits in order to neutralize any residual GHGs that cannot be covered by the activities mentioned above starting from its Head Quarter facility in Tokyo.

Mr. Monjit Singh, Vice President, Infrastructure-Advisory&Finance, Yes Bank, India

YES Bank, newest entrant in Indian commercial banking, is based in New Delhi with a branch in Mumbai. Its paid-up capital amounts USD 47 Million; operations: Investment Banking; Commercial Banking; Retail Banking; Private Client Banking; Investment Banking:

CDM Market In India

- India has been at the forefront of the nascent yet evolving CDM market ....
- Ministry of Environment & Forests has been chosen as the DNA
- Renewable Energy projects comprise a major share of the 46 projects that have received host country approval: Biomass/ Cogeneration (16), Industrial Processes (15), Municipal Solid Waste (1), Fuel Switching (2) and Renewables (12), Energy Efficiency and Forestry (0);
- Total CER potential of 35 mn ton of CO2 eq. Major buyers: Netherlands, PCF (World Bank) and Japan. However, many new buyers entering the market – Canada, Austria, Spain. Project Development has been balanced across the country: South (16), North (14), East (11) and West (3).
- India has again been ranked as the top CDM country (Source: Pointcarbon)
- As the carbon market moves to maturity, Indian CDM market offers tremendous opportunities for CER buyers. Development of unilateral projects would create a new league of "off-the-shelf" projects for CER buyers and further consolidate India's position as the eminent CDM nation.

Positive Development In International CDM Market

- Kyoto Protocol has moved from the realms of shelves to reality
- First few projects registered with CDM EB; DOEs announced
- CERs volumes traded are increasing exponentially
- Market picking up despite uncertainties as corporates and governments are forced to act on internal pressures
- Price of CERs remain stable
- First unilateral CDM project registered in April 2005 - Cuyamapa Hydroelectric project.

Caveat Emptor

- Market remains heavily skewed: HFC23 projects (2) comprised 1/3rd of emissions & Japan, World Bank & Netherlands accounted for 90% of the market; 5 countries supplied 2/3rd of ERs;
- Although termed a "commodity", CERs continue to be heterogeneous.

CDM Project Financing

- The CDM transaction builds on the existing structure for the underlying project
- Identification of risks is the first step in evolving a suitable contractual structure for the project: Typical Project Risks, and Carbon Risks
- Lenders typically follow principle of allocation of risk to the party best positioned to manage it, some examples: *CER Delivery risk, Baseline risk, Sponsor risk, Host Country risk, Reduction of transaction costs, and Buyer risks.*

Unilateral Projects –Next Challenges

In a market not adequately equipped to assess such projects, unilateral CDM project represents an additional risk for the lenders.

- Since the risk assessment of the project would vary with the offtake arrangement, a lender has to make crucial assumptions regarding the same for a unilateral project
- Major stakeholders involved in financing of the projects include: Project developers; Equipment suppliers; CER Buyers; Commercial banks; Insurance agencies; Multilateral agencies.

- Most of the institutions mentioned are not fully equipped to appraise carbon mitigation projects.

Facilities to develop unilateral projects

- Standardization of the market in order to ease recognition and movement between markets, minimize risks involving cross-border cross-regulatory systems, and impart liquidity and transparency in the market
- Presence of large corporate project developers, due to experience of working in international markets and of developing large projects unilaterally; and presence of a large balance sheet as a contingent back-up
- Implementation of projects with proven technology, to surrogate for level and vintage of CERs being generated.
- Working through an institution (bank / intermediary) that can act as a "bridge" between project developer – buyer and financial markets
- Development of hybrid projects for the first few transactions.
- Till the CDM market is commoditized, differential criteria would be used to finance balance sheet & SPV projects

Mr. N.Yuvaraj Dinesh Babu, Head of Climate Change, Asia Carbon International B.V (Incorporated in The Netherlands)

- CDM has been expected to trigger technology transfer; new project investments to harvest CERs; new structures or models of financing by IFs; integration of carbon finance with underlying project finance; high CER price levels to influence project investment, CDM as risk mitigation tools and, models for high SD oriented rural energy projects).

- **Some international FIs** are still reluctant, due to additional risks that come with uncertainties, lack of linkages with local Fis, and low CER revenues. CER revenues are yet to be recognized by local FIs for leveraging financing. There are still low awareness levels and skills, low CER revenues. Nevertheless, market players are already into it. FIs, Banks and Corporates are developing innovative concepts and implementing. The benefits may still be lopsided–the cost of innovation.

- **Models for CDM financing** are such through equity participation, debt, project P&M costs, and ERPA based loan/equity promissory notes. The equity participation is still heavily discounted but it serves the purpose of the project promoters (sellers). Debt financing is characterized with a mismatch between CER returns and debt. Financing through Project O&M cost is still limited in application (e.g. only wind farms and bundling). ERPA based loan/equity-Promissory notes issuing involves a delivery risk, so the need is great for insurance.

- **ACI Group of Companies** was founded Feb 4 2003, headquartered in the Netherlands with regional presence in Singapore. Research centre in Vietnam; offices in Malaysia, Indonesia and Australia; and working partners in Sri Lanka, Thailand, India, Philippines, and Suriname. The Asia Carbon Group offers capacity building, project & carbon advisory, project/carbon finance, AC X-Change™, and Asia Carbon Fund.

Q/A (4)

- Mr. Chung asked who the project owners generally were in the Filipino CDM projects. Based on Mr. Guerin's answer, Chung explained that no matter who the offtakers would be, as long as its conception originated in a non-Annex 1 country, the project would be identified as unilateral.
- How to evaluate credits beyond 2012? From banker's perspective, the value of them would be discounted as zero beyond 2012.

SESSION 5: Host countries' policy on the CDM implementation

Chair: Mr. Shinichi IIOKA, Programme Manager, CDM Programme, IGES

Mr. Haneda Sri Mulyanto, Climate Change Mitigation, Ministry of Environment, the Republic of Indonesia

Presented on general background of CDM and CDM related institutions. Regarding to policies related to CDM of the Republic of Indonesia, Policies on Energy. Forestry and Environment are introduced.

On energy: CDM Working group on Electric state Own Company (PLN); CDM Working group on Ministry of Energy and mineral; Reduce fossil fuel consumption (used renewable energy 5% in 2007); Used non oil (huge amount of coal, and natural gas); Explore alternative fuel (biomass, solar etc); Program of primary energy supply security; Priority of non oil fuel power plant development; Product label scheme for electrical appliances; Energy efficiency campaign; Reduce the subsidy for fuel

On forestry: Ministerial Regulation on CDM forestry No.14/2004; CDM Working group on forestry sector; Project should support sustainable forest

On environment: Act no 23/1997 on environmental management; Blue sky Program (used unleaded gasoline); Industrial rating program; Clean city program; EIA program; Center of Cleaner Production; National Strategy Study on CDM Energy and Forestry

To mitigate financing risk, it is necessary to establish incentive on CDM project and regulation on taxation of CERs.
According to Mr. Mulyanto, Indonesia has had an ad hoc 1-year-tenured committee for CDM under the Ministry of Environment.

Dr. Roberto C. Yap, Environmental Economist klima-Climate Change Center
Manila Observatory, Philippines

Presented on policy measures which might attract commercial financing of CDM projects in the Philippines.

Major barriers in the financial structure of CDM Project lie in the underlying projects.
Carbon revenues are only enhancement, as elements for "icing"; underlying Project Finance is needed to "bake the cake."

Investment Incentives

- Inclusion by the Board of Investments – Department of Trade and Industry of CDM project activities as a "Preferred Investment Area" in the Philippine Investment Priority Plan
- Inclusion would qualify CDM projects for tax exemptions and concessions
- Income tax holiday
  - For between first 4 to 6 years of commercial operation
  - Question: Would CER revenue be covered under this income tax holiday?
- Tax & duty exemption on imported capital equipment & accompanying spare parts
- Tax credit on domestic capital equipment
- Tax credit for taxes and duties on raw materials

Guidelines on ERPA to be issued by Central Bank and Bankers Association of the Philippines. Some issues that must be covered: e.g. how commercial banks can use the Emission Reductions Purchase Agreement (ERPA) in their appraisal of loan applications; criteria to judge the credit-worthiness of the ERPA; how much of the contracted value of the ERPA can be considered in the project cash flow assessment by the bank?

CDM-project financing through bonds can be facilitated and guaranteed by the Department of Finance

Incentives for renewable energy projects can be in the forms of: proposed Renewable Energy Bill; higher tariffs for power produced by renewable energy; and Priority dispatch for power produced by renewable energy.

Mr. Heng Chan Thoeun, Team Leader for Capacity Building, CD4CDM Project Ministry of Environment, Cambodia

Cambodia background

- Party to both the UNFCCC (1995) and the Kyoto Protocol (2002)
- The Ministry of Environment (MoE) is the National Focal Point for the UNFCCC and the Kyoto Protocol
- MoE is the Designated National Authority (DNA) working with other concerned ministries/institutions.

Potential Risks

- Political instability of host countries (sovereign risks)
- New international legal framework
- Inadequate legal framework of host countries
- Uncertainty beyond first commitment period
- Price uncertainty, no disclosure of CERs prices
- Illiquid and complex market (hard to make, hard to sell, hard to buy)
- Difficulties for host countries to monitor and verify SD benefits
- Lack of funding for the EB to function.

Policy Measures to Mitigate and Share the Risks on CDM

- Insurance (for sovereign risks)
- Clarification of rules (for new international legal framework)
- Establish legal framework (for inadequate legal framework of host countries)
- Improved commitment to COP/MOP negotiations (for uncertainty beyond first commitment period)
- Disclosure of CER market prices (for price uncertainty, no disclosure of CERs prices)
- More projects approved in shorter timeframe, improve CDM registration and approval processes (for illiquid and complex market)
- Conditional approval based on SD performance, requirement of DOE to verify SD performance (for difficulties for host countries to monitor and verify SD benefits)
- Immediate payments from Annex-1 countries (for lack of funding for the EB to function).

Dr. Nguyen Chi Quang, Senior Expert and Advisor, CDM Project and Climate Change Viet Nam

Dr. Quang covered a variety of issues from the general to specific--from the Finance Mechanism for CDM projects in Viet Nam, Present and Future on CDM Projects Financial Mechanism, CDM Funds, Risks and Possible Solutions, as well as lessons learned.

On CDM in Vietnam

- Implementation of CDM projects in Viet Nam plays an important role in the sustainable socio-economic development, hunger eradication and poverty reduction together with environmental protection
- Legal framework for CDM activities are being developed
- Viet Nam has potential to joint CDM Market
- Of 271 CDM Project Feasibility Studies in 48 Countries through December 2004 (FY1998-2004), 12 were in Viet Nam.

A CDM Fund supporting for in-country CDM activities need establishing

Structural Barriers to CDM Project Implementation Barriers

1. Cumbersome Procedures to Obtain CDM Approval
2. Contradiction Between Profitability and Financial Additionality

General Difficulties and Barriers

- Viet Nam Political and Sovereign Risk
- Keys barriers and Risk for CDM project
- Policy Options to Remove the Barriers and Facilitate to Financing for CDM project
- Business model of CDM Fund for a CDM project
- Relationships between CDM/CP Fund and

- stakeholders and institutions in a CDM project

Q/A (5)

- The issue raised by Mr. Yap on the importance of underlying projects or underlying finance was the main point of interest in this session. Some participants expressed agreement.

SESSION 6: Panel Discussion: Policy measures to be taken by Non-Annex-I countries' governments mitigate and share the risks on the CDM project financing by commercial lenders and investors

Chair: Prof. Akio Morishima, President, Board of Directors, IGES

- CDM regime is still laden with uncertainties and risks, being in the early development stage (also including uncertainties of Post-Kyoto regime).
- Three barriers; country risk; uncertainty of CERs in terms of prices and values; and institutional and regulatory risks (complexity of CDM).
- According to Ms. Liana Bratasida, Assistant Minister for Global Environmental Affairs, MOE Indonesia, and Member of CDM Executive Board, among the most crucial is how to disseminate the current developments to other government officials, particularly in the Ministry of Finance, Ministry of Industry, Ministry of Forestry, Ministry of Energy, and Indonesia's Investment Coordination Board (BKPM). It is expected there can be arranged a meeting between ministers and bankers at a forthcoming meeting in Canada. Also very important is dissemination to the local, private sectors e.g. business sectors; bankers in Indonesia, for example, need to be provided with guidelines.
- Dr. Edi Effendi Tedjakusuma, Director for Forestry and Water Resources Conservation at the Indonesian's National Planning Board (Bappenas) stresses the importance to strengthen implementation of underlying projects. Institutional capacity building cannot be detached from this need, both to the central and local governments, especially in the wake of Indonesia's regional autonomy.
- Matters pertaining to the trading of emission need further clarification and socialization.
- The role of governments of developing countries needs to be more enhanced.
- Development of legal systems to reduce risks and uncertainties (e.g. regulation of CERs) is needed.
- There is few underlying finance. Capacity of financial society needs to be strengthened.
- New concepts are needed for helping finance CDM projects in protected areas.
- Opportunity to match developers and financiers is important.
- The importance of the workshop and yet more workshop in future was acknowledged.
- The purpose of this 2-day workshop is to elicit barriers to financial modalities of CDM and possible ways to solve them. Most of the workshop participants have brought these issues and possible solutions in their presentation.

The session was closed with a wrap up summary by Mr. Sudo of IGES.

(No Q/A Session)

Session I

Introduction of workshop

A 10-Minute Guide to

JBIC

Operations in Indonesia

Brief Contents

- Background: Birth, Missions, Overview
- JBIC in Indonesia
- For Further Info

JBIC

On October 1, 1999
the Export-Import Bank of Japan ("JEXIM") &
the Overseas Economic Cooperation Fund ("OECF")
MERGED.


+ OECF =

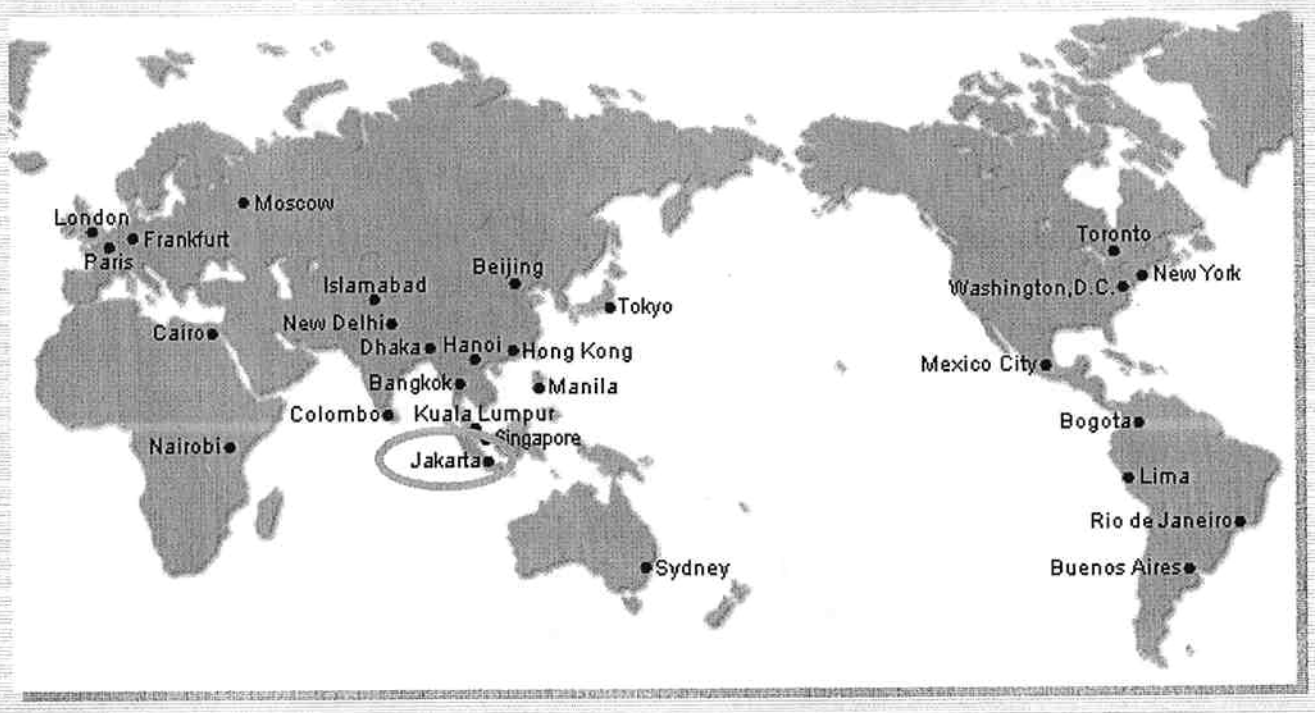
国際協力銀行
JAPAN BANK FOR INTERNATIONAL COOPERATION

Missions

- Support for economic and social development as well as economic stability in developing countries and regions;
- Promotion of Japanese exports, imports, and economic activities overseas;
- Contribution to the stability of the international environment surrounding Japan.

4

27 Representative Offices ...



Structure of operations

1 International Financial Operations (IFO)

Finance to promote Japanese exports, imports & economic activities overseas, and stability of international financial order.

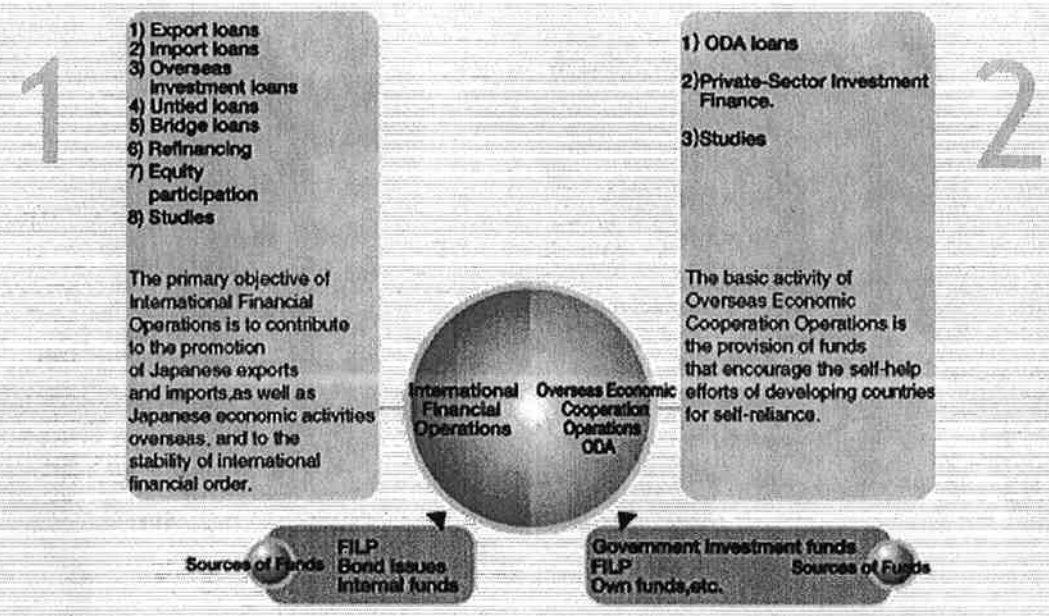
(Previously performed by JEXIM)

2 Overseas Economic Cooperation Operations (OECO)

Finance to assist developing countries in efforts for economic & social development and stabilization.

(Previously performed by OECF)

Structure of operations (cont.)



Loans to Indonesia

(Unit: Billion Japanese Yen) (As of March 2004)

		Fiscal Year (April - March)					Accumulated	(Reference) Outstanding
		1999	2000	2001	2002	2003		
ODA Operation	ODA Loans	71.9	-	95.1	90.8	193.6	3,831.3	2,261.0
	Private-Sector Investment Finance	-	-	-	-	-	137.1	55.7
	Sub Total	71.9	0	95.1	90.8	193.6	3,967.5	2,316.7
International Financial Operation	Export Loans	17.4	-	-	102.9	-	1,045.9	
	Import Loans		-	-	-	-	813.3	
	Overseas Investment Loans	39.9	16.1	65.8	31.9	26.4	1,641.7	
	Untied Loans	11.5	-	-	-	-	1,037.1	
	Sub Total	68.8	16.1	65.8	134.8	26.4	4,538.1	1,244.7
Total		140.7	16.1	160.9	225.6	220.0	8,505.5	3,561.4

Uni/CDM: Market Instrument

For Developing Country Participation
to the
Emission Reduction of GHGs

Jakarta, 27-28 June 2005
Mr. Rae Kwon CHUNG
UNESCAP

Basic Assumption

- Implications & Impacts of CDM ***design*** not fully understood by the ***negotiators***
- If properly designed, ***unilateral*** CDM can functions as a market/economic incentive for DC voluntary participation

CDM: New Paradigm

- For harnessing Market/Private Sector
- To make Emission Reduction(ER)
  a ***private investment opportunity***
- To turn ER from additional costs
  into ***money making business***
- Will alter conventional *Price*-based
  Paradigm to *Price&ER*-based Pdgm

Gap with the reality

- Regard CDM only as a limited CER producing convenience mechanism
- No full grasp : that CDM is altering
  conventional market paradigm to
  incorporate ER in price mechanism
  * that some major Non-Annex 1 also
  have certain industrial base,
  and CDM will affect recipient's market
- *No understanding that CDM can work as a market instrument for Non-Annex 1 to participate ER activities even without imposing target*

Design Issues of CDM

- Theoretically, Bilateral, Unilateral or even Multilateral design is possible
  * WRI: open architecture CDM
- unilateral CDM: only recently approved by CDM executive board
- Design issue not fully studied and understood by the negotiators

Basic Assumptions of static Bi/CDM

- Developing countries are not capable to invest and manage ER projects
- CER is a privilege of Annex parties which accepted Targets
- ER is a task of only Annex 1 not for Non-Annex 1 Developing countries
- Non-Annex 1 will only remain as passive recipient waiting investment from Annex 1

Dynamic Implications of Bi/CDM

- Issue of geographical distribution of CDM projects – uneven concentration
- Distortion of market competition: discriminating domestic firms vis-à-vis foreign invested firms: potential ***breach against WTO/MTS/MAI non-discrimination principle***
- Lack of sufficient commercial investment funds to exploit the whole ER potential in Non-Annex 1
- Excluding Non-Annex1 from initiating ER → ER only for Annex 1, their job not mine
- Pollution dumping: low tech in Annex 1 could qualify as high tech in Non-Annex 1

Limits of Bi/CDM

- Do not consider impact on market
- Do not realize that Bi/CDM will discriminate domestic firms of Non-Annex 1: in the long-run developing countries with certain industrial base will stop hosting Bi/CDM

  * LDCs will not have such problem, but major ones will realize that CDM is not attractive in the long-run
- Do not realize that even Non-Annex 1 can out-sourcing funds and techs to start ER projects: since ER itself becomes investment opportunities, they don't have to have their own money and techs

Example of Bi/CDM

- For power plants & cement factories:
  - * Foreign invested firms in Non-Annex 1 can claim CER while domestic low-emitting firms can not → force them to undertake only old tech Projects since new tech ones can not compete with foreign CDM projects
  - * *They will continue using old techs, while for new techs, they will just wait for the CDM to be given from Annex 1*
- In the long-run, Non-Annex 1 with certain industrial base will find CDM against their interests.
- And they are the ones with greater potential for CDM projects while those with no industrial base have limited potential for CDM projects.

Side effects of Bi/CDM

- Freeze Non-Annex 1 into old tech & inaction: firms in Non-Annex 1 will say,
  - * If Annex 1 will come for new techs, why should I spend my own money ?
  - * Even I spend my money for new techs, how can I compete with CER generating Annex 1 invested CDM projects ?
- Force them into waiting & wooing passive position for new techs:
- Skimming the cream: If I offer my low-hanging fruits to Annex1, I have to pay higher price when I have to reduce my emission in the future ?
  - * Why should I surrender money-making ER opportunity to Annex 1 and receive partial proceeds of it ?
- What if pollution migration ?

Uni/CDM Model

- Allowing Non-Annex 1 to start its own CDM projects: they can start new tech Projects and upgrade their industrial base,
  while they can join ER
  → In the world of globalization, Non-Annex 1 can out-sourcing fund & tech to start ER projects.
  → CER from low-emitting projects help them pay back for the funds they raised
  → they will have incentive to start new tech projects rather than old tech ones

Merits of Uni/CDM

- Non-Annex 1 will
  * not remain as passive recipients → active participants
  * have incentive to start low-emitting new tech projects: tech, choice freedom; tech empowerment
  * no need to worry market competition distortion or pollution migration
  * no need to concern geographical distribution of CDM projects
  * realize ER can pay and embrace ER activities

Doubts about Uni/CDM

- Dogmatic: CER is a privilege of Annex 1
  ER is a job for only Annex 1
  If Non-Annex 1 can do ER projects, then they will impose target on Non-Annex 1.
- Substantive: 1. too many CERs from Sink, Nuclear
  * supplementarity loophole ?
  2. No global reduction: CERs equals Annex 1 increase
- Legalistic: whether Kyoto Protocol allows Uni/CDM? Is CER transferable?

Doubts clearable?

- Dogmatic doubts should consider practical global benefit of Uni/CDM
- Too many CERs from Sink & Nuclear ?:
  * same criteria and procedure should apply for Bi & Uni to ensure environmental integrity
  * Dec.5/CP.6: refrain from nuclear CER, limit Sink CDM
- No global cut?: ***discounting of CER***; ex) 50% discount allows only half of the cut made by DC can be increased by Annex1, CER price goes up
- Transferability?: why not allow Non-Annex 1 to sell CERs from its own CDM projects rather than receive limited share of proceeds from Annex 1 initiated CDMs

Compatibility with Kyoto Art.12 ?:

- CDM: to assist Non-Annex 1 SD
  to assist Annex 1 target compliance
- No specific elaboration of modality:
- No exclusion of Uni/CDM
- U/CDM also assist SD & target compliance
- U/CDM: not legal issue,
  political and policy issue

Why open architecture CDM?

- Uni/CDM will supplement Bi/CDM:
  geographical distribution
  impact on the host party market
  share of proceeds issue
- And will provide incentives for Non-Annex 1 to embrace CDM & join ER on a voluntary basis
- Basic difference: Bi/CDM; Annex 1 takes risk
  Uni/CDM; Non-Annex1 takes risk of projects
  and will resolve country risk and investment aversion

After Kyoto: what next?

- Developing country participation:
  * next agenda for future COPs
- Target for Non-Annex 1 ?
  Politically un-sellable
- Need to provide incentives to DC:
  Market instrument
- What's important is not **target,** but real **action** of Non-Annex 1 to join ER

What incentive for Non-Annex 1?

- Need to induce ER, not impose
- How to reward ER of Non-Annex 1 ?
- While Bi/CDM alienate Non-Annex 1 from voluntary action, Uni/CDM can provide incentive for ER action.
- Non-Annex 1 can pay the incremental cost of ER by selling the CER from Uni/CDM
- Under Uni/CDM, they can upgrade their industry while reducing emission.

Job to be done

- Design CDM architecture in a manner that it could work as a market instrument for DC voluntary participation.
- Unilateral CDM could provide a temporary means of DC participation until target for DC could be politically agreed at a much later stage.

Market instrument for ER

- Uni/CDM has potential to work as incentive for ER of Non-Annex 1
  and could complement possible
  shortcomings of Bi/CDM.
- What a wonderful new world, if Non-Annex 1 could voluntarily embrace ER to upgrade their own industry & contribute to ER.
- We should not close, rather open the door for such a wonderful new world in future negotiations

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Overview and Lessons from URC CDM capacity building initiatives

Workshop on Financing Modalities of the CDM

Jakarta
June 27-28, 2005

Myung-Kyoon Lee
UNEP Risoe Centre

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Brief of CD4CDM

- Donor: the Netherlands Ministry of Foreign Affairs
- Implemented in 12 developing countries by UNEP through its UNEP RISØ Centre on Energy, Climate & Sustainable Development
- Phase I: Feb. 2002 – 2nd quarter of 2003, preparation of national work plans
- Phase II: 3rd quarter of 2003 – end of 2005, implementation of national work plans
- Investment-neutral and not connected to the actual purchase of carbon credits: a pure CB initiative

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Aim and Objectives

- Generating a broad understanding of the CDM and creating an enabling business & regulatory environment for CDM investment in target countries through
- Developing institutional capability & human capacity in selected public & private entities
- Helping host countries to be equal partners with developed countries and fully participate in the formulation and implementation of the CDM
- Assisting countries in getting benefit from the CDM

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Implementation Strategies

- On-site implementation: identification of target groups; capacity building for different groups by means of workshops, training sessions, and technical assistance and consultations, etc.
- Background materials: internal expertise, involving regional centres and hiring external experts
- Getting regional centres involved
- Private local partners to the extent possible

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Key Outputs

- Establishment and/or consolidation of DNA
- Formalized national project approval procedures
- CDM promotional publications & brochures
- A national CDM website
- Side-events at COP & SB and information dissemination
- Pipelines of CDM projects: PINs, PDDs
- National experts capable of CDM project design

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Investors Forum

Two regional investors forum: Tunisia and the Philippines

Objectives

- Marketing of CDM project portfolio in participating countries and their neighbors.
- Informed the sellers on Terms & Conditions of some of the existing Emission Reductions purchase programs.
- Informed the buyers on CDM institutional preparedness of countries in the region (DNA & KP ratification).
- Discussions between buyers and sellers regarding CDM project details.

Participants: around 100 in each forum

- CDM investors, National carbon funds, Carbon brokers, VER brokers

Pan-African Investors forum is planned in Cairo, November 2005

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Carbon Expo 2005

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- 1500+ participants
- 8 CD4CDM countries have participated in Carbon Expo this May in Koeln.
  : Egypt, Morocco
  : Cambodia, the Philippines, Viet Nam
  : Bolivia, Ecuador
  : Uganda

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Current Progress

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	Asia	Latin America	ME & NA	SSA
Phase I	completed	completed	completed	completed
KP ratification	Cambodia, Philippines, Viet Nam	Bolivia, Ecuador, Guatemala	Morocco Egypt	Uganda Mozambique
DNA	Viet Nam, Cambodia, Philippines	Bolivia, Ecuador	Morocco, Egypt	Uganda Mozambique
Project portfolio	Cambodia, Viet Nam, Philippines	Bolivia, Ecuador	Morocco, Egypt	Uganda Mozambique

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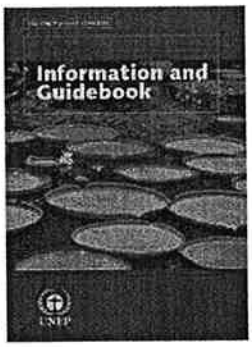
Guidebooks Available



http://cd4cdm.org/publications.htm

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Guidebooks in the Pipeline

- A guidebook to baseline methodologies for CDM projects
- Bundling of small-scale CDM projects
- Bio-energy and Forestry
- Financial guidebook
- PDD Guidebook

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Information Sharing and Collaboration

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- Advisory Body meeting: NL, UNFCCC, WB, UNF, UNIDO, UNDP, ADB, WBCSD, IGES, e7, GTZ
- Information sharing on who is doing what, where
- Project based collaboration: Morocco and the Philippines with UNDP
- A discussion with UNDP for collaboration in the next phase
- Co-organizing capacity building workshops with e7 and IGES
- Co-project with the WB in Africa: CF-SEA
- Information sharing with private sector

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Expansion

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- A talk for expansion of CD4CDM is underway with the donor
- Additional 4 – 5 countries mainly from LA and SSA
- Estimated budget line of additional 3 million US$
- Will be squeezed into 18 months considering needs for a quick set-up to be used for the Kyoto commitment and knowledge and experiences acquired from the current phase

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CF-SEA

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- Rationale: SSA is bypassed by investors due to high transaction costs, risks, and a lack of operational framework
- Co-work between UNEP DTIE, URC and CDCF
- Target countries: Cameroon, Ghana, Mali, Mozambique, Zambia

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CF-SEA

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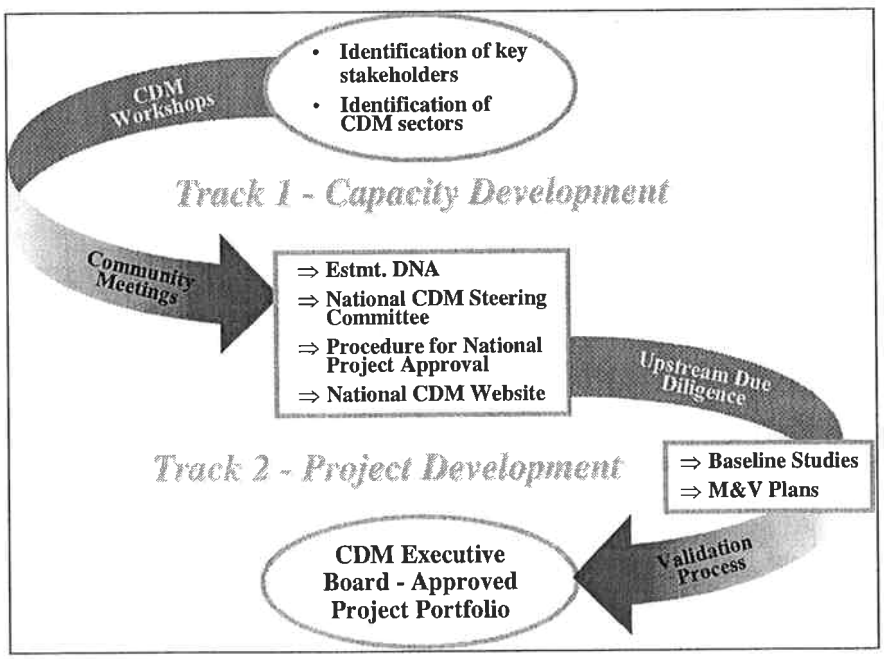

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Why Capacity Building for the CDM?

- A new concept and a new market
- Legal prerequisites and eligibility criteria
- CDM is an investment scheme and investors want
  - a well-established institutional set-up, e.g. one-stop shopping
  - clear and transparent rules and approval procedure
  - mimimum uncertainty and low transaction costs

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Experiences from Previous CDM CB Activities vs. CD4CDM

- Donor competiton in certain countries: *difficult to avoid but try to coordinate different donors by organizing Advisory Body meeting*
- Uncoordinated workshops and activities without follow-up and coordination: *organize co-workshops with other donors to maximize synergies, e.g. collaborate with IGES, UNDP, and e7&UNDESA*
- Flow back of a high share of project budgets into investor country or international consultants: *60% for in-country activities*
- No funding for real institution buildings: *budget to set up DNA but need to ensure its post project financial sustainability*

Source: Axel Michaelowa, CDM Host country institution building, 2003

Lessons and Recommendations from CD4CDM

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ENERGY, CLIMATE AND SUSTAINABLE DEVELOPMENT

- Clear objectives and targets with visible/quantitative milestones
- Understand differences in target areas and sectors
  : historic, cultural, socio-economic, political, insitutitonal, etc.
  : no one-size-fits-all methodology
- The progress depends on various factors
  - a high level political commitment
  - identificaition of right partners: including their domestic networks
  - initial capacity of local partners
  - incentives for local participants: let incentives talk
- Coordination among and participation of relevant ministries important
  - particularly ministries in charge of energy, industry, economy, transportation and agro-forestry
- Trust among key players: mutual understanding through close communications
- Try to think from the partner's perspective

Lessons and Recommendations from CD4CDM

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- Country driven, needs-based approaches
- Bilateral relationship: give first
- Confidence-building: make local partners feel ownership; serve as assisstants, do not act as instructors
- Exercise flexibility: both in work plans and budget
- mobilizing the existing expertise and capacity: building upon the current institutional framework as much as possible rather than making a whole new structure, particularly in small and poor countries
- Stability of local staff: institutional memory
- Maximize transparency and minimize bureaucracy
- Learning by doing through real cases
- Taking advantage of the process to build your own capacity and expertise: you will also learn a lot from your partners

Lessons and Recommendations from CD4CDM

Summary of key success factors

1. Understand differences
2. Identify right partners
3. Build trust by showing your trust
4. Help your partners build self-confidence
5. Exercise flexibility

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Issues for further support

- Financial sector and local government
- Forestry
- Small scale project
- Outreach
- deal-making with buyers
- DOE from Non-Annex I
- A regional cooperation mechanism to attract buyers
- Collective efforts to simplify the CDM decision-making process
- Sustainability of DNA

How to address them

- Further financial and technical support, e.g. use of ODA
- Help climate change be integrated into national development agenda
- Address the issues with a long-term perspective

CD4CDM
Capacity Development for the **CDM**

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Intranet

Welcome

The Clean Development Mechanism (CDM) proposed under article 12 of the Kyoto Protocol is an important potential instrument to promote foreign investment in GHG emission reduction options while simultaneously addressing the issue of sustainable development.

With the international framework for the CDM presently under development, many complex legal, financial and technical issues still require further discussion. Under these circumstances, most developing countries with limited institutional capacity will face a significant challenge in taking a pro-active approach to participate as equal and reliable partners in CDM when it becomes operational.

Reflecting the needs of developing countries, UNEP is implementing a 4-year project on Capacity Development for the CDM with funding from the government of the Netherlands.

Overall Objective

- To generate in participating developing countries a broad understanding of the opportunities offered by the CDM, and
- To develop the necessary institutional and human capabilities to formulate and implement projects under the CDM.
- To help ensure the early success and efficacy of the CDM through creating national capacity to implement the CDM in 12 developing countries.

News!

Presentations, Manila CDM Investor Forum

Presentations, Jerba CDM Investor Forum

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Contact the webmaster
Last updated: 29 november 2004

IGES

Financing CDM Project Activities in Asia

For "Workshop on Financing Modalities of Clean Development Mechanisms", June 27-28, 2005, Jakarta

Presented by
Tomonori Sudo, Senior Policy Researcher, Climate Policy Project
Yukimi Shimura, Country Officer, CDM Programme,
Institute for Global Environmental Strategies (IGES)

Outline

- IGES activities
- IGES: CDM capacity building
- CDM and financing
- IGES: Climate Policy Project
- Additionality
- Characteristics of CDM & financial flow
- Finance options & role of financing
- Risks
- Constraints and uncertainty
- What's next?

Institute for Global Environmental Strategies (IGES)

- Established by an initiative of the Japanese Government in 1998
- A research institute to conduct pragmatic and innovative strategic policy research to support sustainable development in the Asia-Pacific region
- 7 research projects:
  - Climate policy
  - Forest conservation
  - Urban Environmental management
  - Freshwater resources management
  - Business for sustainable society
  - Long-term perspective and policy integration

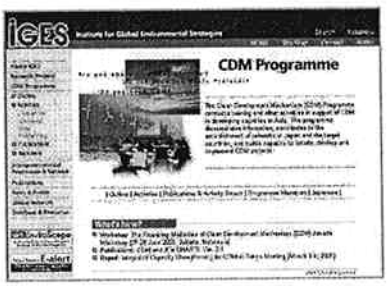
- Other programmes:
  - CDM Programme
  - IPCC-NGGIP Technical Support Unit (TSU)
  - Asia-Pacific Network for Global Change Research (APN)

IGES & CDM: Capacity Building (1)

Integrated Capacity Strengthening for CDM/JI (ICS-CDM/JI)

Objectives: To develop institutional and human capacities in Asia for implementing CDM within the context of sustainable development through;

- raising awareness on CDM opportunities among various stakeholders (policy-makers, private sector, NGOs/academia)
- implementing actions to support institutional networks for CDM
- enhancing competitiveness of Asia within the
- CDM market through training and human resource development; and,
- supporting CDM project identification, development and implementation activities

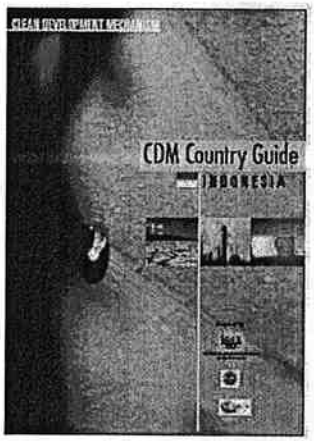


URL: http://www.iges.or.jp/en/cdm/index.html

IGES & CDM: Capacity Building (2)

Activities

- Assistance for DNA, CDM promotion agencies, both central and state governments
- Awareness raising: information dissemination of basic concept of CDM
- Assistance for baseline establishment
- Training for PIN/PCN/PDD developments and regional WS
- Outreach materials: textbooks, CDM country guides



Target countries of FY2005

Cambodia, China, India, Indonesia, the Philippines, Thailand, Russia (JI)

CDM and Financing-Issues

Why it remains an issue?

- CDM being a premature market
  → difficult to predict the market size and CER prices
- CDM designed to feature technology transfer and foreign direct investment
- Local project developers struggling to find a financing means

Why it remains an issue?

- No investment because too many uncertainties
  - Kyoto Protocol
    - Before: question of Kyoto being into an effect
    - Now: question of Post-Kyoto
  - Emission trading market
  - CER taxation
  - CER ownership
  - Registration process at CDM EB (long lead time)
  - Contractual issues
  - CDM rules still evolving
    - →possible changes in scientific processes for quantifying & verifying ERs
  - Lead time to cash the CERs (verification and certification issue)
- Relatively high transaction costs for small scale CDM
  → What's the benefit of making my project as CDM?

Commonly asked questions with some misconceptions

Project developers

- Who will become responsible in case of non-delivery?
- I have a project, but I cannot find the investor. How can I promote my project without going through brokerage?

Financial institutions at Non-Annex I countries

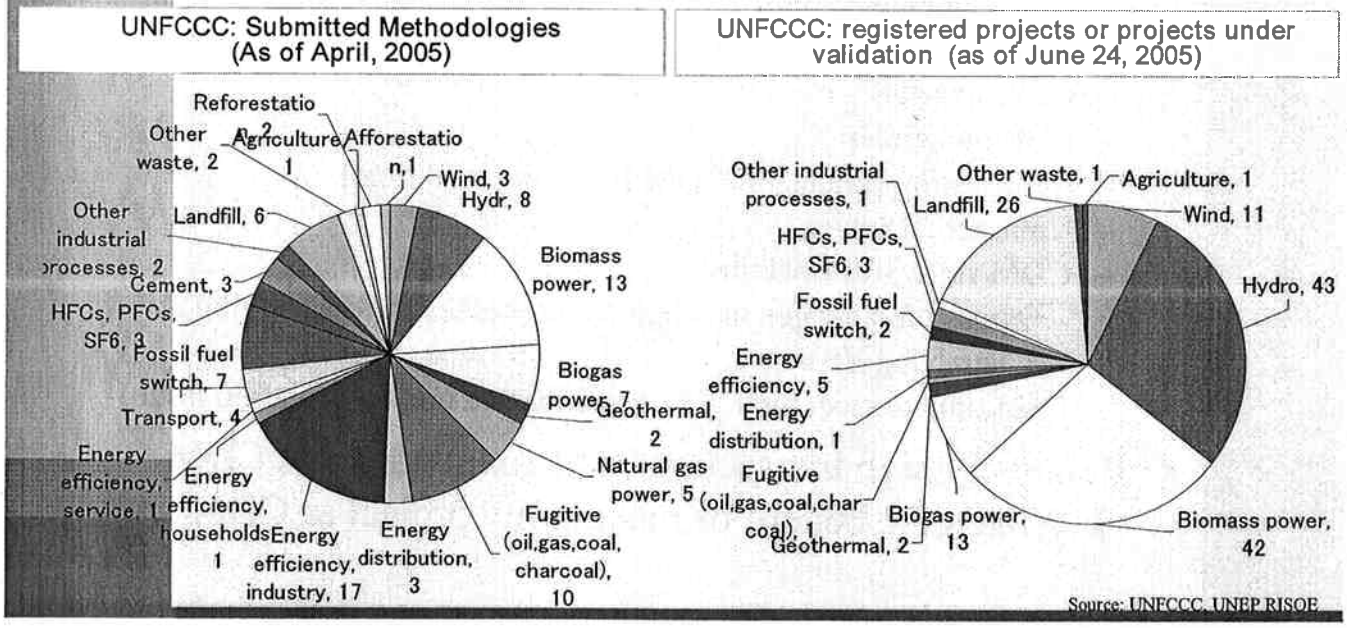
- CDM project appraisal: what to do? Are there any guidelines?
- What is the threshold for a project to become financially additional?

Common to both project developers and financial institutions of host countries

- Can I (Non-Annex I country national) sell and "trade" CERs?

Project Types

- Renewables still remain to be the dominant area followed by landfills.
- Innovative financing required for other project types



FY2005 Research Plan

Focus on 4 objectives

- To assess climate policies in developed countries and their implications for Asia
- To propose measure for effective operation of the Kyoto Mechanism
- To identify ways achieve global participation and strengthen the future climate regime
- To recommend policies for reducing vulnerability and facilitating adaptation to Climate Change

Additionality

CDM activity should be "Additional"

- (A CDM Project must achieve) Reductions in emissions that are additional to any that would occur in the absence of the certified project activity. (Kyoto Protocol. Article 12.5(c))
- A CDM Project activity is additional if anthropogenic emission of Green House Gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity. (Marrakesh Accords Annex Article 43)

Additionality and CERs

<"Additionality" in terms of...>

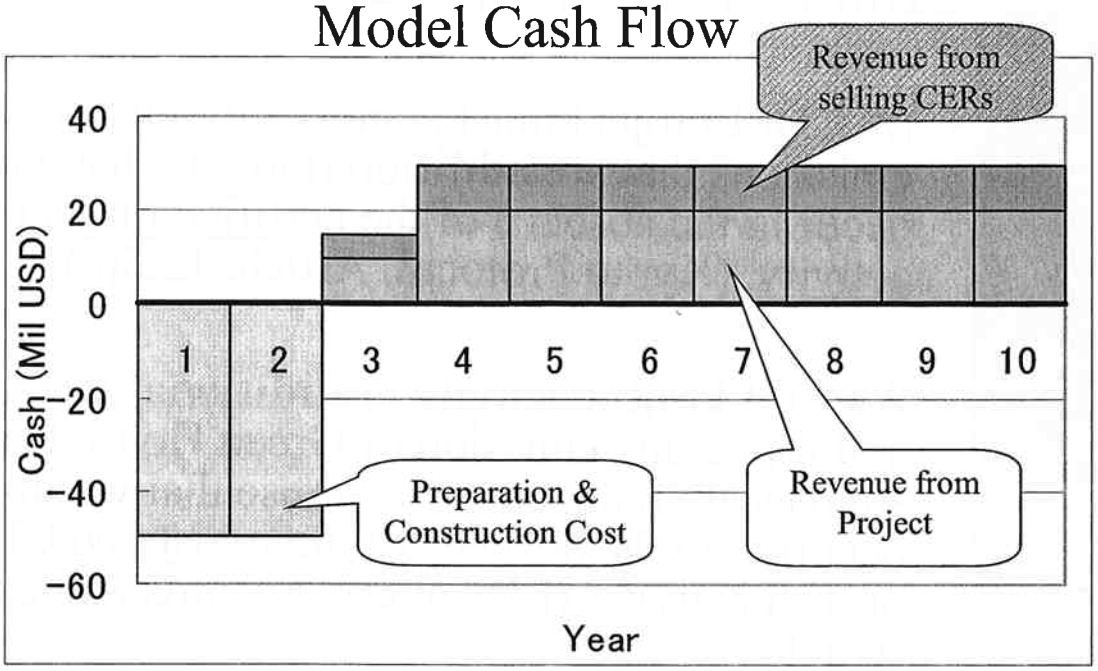
- Emission Reduction --- Baseline & Monitoring Methodology
- Finance
- Technology --- Best Available Technologies Standard (BAT)

<CERs as valuable rights>

- CERs will be generated by Registered CDM activity (Kyoto compatibility)
- CERs are valuable rights
  - Exchangeable
  - Make additional revenues to the project

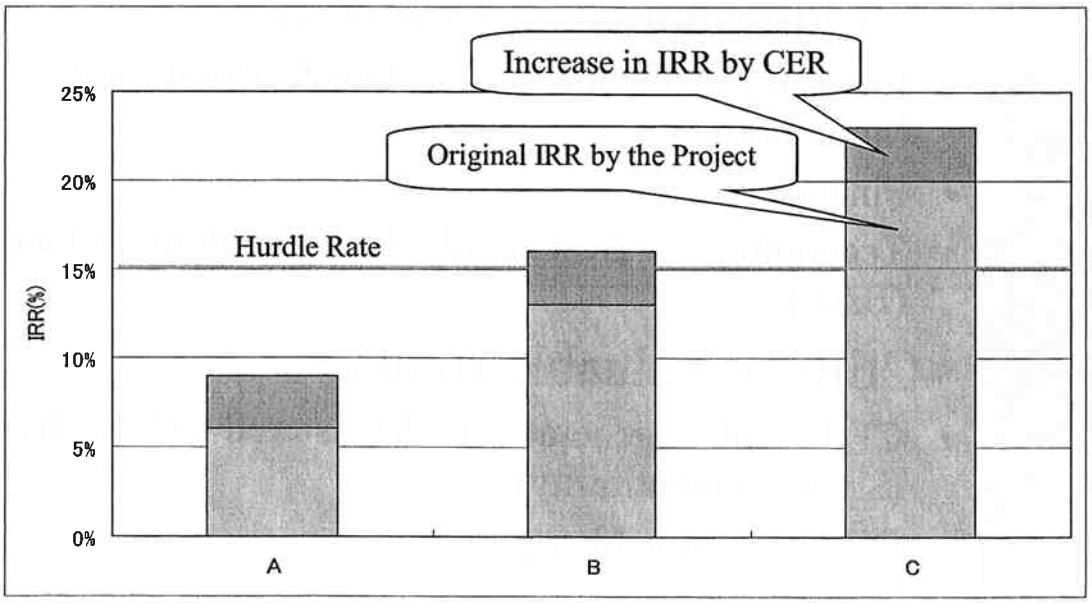
Cash Flow

Model Cash Flow



Financial Additionality

Concept of Financial Additionality



Not Profitable

Suitable as CDM Project

Done as "Business as Usual (BAU)"

Characteristics of CDM

● Change in IRR for CDM/JI

Sector	Increase in IRR
Landfill Gas Recovery	5.0%<
Biomass	<5.0%
Bagasse	0.5~3.5%
Hydro	1.2~2.6%
Energy Efficiency / Heat	2.0%
Wind	0.9~1.3%

[Source] Preliminary Data from "Impact of carbon finance on project financing" Nov. 19, 2001, World Bank for WBI-PCF Training Session

● Types of Projects for CDM

Sector	Project Approved by Japanese DNA
Renewable	10
Methane	6
Energy Eff.	2
HFC23	2
Others	2
Total	16

[Source] MOEJ Web page

● Types of ERs Traded

Sector	Percentage
HFC23	31%
Landfill Gas Recovery	18%
Biomass	14%
Hydro	11%
Others	26%

[Source] Technology share of emission reduction projects 2003 – 2004 (in percent of total volume contracted) "State and Trends of the Carbon Market 2004" Frank Lecocq, World Bank

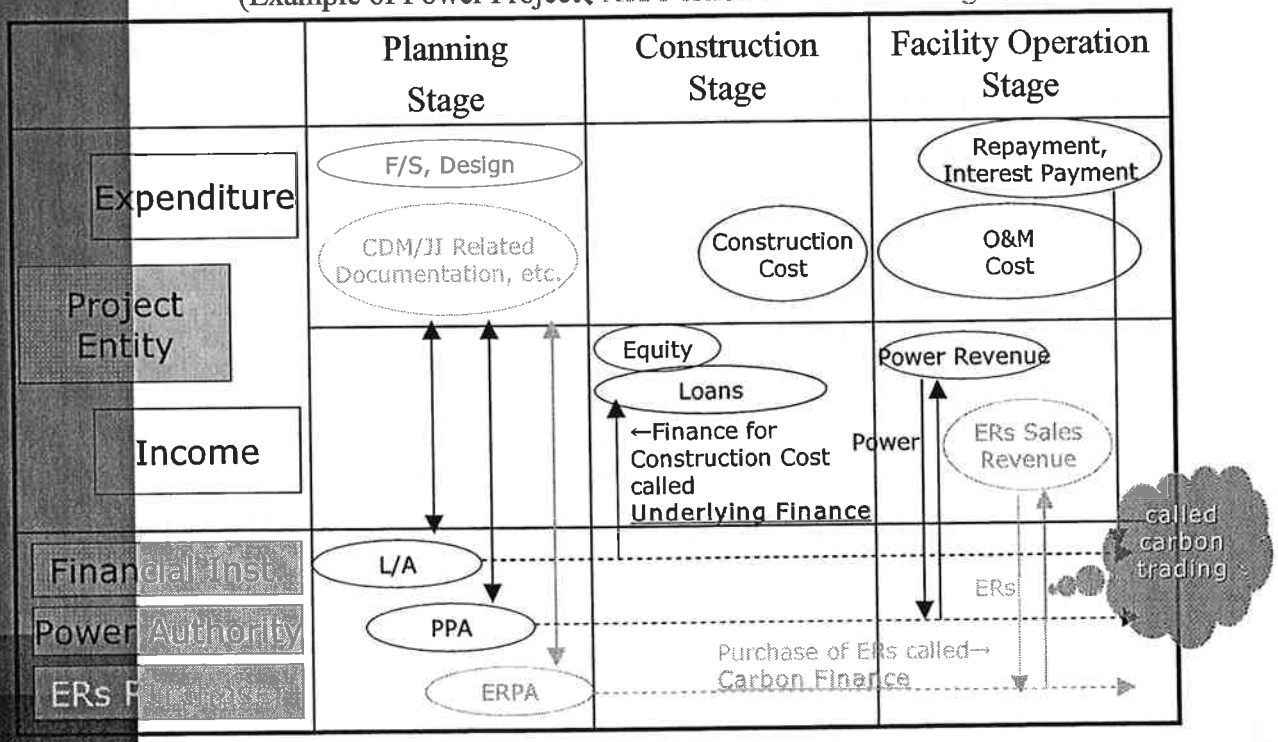
● Players of Carbon Trading

Buyer	Seller
Japan 41%	Asia 51%
WB Funds 24%	Latin Am 27%
Netherlands 23%	Eco. In Trans. 8%
Others 12%	Others 14%

[Source] 2003 – 2004 In share volume of ERs suppled / purchased "State and Trends of the Carbon Market 2004" Frank Lecocq, World Bank

Financial Flows

● How Financial Flow Changes in CDM/JI
(Example of Power Project、Red Portion shows the Changes)



Finance Option

What sort of finance schemes are expected to be arranged?

- Project Finance
  --- Complicated Due Diligence
- Corporate Loans
  --- Project Developer bear the risk
- Sovereign Loans
  --- Host country bear the risk
- Equity Finance
  --- To be a part of Project shareholder
- Mezzanine Finance …
  ---Preferred Equity, Subordinated Loan

Role of Financing

Financing serves as a tool for allocating benefits and risks among the parties to a CDM or emissions credits project:

- Governments
- Development banks
- NGOs
- Private developers
- Private purchasers
- Private investors (including CDM funds)

Financing is all about risk analysis and allocation

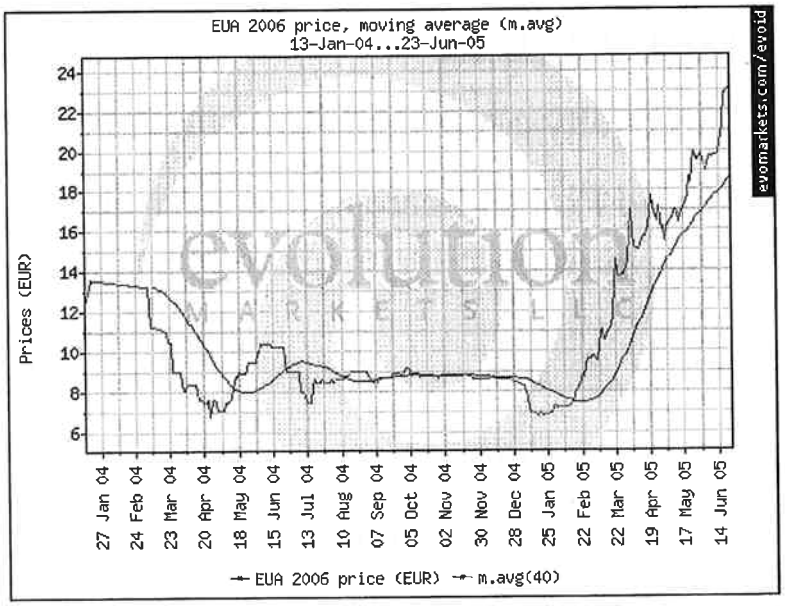
Risk on CDM Projects

Risks on CDM Projects

Stages	Country (Sovereign) Risk	Conventional Project Risks	CDM Risk
Planning & Design Stage	Political and Administrative Risk -Policy, Law and Institutional Change -License, Approval Economic Risk -Exchange Risk -Transfer Risk -Economic Crisis Risk -Credit Risk War & Riot Risk	Regulatory Risk -No Feasibility -No/Delay of Approval -Failure/Delay of Finance closure -Stakeholder's objection -Failure of conclusion of contract and agreements	Regulatory Risk -Failure of development of PIN/PDD -Disapproval by Host & Annex-I Country -Failure of demonstration of Additionality -Failure of conclusion of ERPA etc
Implementation Stage		Construction Risk -Delay of completion -Default of contractor -Stakeholder's objection -Environmental Impact -Force Majeure	Regulatory Risk -Change of Rules and Modalities of CDM -Withdrawal from KP
Operation Stage		Operation risk -Break down, accident -Low production -Default of Suppliers/ Buyers/ Project itself -Force Majeure	CERs Risk -Monitor, verification, certification by CDM EB -Fluctuation of Price/Volume of CERs (including un-tradable) -Withdrawal from KP -Uncertainty of Post Kyoto

EUA Price Fluctuation

But ER Price is drastically changing...



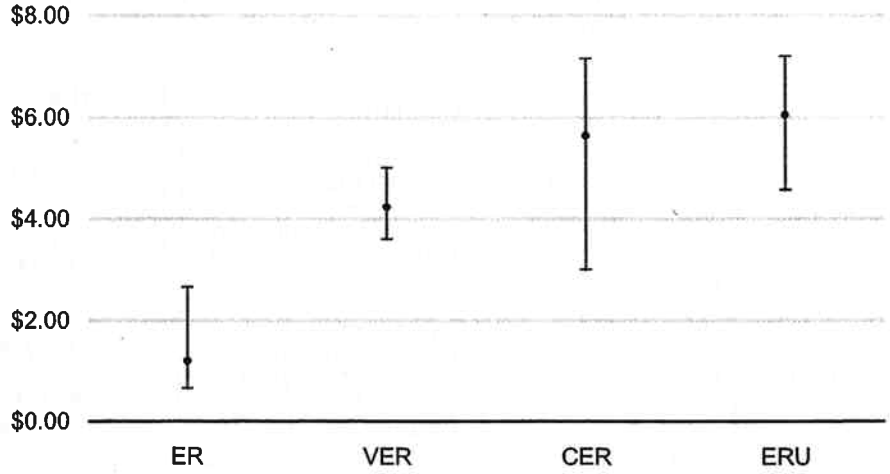
(Source) http://www.evomarkets.com/evoid

Nobody can know the future price…

Risk and Credit Price

Prices Depend on Risks

(weighted average prices from Jan. 2004 to April 2005 in USD/tCO_2e)



(Source) Baker & McKenzie (2005)

Discount rate of credit = time preference + risk premium

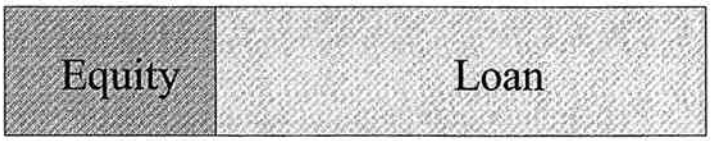
Risks sharing

- Debt/Equity Allocation

  Debt/Equity Ratio

  ⇒Can Equity cover the ER fluctuation Risk?

  ⇒Should Project Shareholders bear the risk?



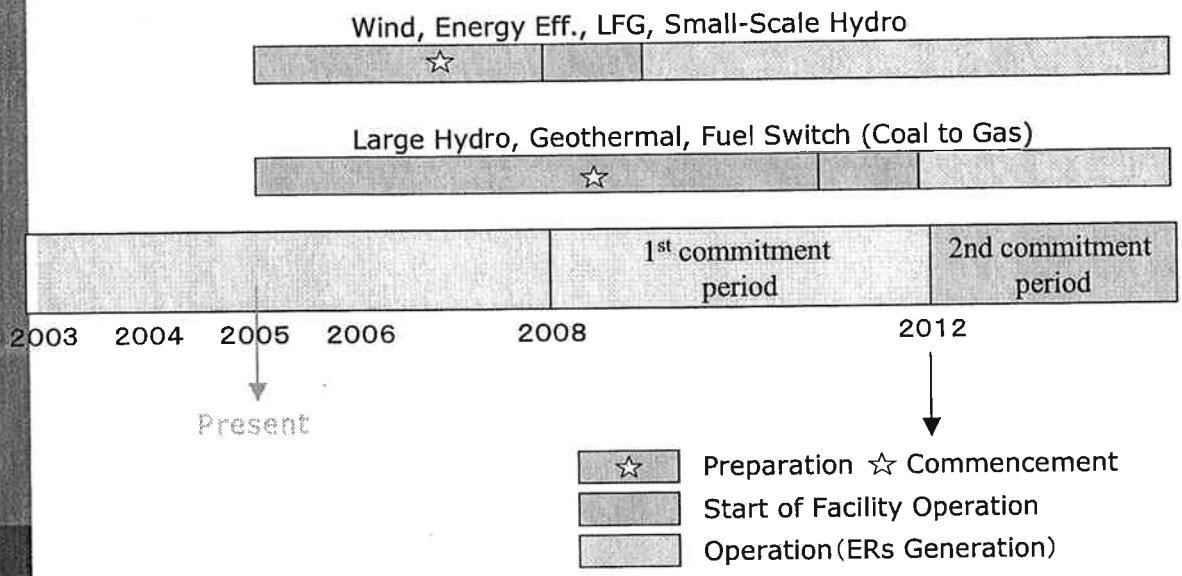
- Risk Sharing by Contract

  ⇒Legal Status of ER credits shall be clarified

- ERPA with Fund (e.g. JCF) at fixed price

Time Constraint and Uncertainty

Constraint of Preparation Time and Uncertainty
Of CO2 / CH4 Reduction CDM Projects (excl. HFC23)



What's Next?

The Way Forward...

- Some risks (esp. conventional project risks) can be solved by past experiences.
- But we should seek solutions to facilitate CDM projects involving Commercial Financiers
  - By Financial Engineering?
  - By Legal Techniques?
  - By CDM Institutional Restructuring?

In addition,

- Which is better policy option for host country, Bilateral or Unilateral CDM?

Session II

Introduction of candidate/potential CDM projects

Introduction of Candidate/Potential CDM Projects in Indonesia

Jun Ichihara
Country Officer, CDM Programme, IGES

Tony Liwang
Vice President, SMART Research Institute (SMARTRI),
PT SMART Tbk, Sinar Mas Group

The Financing Modalities of CDM, Jakarta Workshop
27 - 28 June 2005

Outline

- ICS-CDM in Indonesia and Model Project
- Methane Capture from Palm Oil Mill Effluent (POME) for Renewable Electricity Generation
- Identified Barriers to develop CDM

ICS-CDM in Indonesia and Model Project (Banter Gebang LF Bio-Gas Project)

ICS-CDM Program

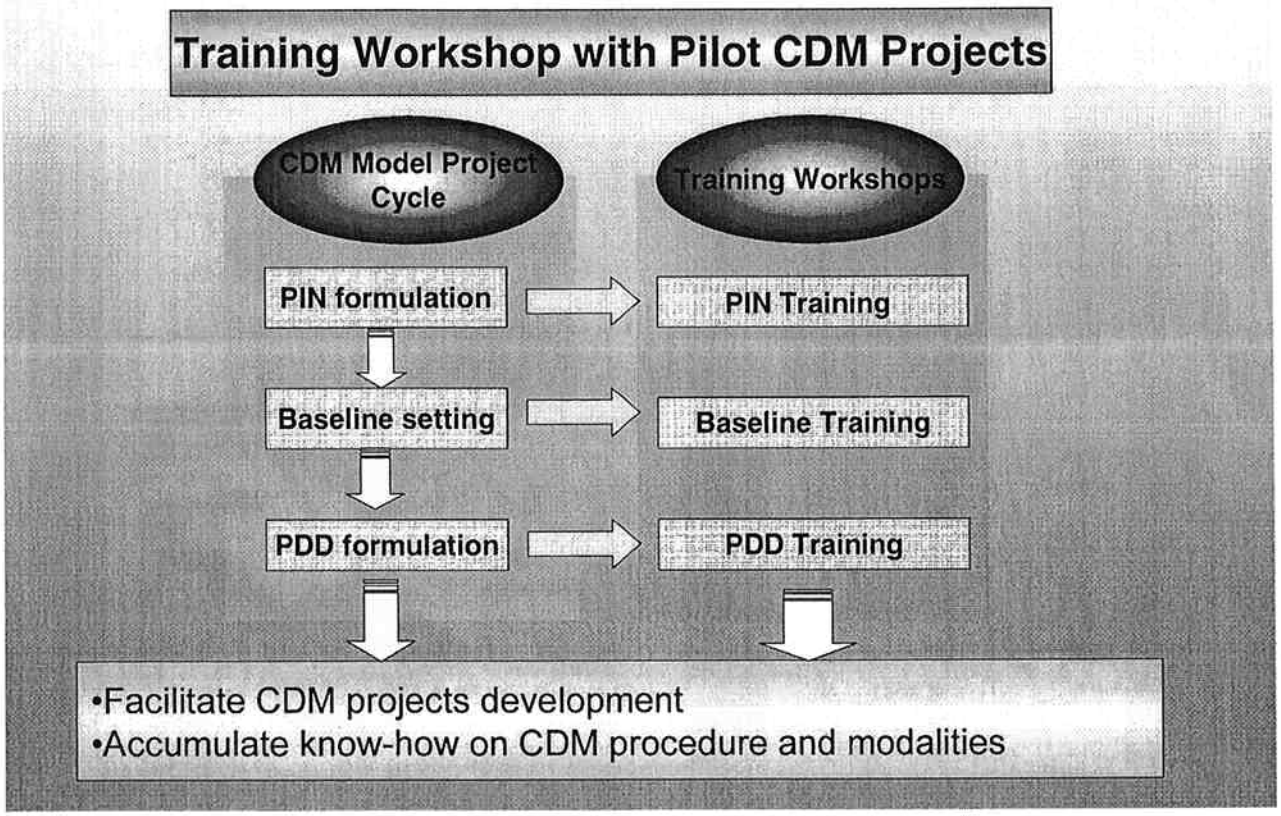
- Integrated Capacity Strengthening for CDM (ICS-CDM) Program is one of the several CDM promotional initiatives by Ministry of Environment, Japan

- CDM Capacity Building Program for
  - Policy-makers
  - Private Sector
  - Civil Society
    (local communities, academia, and NGOs)

Country Activities in Indonesia

- Publications:
  - *CDM/JI in Charts*
  - *CDM Country Guide for Indonesia*
- CDM capacity development through:
  - PIN/PDD Training Workshops
  - National Meeting

Training Activities FY 2004 in Indonesia

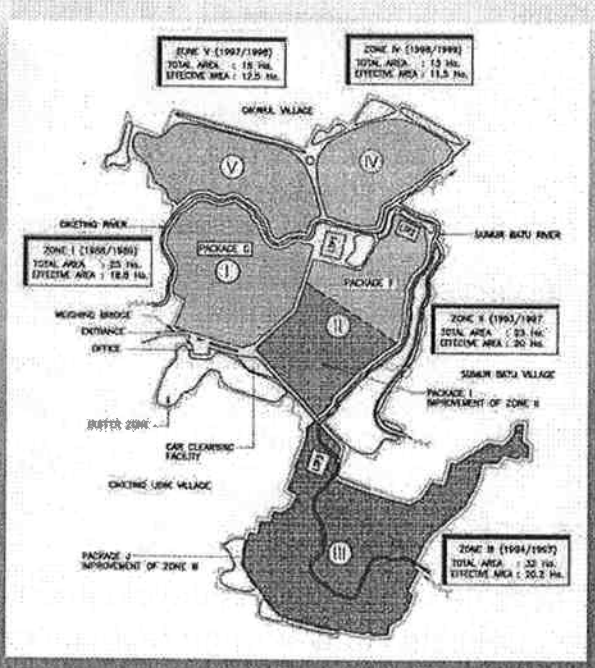


Model Project

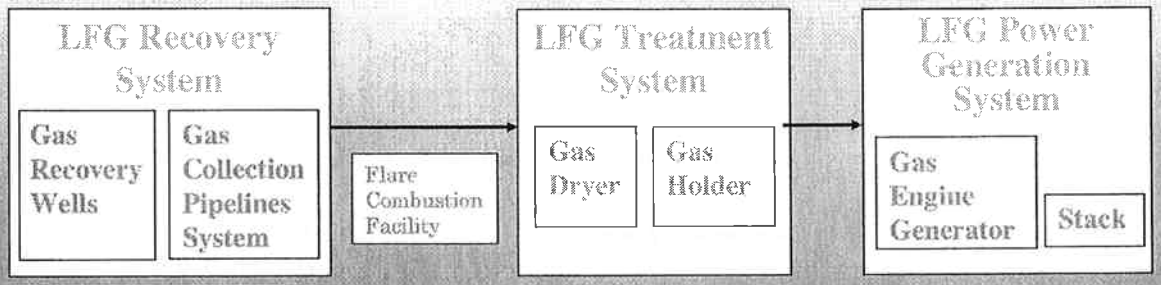
Project	Project participants	Type of Project	Baseline & monitoring meth. applied	Estimated GHG emission reduction
BANTAR GEBANG LFG COLLECTION & ENERGY RECOVERY CDM PROJECT	-Kajima Co. -Yachiyo Engineering	Waste Management Avoidance of Methane and Generation of Electricity	Consolidated baseline methodology for landfill gas project activities (ACM0001)	138,000 ton of CO2e/yr (average of 10 years; under investigation)

- **Collecting bio-gas emitted from landfill by installing vertical & horizontal pipelines at landfill**
- **Generating electricity using the collected bio-gas**

Site Location of Model Project



LFG to Electricity System Flow



LFG Recovery System

- Landfill area will be covered with soil of thickness 0.5m
- LFG is collected through gas recovery wells and pipelines

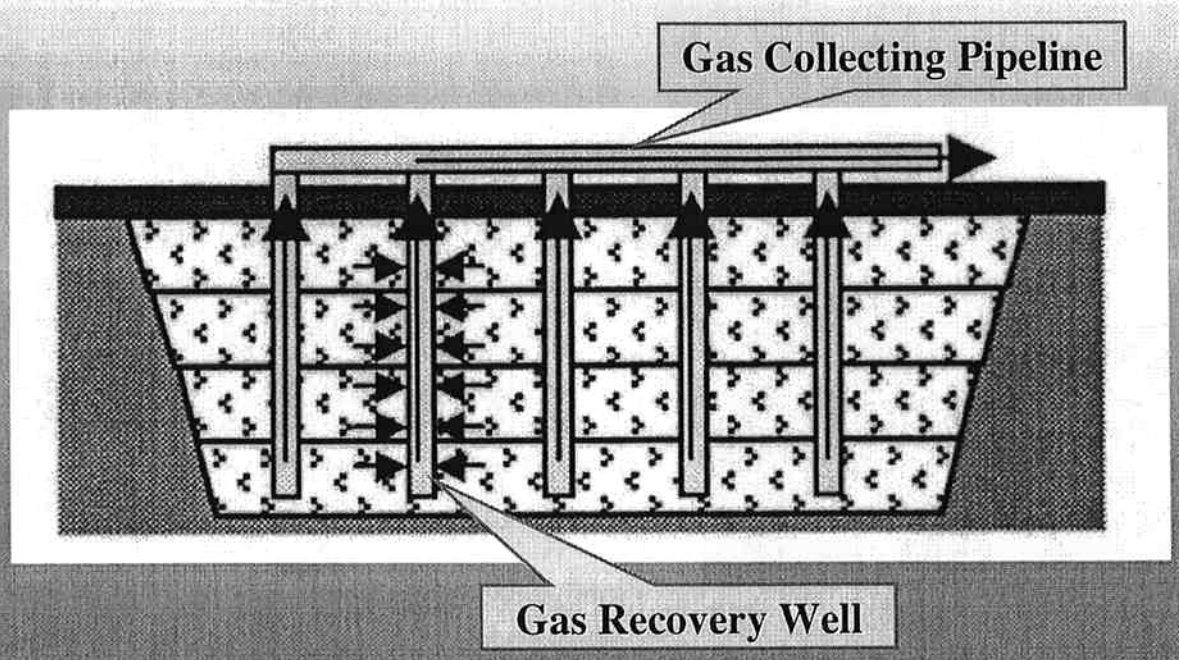
Treatment System

- Gas dryer reduces moisture content of the gas

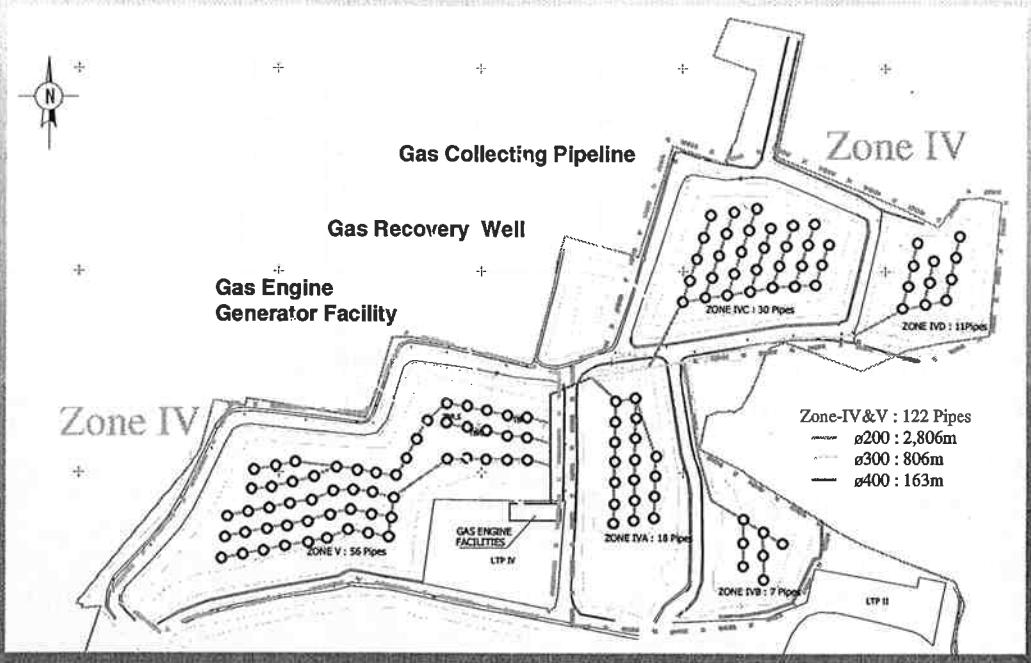
Power Generation System

- Gas engine generators combust the gas as fuel to generate electricity

Gas Collection System



General Arrangement of Production Well and Collecting Pipe System

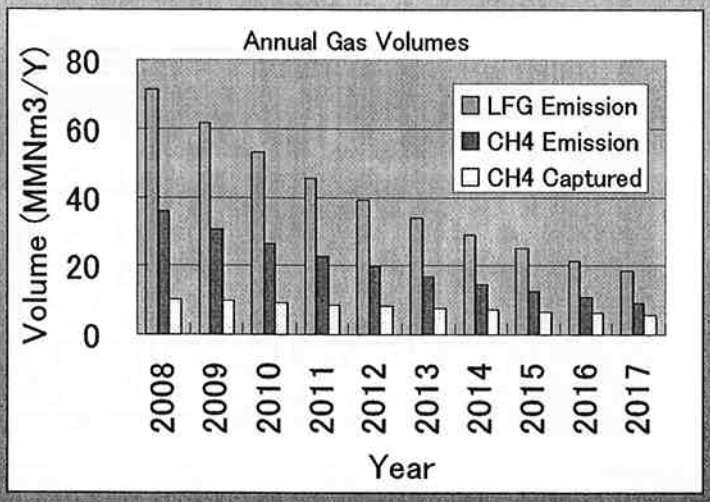


LFG Emission Volume and Methane Volume Estimation

LFG Emission Estimation :
F.O.D Model

Methane Concentration in Landfill Gas : 50%

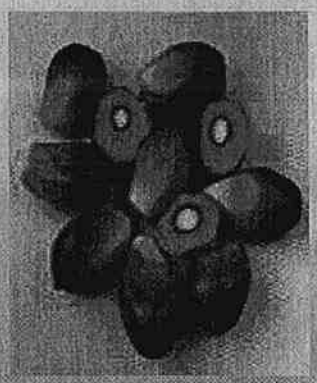
Annual LFG Emission Volume (m3/Year)	Annual CH4 Emission Volume (m3/Year)	Annual CH4 Captured Volume (m3/Year)
71,454,298	35,727,149	10,235,886
61,501,284	30,750,642	9,724,092
52,934,646	26,467,323	9,212,297
45,561,272	22,780,636	8,700,503
39,214,950	19,607,475	8,188,709
33,752,620	16,876,310	7,676,914
29,051,150	14,525,575	7,165,120
25,004,556	12,502,278	6,653,326
21,521,621	10,760,810	6,141,532
18,523,831	9,261,915	5,629,737



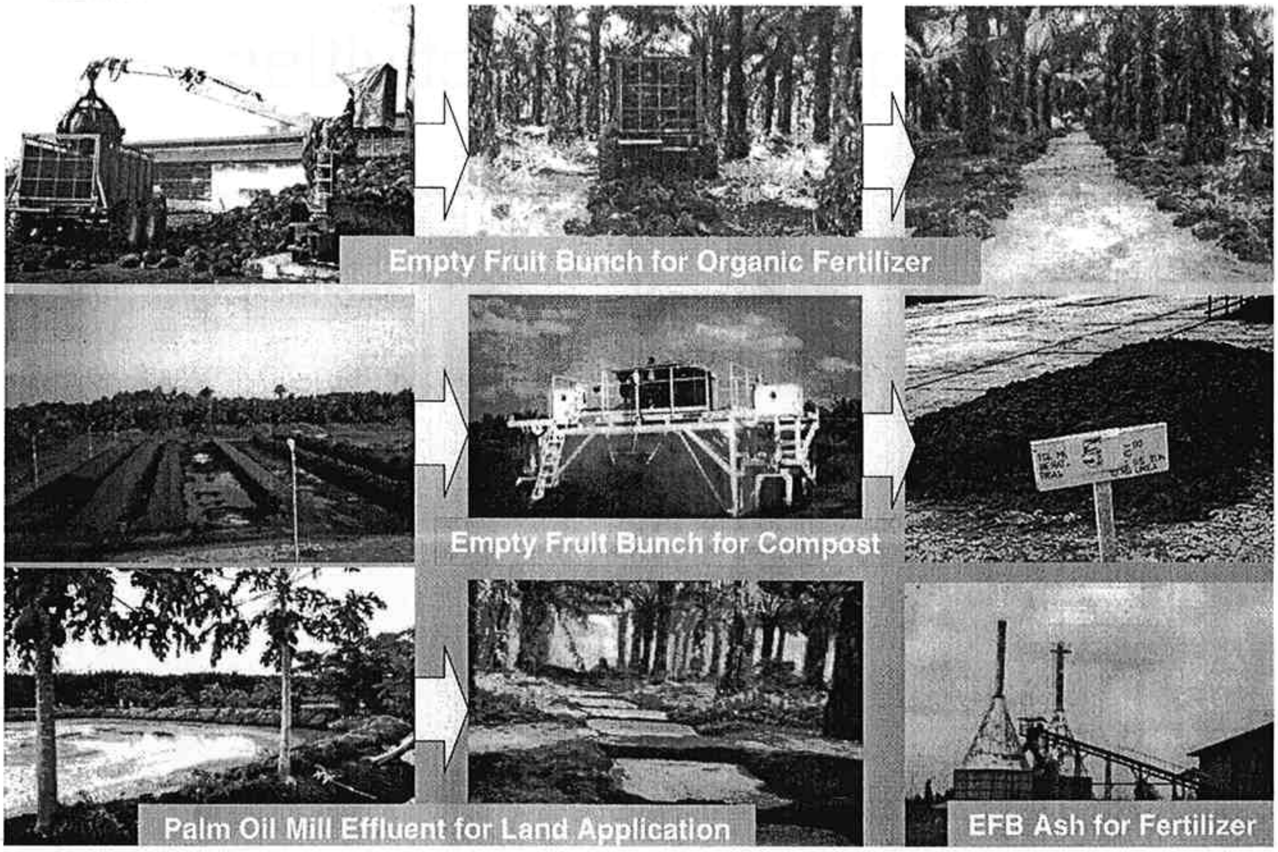
Potential Projects Identified through training activities

Project	Project participants	Type of Project	Estimated GHG emission reduction
Biomass Waste to Electricity for a Plywood (Pontianak)	PT. Gikoko	Utilization of Biomass (Waste Wood to Energy)	38,385 ton CO_2 /yr
Utilization of Palm Oil Mill Effluent Project (Bengkulu)	PT. Agricinal	Waste Management (Avoidance of Methane)	49,222 ton CO_2/yr

Methane Capture from Palm Oil Mill Effluent (POME) for Renewable Electricity Generation



Solid & Liquid Waste Management


Empty Fruit Bunch for Organic Fertilizer

Empty Fruit Bunch for Compost

Palm Oil Mill Effluent for Land Application

EFB Ash for Fertilizer

ENAM DAERAH KRISIS LISTRIK

KRISIS, KRITIS

Sumatera Utara Krisis Listrik

Proyek listrik tak akan ditenderkan.

MEDAN — Pemerintah menetapkan Sumatera Utara krisis listrik. Dalam dua pekan terakhir, PT PLN (persero) Medan sudah mematikan listrik pada waktu-waktu tertentu secara bergiliran untuk beberapa sektor.

Manajer Umum PLN Sumatera Utara Albert Pangaribuan menjelaskan, problem itu lantaran kemampuan mesin pembangkit dan kapasitas listrik menurun, tak mengikuti kebutuhan yang meningkat.

"Kami butuh daya 1.000 megawatt sampai 2010," kata dia dalam paparannya di depan Menko Perekonomian Aburizal Bakrie, Sabtu (14/5).

Menurut Albert, sudah ada investor yang diizinkan Holding Ltd. Perusahaan asal Cina ini bersedia membuat pembangkit listrik tenaga uap dari batu bara. Namun, hingga kini proyek untuk memenuhi 400 megawatt itu belum dimulai.

Sumatera Utara mulai kekurangan listrik sejak dua tahun lalu. Sebesar 400 megawatt harus dipenuhi dalam dua tahun ini.

"Sekarang belum ada investor untuk 600 megawatt," kata Albert.

Mendengar keluhan itu, Aburizal mengatakan, pemerintah akan segera mengundang investor untuk menambal atas kebutuhan itu. "Yang sudah dapat izin segera bangun konstruksinya," kata dia.

Dia pun menegaskan, proyek listrik di Sumatera Utara tak akan ditender. "Siapa cepat dia dapat," katanya. Yang penting, harga yang ditawarkan disepakati pemerintah dari investor berkisar US$ 4,5-4,8 sen per kilowatt hour (kWh).

Dalam situasi krisis, kata dia, proyek tanpa tender diperbolehkan. "Yang penting masyarakat segera mendapat listrik murah," ujar dia. "Investasi juga tak akan datang ke Sumatera Utara jika tak ada listrik."

Aburizal memperkirakan, nilai proyek untuk pasokan listrik 600 megawatt itu sekitar US$ 480 juta. Tawaran ini berlaku bagi investor dalam dan luar negeri. "Siapa pun silakan datang," katanya.

Menko juga meminta PLN beralih menggunakan minyak ke gas untuk menghidupkan mesin pembangkitnya. Sebab, selain cadangan minyak terus menipis, kebijakan energi ke depan akan fokus pada pemakaian gas dan batu bara.

dalam negeri karena pemerintah masih terikat kontrak mengekspor gas. "Karena itu, mulai sekarang PLN buat kontrak dengan produsen gas untuk pembangunan pipanya," kata dia.

Di Labuan Angin dan Sibolga ketersediaan gas lumayan tinggi sehingga dua wilayah ini menjadi andalan sumber listrik Sumatera Utara. Menurut Albert, di Bireuen, Aceh, juga tersedia gas yang cukup banyak. "Tapi ada kesulitan listrik sekitar 100 kilometer di sana," kata dia.

Direktur Utama PT PLN Eddy Widiono menambahkan, khusus daerah bencana pembangunan pembangkit listrik mengacu pada cetak biru rekonstruksi Aceh dan Pulau Nias. Menurut dia, sudah ada penjajakan dengan Australia berupa pemberian hibah untuk membangun pembangkit di

Project Potential – Electricity Demand

Total Electricity Deficit in Indonesia is ± 136 MW

Objectives :

- to avoid and reduce the methane gas from Palm Oil Mill Effluent (POME)
- to generate renewable energy (electricity) from POME
- to replace the fossil (diesel) fuel by the renewable energy

Location :

Palm Oil Mill, Riau Province, Indonesia

Participants :

Sinar Mas Group, Indonesia, and Tomen Group, Japan

Project Feasibility Study :

- Carry out 2004-2005
- Funded by NEDO Japan
- Validated by JCI CDM Center Japan in February 2005

Duration :

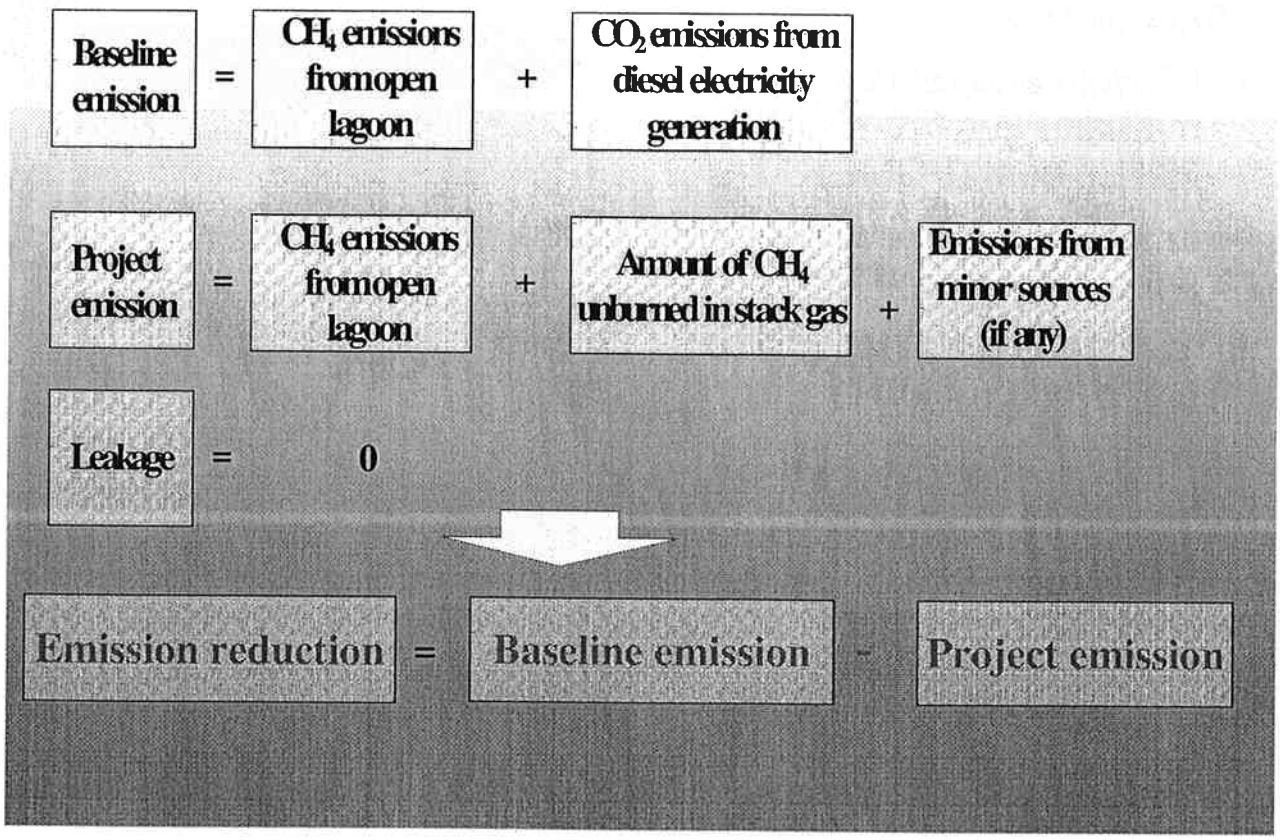
(3 X 7 years) 21 years, 2008 - 2029

Project Document Design :

In progress

Financial Support :

Expected from the Financial Institutions (esp. Japan)



Additionality

Sustainable Development

3 P's = Planet – People – Profit ***(Enviro – Socio – Econo)***

Environmental Sustainability

- CH_4 (GWP= 21 X CO_2) emission avoided being released into the atmosphere
- CO_2 emission reduced by the diesel fuel replacement

Social Sustainability

- Transfer technology from diesel to gas technology
- "Paradigm Sift" in Management

Economic Sustainability

- CER Earning
- Saving from the diesel fuel replacement
- Electricity Sale

Year	Baseline emissions(1)		Project emissions(2)		Emission reduction(t_CO_2) (3)=(1)−(2)
	Open lagoon (t_CO_2)	Electricity generation (t_CO_2)	Open lagoon (t_CO_2)	Unburned methane in the stack gas (t_CO_2)	
2008	69,346	6,324	6,935	312	68,423
2009	69,346	6,324	6,935	312	68,423
2010	69,346	6,324	6,935	312	68,423
2011	69,346	6,324	6,935	312	68,423
2012	69,346	6,324	6,935	312	68,423
2013	69,346	6,324	6,935	312	68,423
2014	69,346	6,324	6,935	312	68,423
Total	485,422	44,268	48,545	2,184	478,961

Assumption = 1 ton CO_{2-e} = USD 1,-

Certified Emission Reduction (CER) for 1st Seven Years (2008 2014) = 478,961 X USD 10 = USD 4,789,610,-

Electricity Production ± 6,000 MW per annum

Project Advantages

This CDM Project has several advantages :

- **relative small scale (< 15 MW), less stringent requirement on the development of a baseline methodology and PDD for CDM**
- **utilize liquid waste (i.e. POME)**
- **avoid CH_4 Methane (X 21 CO_2) release**
- **produce renewable energy**
- **mostly located in remote rural area, far from grid line**
- **may create downstream activities based on the electricity supplied to the community**
- **high flexibility (management)**
- **establishment and monitoring by a public listed company under ISO 9001 Quality Mgmnt System and ISO 14000 Environment Mgmnt System**

Identified Barriers to develop CDM

- ✓ No governmental incentive to facilitate CDM
- ✓ Lack of DNA
- ✓ Risk in Changing Policy/Regulation
- ✓ Length of project
- ✓ Bundling CDM Projects

Identified Financial Barriers

- ✓ Fluctuation of the amount of Bio-gas (Methane) to be generated
- ✓ Uncertainty in CER Price (fluctuation – insurance)
- ✓ Subsidy on the electricity price (compensation)
- ✓ Currency Risk
- ✓ Payback Mechanism

CDM Project Pipeline in Cambodia

By Mr. OUK Navann,
Cambodian Climate Change Office,
Ministry of Environment

Presentation Outline

1. Background
2. CDM Project Pipeline in Cambodia
3. Angkor BioCogen Project
4. Renewable Energy Project Using Wind and Solar Power
5. Methane Recovery Project from Stung Meanchey Landfill

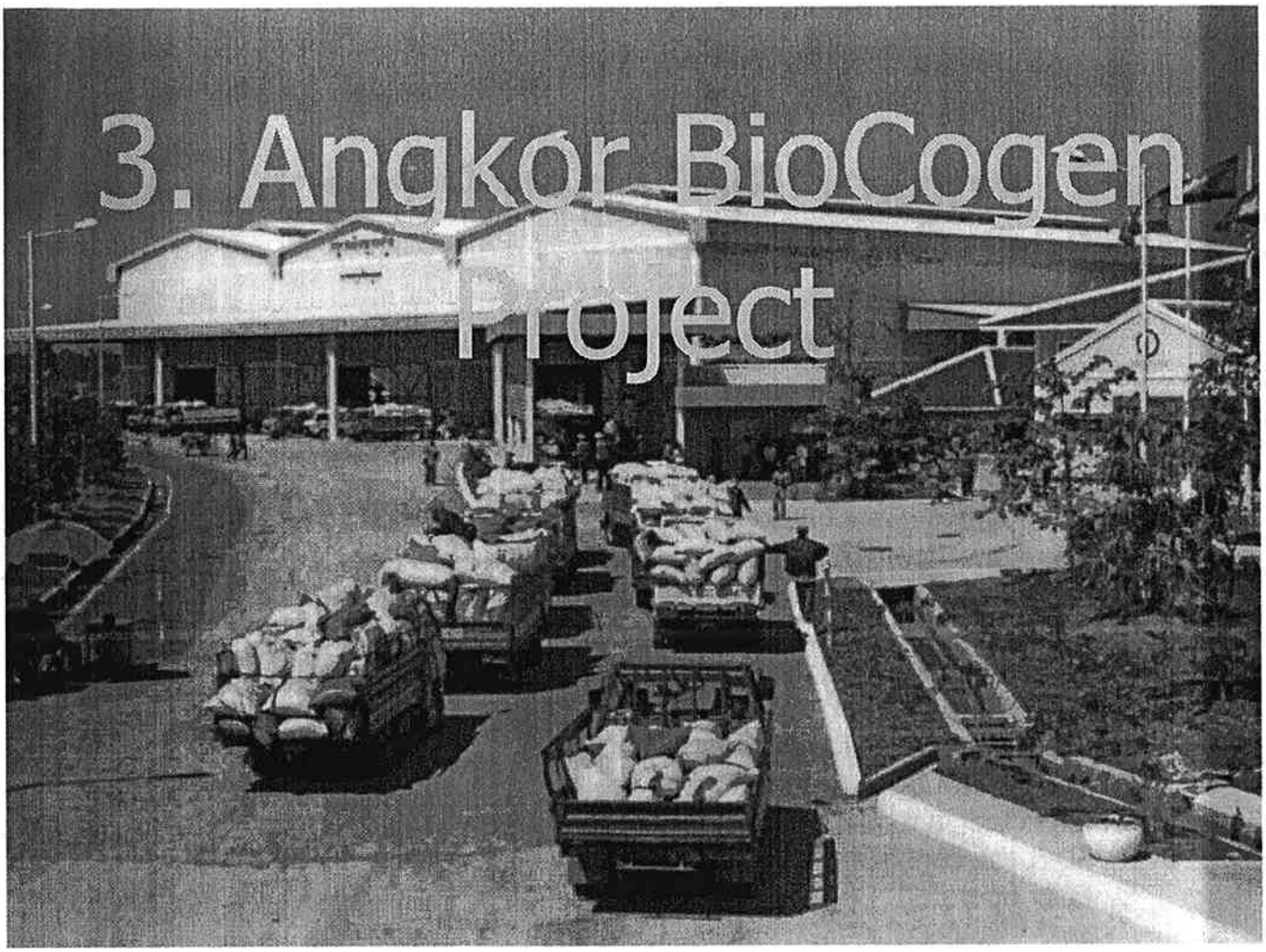
1. Background

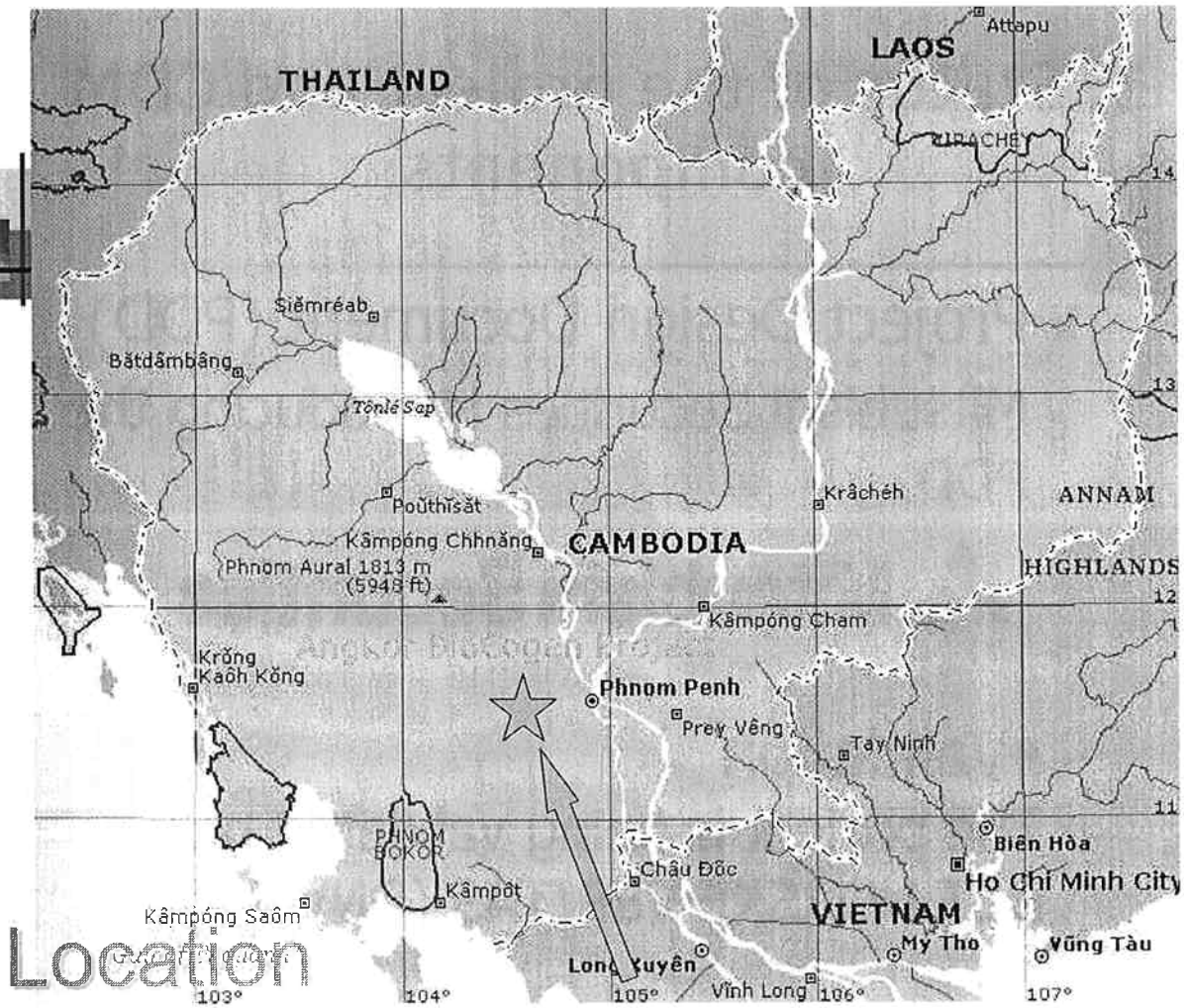
- Cambodia ratified the UNFCCC on 18 December 1995 and acceded to the Kyoto Protocol on 4 July 2002;
- The Ministry of Environment (MoE) is the National Focal Point for the UNFCCC and the Kyoto Protocol;
- MoE was appointed as the Interim DNA for CDM by the Prime Minister's Declaration No 1, dated 15 July 2003;
- MoE established the Cambodian Climate Change Office (CCCO):
  - CCCO works on Capacity building for CDM; acts as secretariat to DNA;
  - CCCO works with concerned ministries to establish the DNA, sustainable development criteria, and develop pipeline of CDM projects.

2. CDM project pipeline in Cambodia

- Biocogen (PDD)
  - Rice husk cogeneration project of 1.5 MW
  - Avoid release 320 kT CO2 equiv. over 7 years
- Marubeni Renewable Energy Development and Rubber Plantation (PIN)
  - Mondolkiri highlands, NE Cambodia
  - Small-size hybrid systems of wind and solar power generation with a total of 1.4MW
  - Annual CO2 emission reductions: 2,759 t-CO2/yr
- Methane Recovery Project from Stung Meanchey Landfill (PIN)
  - Methane capture and flaring or use for energy
  - Reduce 858 kT CO2 equiv. over 10 years
- GERES CFSP Improved Cookstove
  - Dissemination of 18,000 improved cookstoves saving emissions from use less wood fuel
  - Avoid release of 67kT CO_2e over 10 years
- NEDO solar PV hybrid projects
  - 109kw Solar PV-mini hydro project Kompong Cham
  - 120kW Solar PV-biogas project Kompong Som
  - May not apply as CDM, very small projects
- Over 20 mini and micro hydro projects
  - Country hydropower potential is high.

3. Angkor BioCogen Project





Location

3. Angkor BioCogen Project

- Objective of the project
  - Production of electricity and heat using rice husk for internal consumption by the mill
- Project description and proposed activities
  - 1.5 MWe rice husk fired cogeneration plant
  - Replacement of currently used diesel generators
- Greenhouse gases targeted
  - CO_2 from the displacement of diesel oil
  - CH4 from the avoidance of rice husk left to decay
- Estimate of greenhouse gas emission reduction
  - Annual: Approximately 45,000 Tons of CO_2e (on average)
- Project Developers
  - Angkor Kasekam Roongroeung (Rice Mill)
  - Angkor BioCogen (Power Plant)
- Expected schedule
  - Start the construction: Middle or late of year 2005
  - Fully operated: Beginning of year 2007

3. Status of the project and CDM components

- Project Design Document (PDD)

  Mitsubishi Securities is producing the PDD.

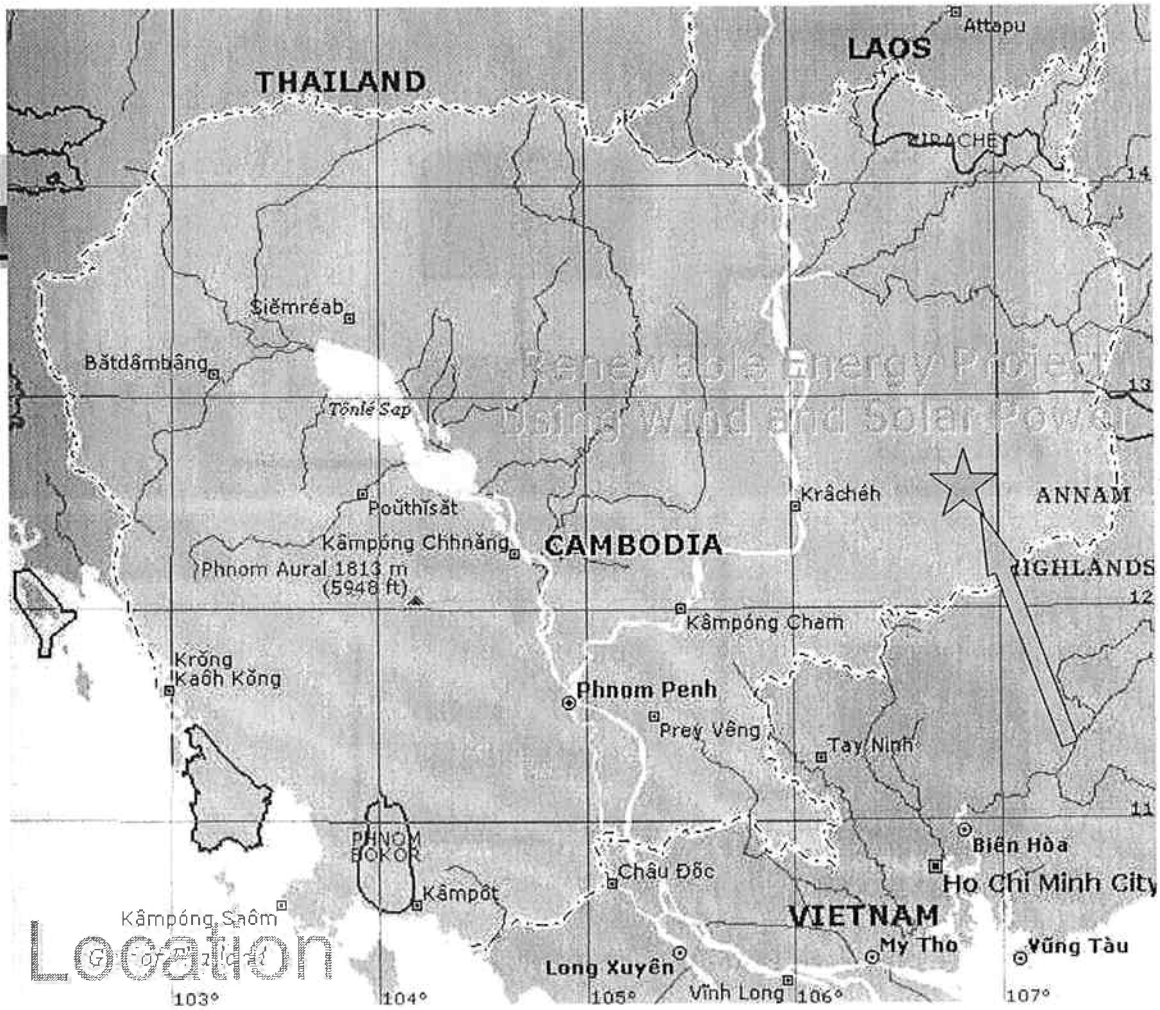
  Mitsubishi Securities

- Validation

  The project is being validated by DET NORSKE VERITAS (DNV)

DNV

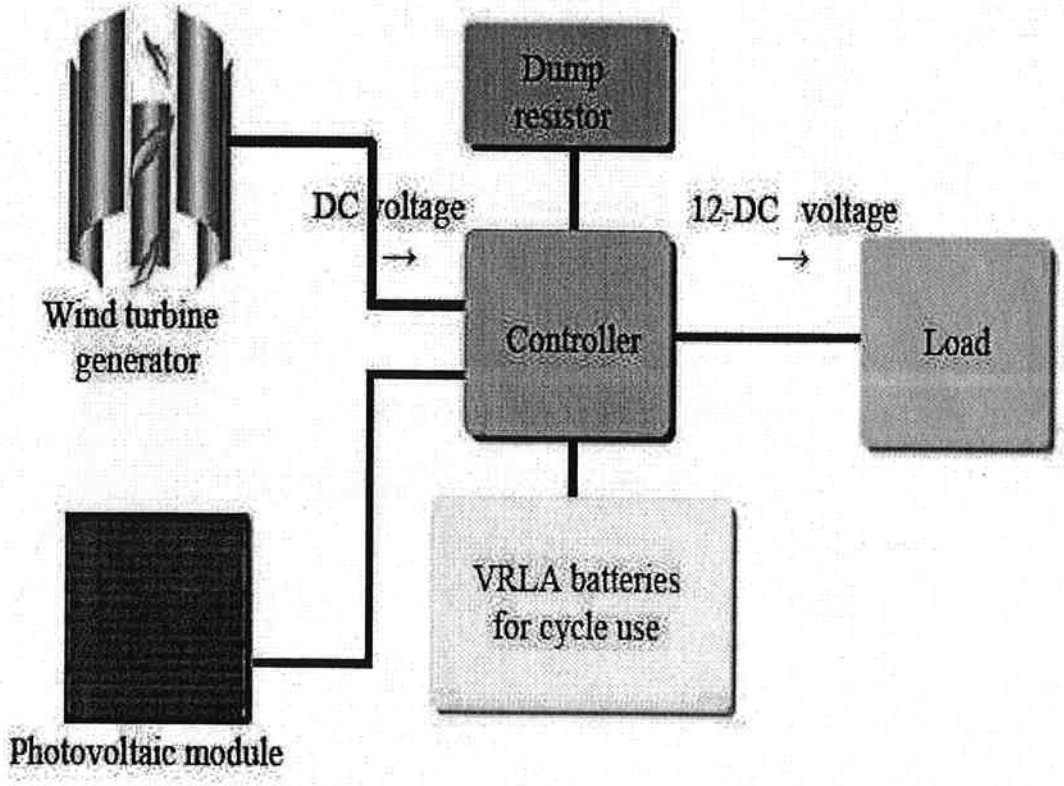
4. Renewable Energy Project Using Wind and Solar Power in Mondul kiri Province, Cambodia



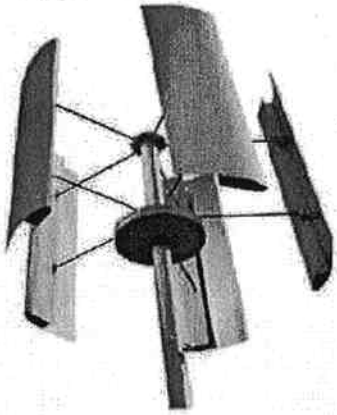
4. Renewable Energy Project Using Wind and Solar Power

- Objective of the project
  - The project is for renewable energy development using wind and solar power in the highlands of Mondulkiri Province. The electricity produce from the project will replace electricity generated from diesel-power mini grid.
- Project description and proposed activities
  - 115 small-size hybrid systems of wind and solar power generation with a total of 1.4MW for installed capacity.
- Greenhouse gases targeted
  - CO_2 from the use of diesel oil to produce electricity
- Estimate of greenhouse gas emission reduction
  - Annual CO2 emission reductions: 2,759 t-CO2/yr
  - Total CO2 emission reductions during the crediting period (21yrs: 2006-2026): 57,939 t-CO2
- Project Developer: Marubeni Corporation and Cambodian MIME
- Project Sponsors: Marubeni Corporation, Japan
- Expected schedule
  - Submission of PDD to U.N. CDM Executive Board by 2006

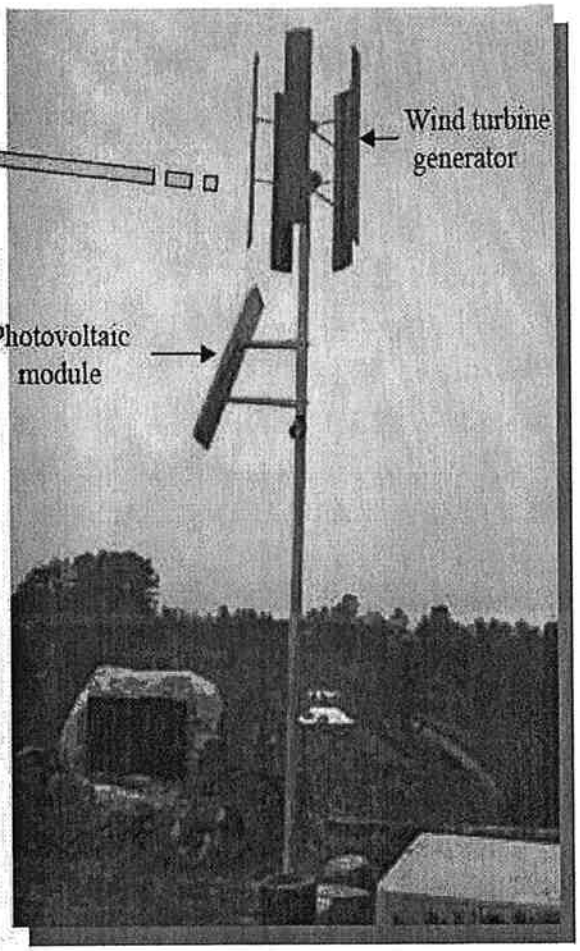
•Basic system configuration



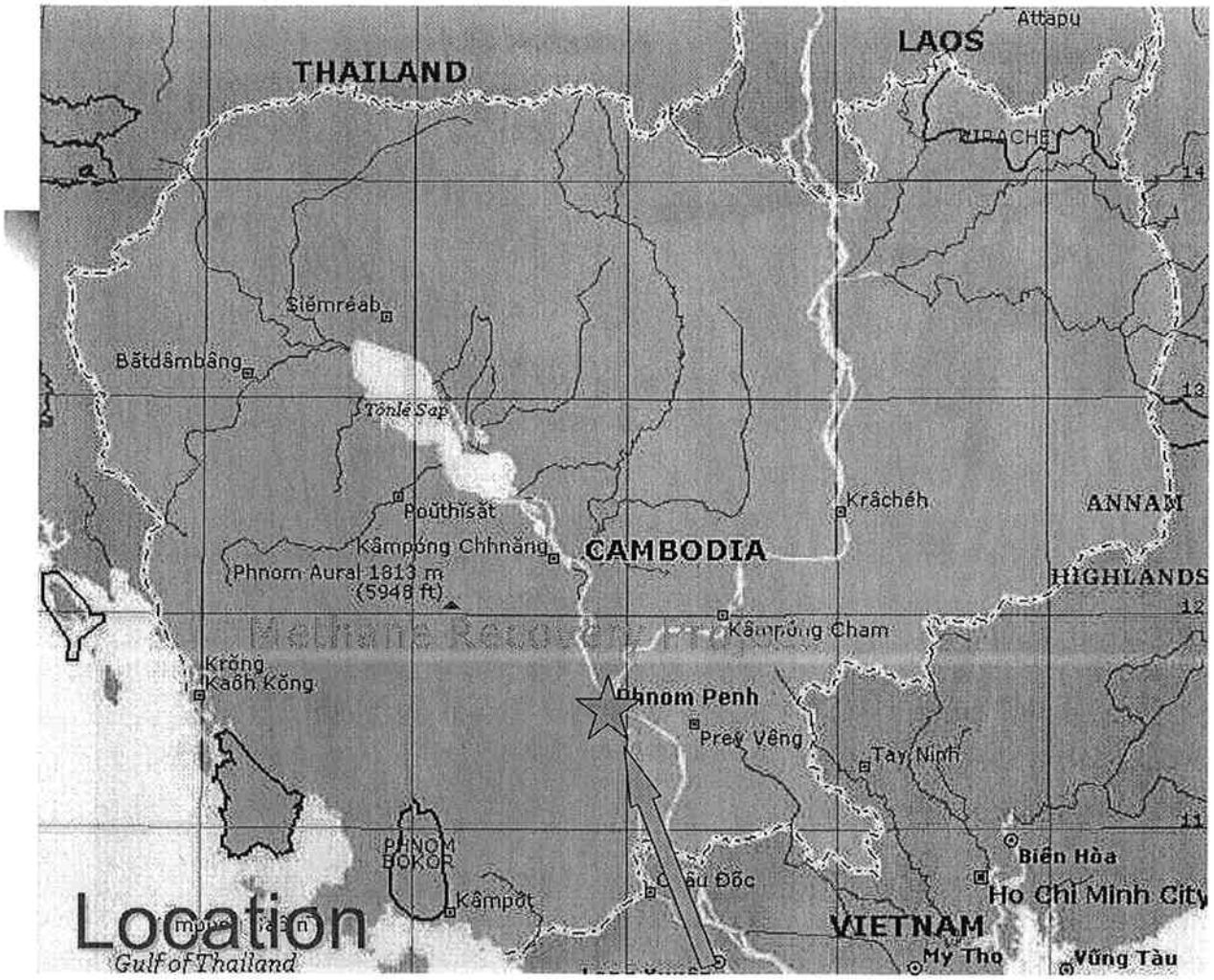
•Cygnus Mill



•Example of installation



5. Methane Recovery Project from Stung Meanchey Landfill



5. Methane Recovery Project

- Objective of the project
  - Improve local environmental conditions through capping and consolidation of dumpsite
  - Productively use methane gases extracted
- Project description and proposed activities
  - The current Phnom Penh dumpsite uses open dumping which has significant impact on the surrounding environment including fire/smoke; dust, odors, leachate and it is unsanitary.
  - This project would consolidate and cap the waste and install gas extraction pipes for flaring the methane captured.
- Greenhouse gases targeted
  - Reduce CH4 from wastes left to decay
- Estimate of greenhouse gas emission reduction
  - Over crediting period of 10 years: 858,000 Tons CO2eq
- Project Developer: Actellios/CINTRI project to capture and burn methane
- Project Sponsors: Actellios, ITALY
- Expected schedule:
  - The earliest project start date: 2006

LANDFILL GAS TO ENERGY CDM PROJECTS –

Barriers & Solutions to Financing

Financing Modalities of CDM Conference
Jakarta, 27 June 2005

Pascual *Ricky* Beltran
Philippine Bio-Sciences Co., Inc. 'PhilBIO'

PhilBio

LFG UTILIZATION TECHNOLOGY

PhilBio

- Direct Gas Utilitization ~ Biogas Fuel Pipeline to nearby industrial gas user (for boilers)
  - 118 Projects in the USA
  - .5 to 5 km Gas Pipelines
- Electric Power Generation
  - Internal Combustion Engines ~ **500 kW -3 mW**
  - Gas Turbines **~ 3 mW to 50 mW**
  - Nearly 1,000 Projects in the USA with installed based of 900 mW
  - Microturbines (Lopez Canyon, California)
  - In the future, Fuel Cells
- Vehicular Fuel
- Leachate Evaporation

Methane Recovery

Philippines Greatest Carbon Potential

- **Example: Converting all major Manila based 'dumps'** into controlled or managed landfills ~ the most obvious of the '*low hanging fruit*'
  - ***Convert Payatas, Navotas & Vitas*** *to Managed Dumpsite*
  - ***Convert Montalban*** *Sanitary Landfill for LFG Capture*
  - ***Energy Potential:*** *from 5,000 tons per day of waste*
    - *If 100% for electric power generation: > 50 mW Power plants*
    - *At 80,000 operating hours*
    - *Or with Carbon Potential of > 15,000,000 CERs*
    - *With Current Minimum Value ($3) of $45,000,000 (7 Year Crediting Period)*
  - ***With CDM****, the NCR Waste Management Crisis and its solutions become more realistic.*

Methane Recovery

Achieves Greatest Carbon Potential

- For Provincial Areas, **compacted waste** transported to Regional SLF with LFG to Energy Facilities
  - General Santos SLF with PhilBIO/BTA WTE (27,000 CERs/Yr)
- At least 15 Major LFG to Energy Projects with at least another potential 50 MW can be sited in the Philippines that would have significant economies of scale and attract investment.
  - **Cebu, Davao, GenSan, Zamboanga, CDO, IloIlo, Bacolod, Legazpi, Naga, Tacloban, Tagbilaran, Batangas, Urdaneta, San Fernando (2)**
- Generate more CERs in proportion to installed assets
- **Due to GWP of methane being 21** – i.e. 1 tonne of methane released has warming effect of 21 tonnes of CO_2
- 1 MW of baseload power (8000 hrs/yr) can earn 25,000 to 40,000 CERs per year when powered by fugitive CH_4

Barriers to LFG Projects

Socio – Political -Economic

Social Barriers

- *Trauma of Open Dumps (Pollution, Mismanagement, Disregard of Law)*
- *NIMBY (Not In My Back Yard) Mentality*
- *Disregard for Solid Waste disposal regulations and laws*

Political Barriers

- *Short political terms of Local Government Units (Devolution)*
- *Lengthy and entangled bureaucratic processes (ECC, City Council, Permits)*
- *Lack of political will in implementation of Solid Waste laws (e.g tipping fees)*

Economic Barrier

- *Limited number of > 15 MW projects (most <5 MW; economies of scale)*
- *As scales decreases – cost of carbon trading increases US$75k to US$200k per MW capacity per year*
- *Huge capital outlay (US$ 2.5M/MW & 1.0M/hectare)*

Barriers to LFG Projects

Financial Barriers

Lack of Knowledge of WTE Technology

- *Lack of local companies with LFG to Energy expertise (track record)*
- *NO existing LFG to Energy Project (basis for evaluation)*
- *NO policy or standard guidelines on ERPAs for banking institutions*
- *Investors and Lenders view of LFG to Energy as* ***high risk***

Financial Viability

- *enormous capital outlays*
- *complex financial structures (PPAs & ERPAs, Waste Conveyance & Gas Offtake Agreements, BOT, etc)*
- *failure to meet hurdle rate set by investment/financial institutions*
- *Lack of private sector funding or equity*
- *High lending rates*

Measures to Address Barriers

Socio – Political -Economic

- R.A. 9001 or the Ecological Solid Waste Management Act of 2001
  - *closure of all open dumps by 2005*
  - *development and construction of controlled dumpsite and sanitary landfills*
  - *Integrated Bar of the Philippines has filed test cases in court against LGUs that don't implement the Act*
- Pending legislation for Renewable Energy
  - *set national policy & direction for the dev't of more RE projects*
  - *provides incentives to developers (tax, duty free importation, etc)*
- Increased Advocacy & Capacity Building for Solid Waste Management
  - *Four Rs of Waste Management have been incorporated into the Solid Waste Management Plans of all cities/municipalities (RA 9001)*
  - *Private sector (NGOs and foundations) more active advocacy*

Measures to Address Barriers

Financial

- SWM's transition from an expense to a revenue generating investment
- Modular solid waste management systems & LFG to Energy facilities
- Installation of Regional landfills to serve a cluster of Local Gov't Units
- Pilot a LFG to Energy facility to prove the viability of technology
- Initiate LFG to Energy projects in closed dumps first
- Require that RE facilities be given priority dispatch of power
- Provide loan facilities with lower interest rates and softer terms
- Pool of RE and Gas experts to evaluate loan applications
- Integrate CDM as major component of RE project
- ERPAs as an enhancement to loan applications
- Bundle contiguous LFG projects to decrease CDM document cost

CDM: Monetizing Carbon Credits Increases Project IRR's

Country	Project Type	% IRR w/o	% IRR w/cer's	IRR Increase [% points]	% IRR Increase
Romania	District heating	10.5	11.4	0.9	9
Costa Rica	Wind	9.7	10.6	0.9	9
Jamaica	Wind	17.0	18.0	1.0	6
Morocco	Wind	12.7	14.0	1.3	10
Chile	Hydro	9.2	10.4	1.2	13
Costa Rica	Hydro	7.1	9.7	2.6	37
Guyana	Bagasse	7.2	7.7	0.5	7
Nicaragua	Bagasse	14.6	18.2	3.6	25
Brazil	Biomass	8.3	13.5	5.2	63
Latvia	Methane	11.4	18.8	7.4	65
India	Methane	13.8	18.7	4.9	36

Source: World Bank, July 2001

The Economics of waste to energy projects are especially attractive

Jamaica Wind Farm Project

20 MW installed capacity
50,000 t CO_2 ER's p.a.
(10 years)
Project costs: US$20m (+)

Carbon value:
@ \$3/ t CO_2 = \$1.72m
@ \$5/ t CO_2 = \$2.87m

Proportion of project costs:
@ \$3/ t CO_2 = 8.6%
@ \$5/ t CO_2 = 14.35%

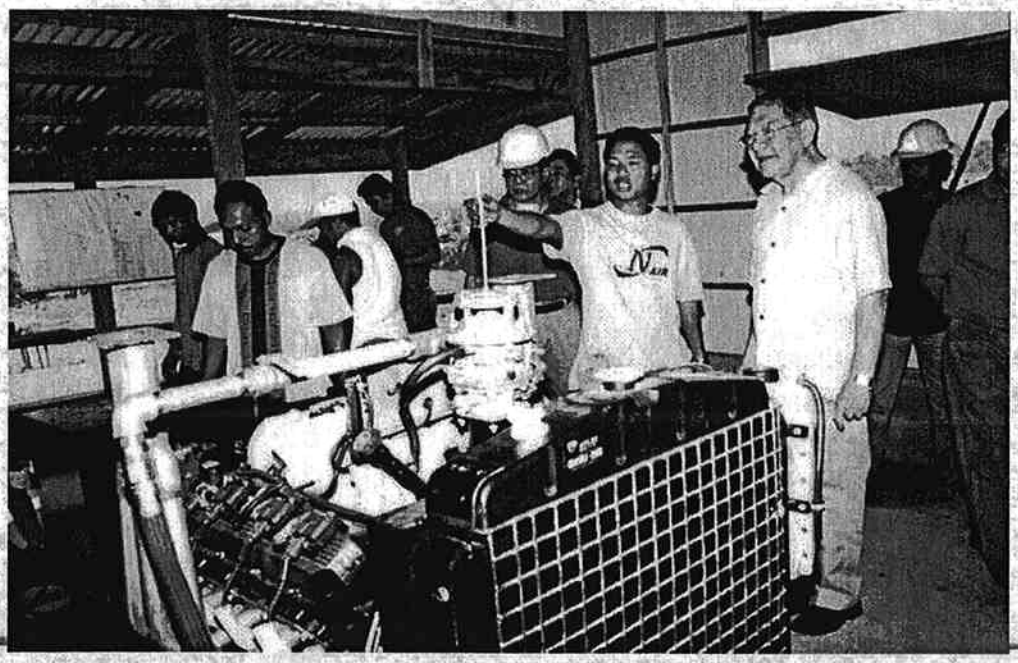
PhilBIO's G.S. WTE Project

2 MW installed capacity
50,000 t CO_2 ER's p.a.
(10 years)
Project costs: US$3.5m

Carbon value:
@\$3 /t CO_2 = \$1.72m
@\$5 /t CO_2 = \$2.87m

Proportion of project costs:
@ \$3/ t CO_2 = 49.1%
@ \$5/ t CO_2 = 82.0%

Quezon City, A Philippine First: Dumpsite Gas to Energy



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Workshop on the Financing Modalities of Clean Development Mechanism (CDM)

27-28 June 2005, Jakarta, Indonesia

potential CDM projects in Viet nam

Hoang Manh Hoa
Senior Officer,
International Cooperation Department,
Ministry of Natural Resources & Environment of Viet Nam
Secretary of the CDM National Executive and Consultative Board

Contents

A. Background Information

1. Viet Nam signed United Nations Framework Convention on Climate Change (UNFCCC) on 11 June 1992, ratified it on 16 November 1994 and signed Kyoto Protocol (KP) on 03 December 1998, ratified it on 25 September 2002.
2. Ministry of Natural Resources and Environment of Viet Nam (MONRE) was assigned by the Government of Viet Nam as National Authority for taking part in and implementing UNFCCC and KP.

A. Background Information (cont.)

3. DNA in Viet Nam

3.1 Establishment: The International Cooperation Department of MONRE was designated as a Clean Development Mechanism National Authority (CNA) in Viet Nam in March 2003. It plays functions as the Designated National Authority (DNA) for CDM in Viet Nam (Official document No.502/BTNMT-HTQT dated 24 March 2003)

A. Background Information (cont.)

3.2 Functions and tasks

- Building national assessment criteria, regulations and guidelines on Clean Development Mechanism (CDM).
- Assessing CDM projects at the national level.
- Submitting potential CDM projects to CDM National Executive and Consultative Board (CNECB) for evaluating them.
- Receiving, assessing and submitting Project Idea Note (PIN) or Project Design Document (PDD) of CDM projects to the Minister of MONRE for issuing a formal letter of endorsement or letter of approval respectively.
- Providing CDM information to interested investors, related organizations, consultants and public.
- Managing and co-ordinating CDM activities and investment in Viet Nam.

A. Background Information (cont.)

4. CNECB in Viet Nam

4.1 Establishment: CDM National Executive and Consultative Board (CNECB) was established in April 2003 and chaired by Director General of the International Cooperation Department, MONRE (Decision No.553/QD-BTNMT dated 29 April 2003)

A. Background Information (cont.)

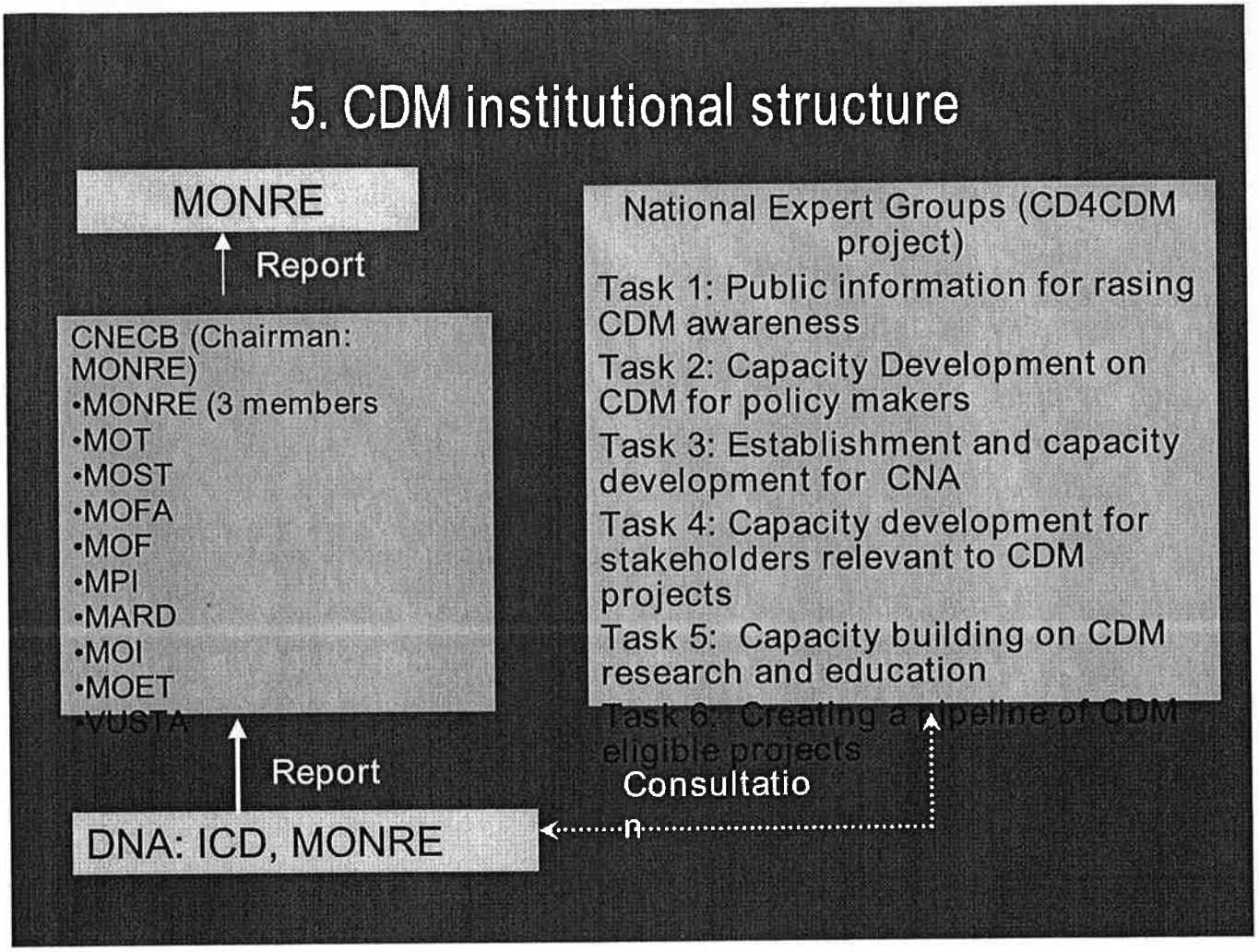
4.2 Members of CNECB

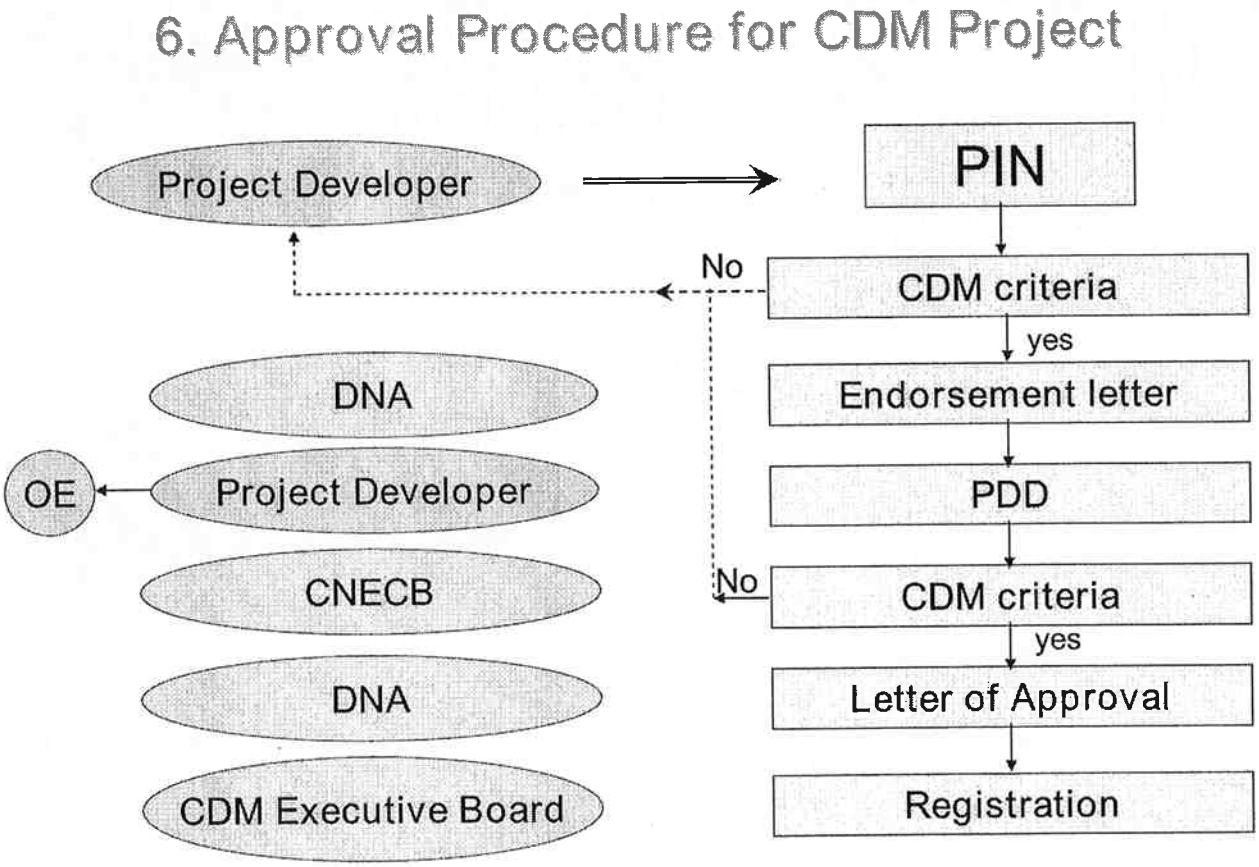
- MONRE (one chairperson, one permanent representative and one secretary)
- Ministry of Foreign Affairs (MOFA)
- Ministry of Finance (MOF)
- Ministry of Planning and Investment (MPI)
- Ministry of Trade (MOT)
- Ministry of Science and Technology (MOST)
- Ministry of Agriculture and Rural Development (MARD)
- Ministry of Industry (MOI)
- Ministry of Education and Training (MOET)
- Viet Nam Union of Science and Technology Associations (VUSTA)

A. Background Information (cont.)

4.3 Functions and tasks

- Providing consultation to MONRE on policies related to development, implementation, management of CDM activities in the country.
- Providing consultation on guidance and assessment for CDM projects in Viet Nam under the Kyoto Protocol and UNFCCC.


5. CDM institutional structure
MONRE
Report
CNECB (Chairman: MONRE)
•MONRE (3 members
•MOT
•MOST
•MOFA
•MOF
•MPI
•MARD
•MOI
•MOET
•VUSTA
Report
DNA: ICD, MONRE
National Expert Groups (CD4CDM project)
Task 1: Public information for rasing CDM awareness
Task 2: Capacity Development on CDM for policy makers
Task 3: Establishment and capacity development for CNA
Task 4: Capacity development for stakeholders relevant to CDM projects
Task 5: Capacity building on CDM research and education
Task 6: Creating a pipeline of CDM eligible projects
Consultation


6. Approval Procedure for CDM Project
Project Developer
PIN
No
CDM criteria
yes
DNA
Endorsement letter
OE
Project Developer
PDD
CNECB
No
CDM criteria
yes
DNA
Letter of Approval
CDM Executive Board
Registration

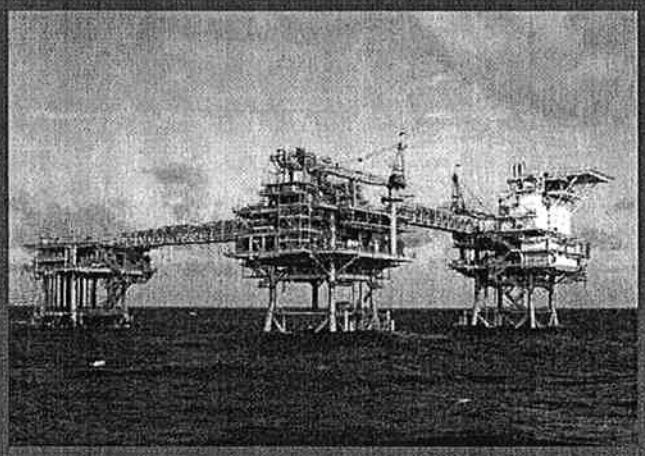
A. Background Information (cont.)

7. Potential sub-sectors for development and implementation of CDM projects in Viet Nam

- Energy efficiency, conservation and saving
- Fuel switching
- Methane (CH4) recovery and utilization from waste disposal sites and coal mining
- Application of renewable energy sources
- Associated gas recovery and utilization by oil production activities
- Afforestation and reforestation

B. Potential CDM projects in Viet Nam

1. Rang Dong Oil Field Associated Gas Recovery and Utilization Project in Ba Ria - Vung Tau Province (located about 140km off the south-eastern coast of Viet Nam):



B. Potential CDM projects in Viet Nam (cont.)

- Project participants:
  - ✓ Vietnam Oil and Gas Corporation PETROVIETNAM: the Vietnamese State Oil and Gas Company
  - ✓ Japan Viet Nam Petroleum Co., Ltd: a company established and existing under the laws of Japan
  - ✓ PETROVIETNAM Exploration and Production Company: a wholly owned subsidiary of PETROVIETNAM.
  - ✓ CONOCOPHILLIPS GAMA Ltd.: a company incorporated under the laws of England

B. Potential CDM projects in Viet Nam (cont.)

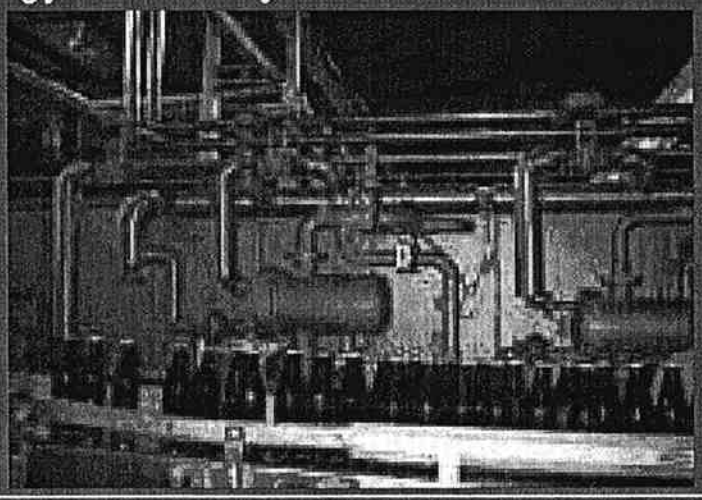
- Purpose: the recovery and utilization of gases produced as a by-product of oil production activities. This by-product gas was disposed at the platform via a combustion process emitting largely CO_2
- Activities: construction of a gas pipeline and compressor facilities to recover and transport the by-product gas which is processed into dry gas (mostly methane), LPG (butane and propane) and Condensate. Such dry gas will be supplied to the nearby power plants (Phu My and Ba Ria), LPG will be consumed domestically as home cooking fuel and condensate will be used to produce gasoline
- Estimated cost of implementation: 73 million USD

B. Potential CDM projects in Viet Nam (cont.)

- Expected results:
  - ✓ Provide an additional source of clean-burning natural gas and contribute to reduction of import dependency of petroleum products.
  - ✓ Reduce price of gas provided to the power plant about half the rate obtained through other gas fields.
  - ✓ Eliminate significantly GHGs emission. 6.74 million tonnes CO_2 will be reduced over the crediting period that creates "Certified Emission Reductions (CERs) to the project participants.
- Emission reduction potential: 6.74 million tones for the credit period (10 years)
- Current status: PDD was approved by Viet Nam in May 2004. The project has been validated and considered to registration as a CDM project by international authority entities.

B. Potential CDM projects in Viet Nam (cont.)

2. The model project for renovation to increase the efficient use of energy in Brewery in Thanh Hoa, Viet Nam



B. Potential CDM projects in Viet Nam (cont.)

- Project participants:
  - ✓ HABECO: Ha Noi Alcohol Beer and Beverage Corporation
  - ✓ RIB: Research Institute of Brewing
  - ✓ BTH: Thanh Hoa Beer Joint Stock Company
  - ✓ NEDO: New energy and industrial technology development organization of Japan
  - ✓ Mayekawa MFG. Co., Ltd of Japan

B. Potential CDM projects in Viet Nam (cont.)

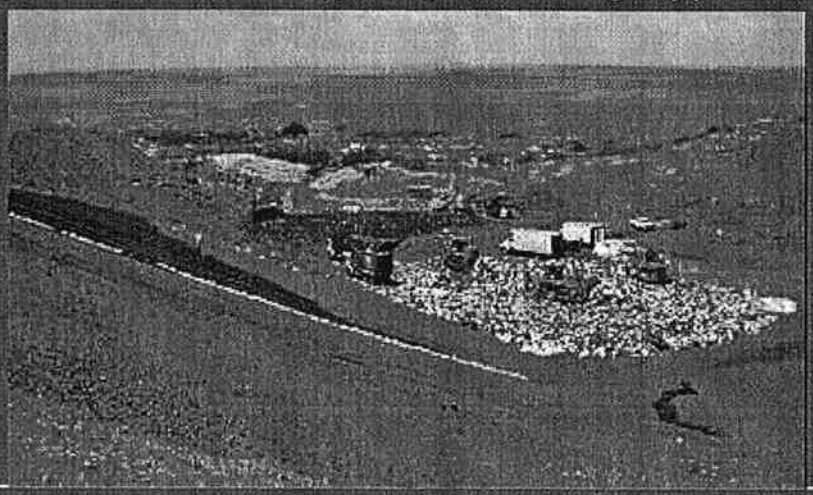
- Type of the project:
- ✓ Activities:
  - Energy demand: Improvement of energy efficiency of existing production equipment. Energy consumption of an entire brewery plant will be reduced which will, in turn, reduce emissions of GHGs (particularly CO_2) generated by combustion of fossil fuel.
  - Waste management: Recovery of CH_4 gas generated from wastewater treatment by anaerobic fermentation is used as boiler fuel. The biogas is used as an energy source.
- Project site: Thanh Hoa City, Viet Nam

B. Potential CDM projects in Viet Nam (cont.)

- Objective of the project: Overall renovation for energy conservation of a medium-sized brewery company Bia Thanh Hoa in Viet Nam. GHG emission will be reduced by improving energy efficiency in the beer production process.
- Emission reduction potential: 10,476 tons CO_2 per year.
- Estimated cost of implementation: 3.64 million USD.
- Contribution to sustainable development: Significant cost reduction for electricity, coal, oil and water in beer production process. Levelling of peak electricity demand.
- Current status: PDD was approved by Viet Nam in December 2004

B. Potential CDM projects in Viet Nam (cont.)

3. Landfill Closure and Gas Recovery and Utilisation Project in Hai Phong City (Thuong Ly)



B. Potential CDM projects in Vietnam (cont.)

- Project participants:
  - Government of Finland
  - Urban Environment Company (URENCO)
  - Hai Phong People's Committee
- Activity: The project concept involves closing a small landfill (Thuong Ly, Hai Phong City), and treating and/or recovering the landfill gases produced at the site
- Estimated total emission reduction: 64,543 tons CO_2 during the crediting period and all life time: 126,077 tons CO_2 equivalent

B. Potential CDM projects in Viet Nam (cont.)

4. Landfill Closure and Gas Recovery and Utilisation Project in Ho Chi Minh City

- Project participants:
  - Department of Natural Resources and Environment of Ho Chi Minh City
  - Grontmij Climate and Energy, Contact for the CDM project activity
  - Municipality of Ho Chi Minh City
  - Prototype Carbon Fund, WB

B. Potential CDM projects in Viet Nam (cont.)

- Activity: The project activities concern the waste management sector in Ho Chi Minh city - a new landfill site in Cu Chi and a closed landfill in Dong Thanh. The extracted landfill gas can be used to generate electricity
- Estimated total emission reduction: 3,130,300 tons CO_2 equivalent during the crediting period (10 years)

B. Potential CDM projects in Viet Nam (cont.)

5. Environmental Reforestation Project of newly allocated land in A Luoi, North Central of Viet Nam (A Luoi district, Hue City, Thua Thien Hue province)

- Project participants:
  - A Luoi District People's Committee
  - A Luoi Farmer Union
  - A Luoi State Forest Enterprise
  - Netherlands Development Organization
- Activity: Reforestation of 3,000 ha
- Estimated CO_2 reduction: 27,528 tons CO_2 per year

B. Potential CDM projects in Viet Nam (cont.)

6. Thanh Hoa Rice Husk Power Plant in Tien Giang Province (My Phuoc Tay Commune, Cai Lay District, Tien Giang Province)

- Project participants:
  - Vietnam Institute of Energy (project developer)
  - Thanh Hoa Paddy Husking Center - Company Ltd (project sponsor)
- Activity: Use for electricity generation the rice husk discharged from Thanh Hoa Paddy Husking Center - Company Ltd with capacity about 3 MW.
- Estimated CO_2 reduction: 55,612 tCO_2/year

B. Potential CDM projects in Viet Nam (cont.)

7. Song Con 2 hydroelectricity project (Dong Giang district, Quang Nam province)

- Project participants:
  - Song Con Joint Stock Company
  - Central Construction Corporation
  - Research Center for Energy and Environment and Asian Carbon Group (project developer)
- Activity: Hydro electricity generation

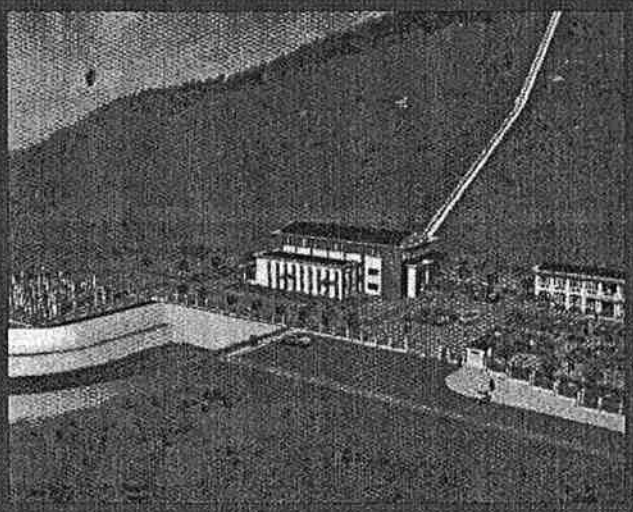
B. Potential CDM projects in Viet Nam (cont.)

8. A Sap hydroelectricity project (Hong Ha commune, A Luoi district, Thua Thien Hue province)

- Project participants:
  - Central Hydroelectricity Joint Stock Company Power Company No3
  - Research Center for Energy and Environment (project developer)
- Activity: Hydro electricity generation

B. Potential CDM projects in Viet Nam (cont.)

9. Ea Krong Hnang hydroelectricity project (Ea Kar, Ma Drak, Song Hinh district, Phu Yen province)



- Project participants:
  - Song Ba Power Development and Investment Company
  - Research Center for Energy and Environment (project developer)
- Activity: Hydro electricity generation

B. Potential CDM projects in Viet Nam (cont.)

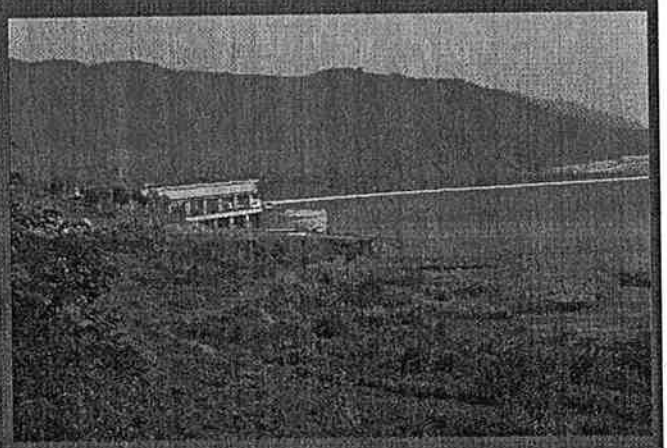
10. Cha Nay hydroelectricity project (Hoa Bac commune, Hoa Vang district, Da Nang city)

- Project participants:
  - Power Engineering and Consulting Company No3
  - Research Center for Energy and Environment and Asian Carbon Group (project developer)
- Activity: Hydro electricity generation

B. Potential CDM projects in Viet Nam (cont.)

11. Thuong Nhat hydroelectricity project (Thuong Nhat commune, Nam Dong district, Thua Thien Hue province)

- Project participants:
  - Power Engineering and Consulting Company No3
  - Research Center for Energy and Environment and Asian Carbon Group (project developer)
- Activity: Hydro electricity generation



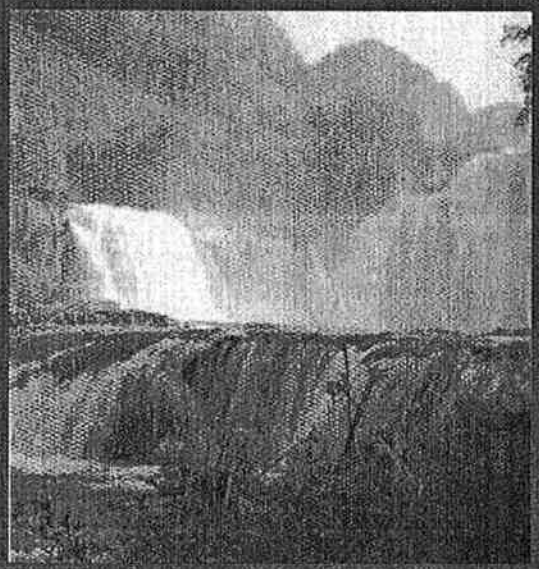
B. Potential CDM projects in Viet Nam (cont.)

12. Bo River Hydroelectricity Project (Hong Hanh commune, A Luoi district, Thua Thien Hue province)

- Project participants:
  - Power Engineering Consulting Company No.3
  - Electricity of Viet Nam
  - New Energy Foundation and Electric Power Development Company Ltd
  - Research Center for Energy and Environment
- Activity: Hydro electricity generation
- Estimated CO_2 reduction: 17,461 tons CO_2 per year

B. Potential CDM projects in Viet Nam (cont.)

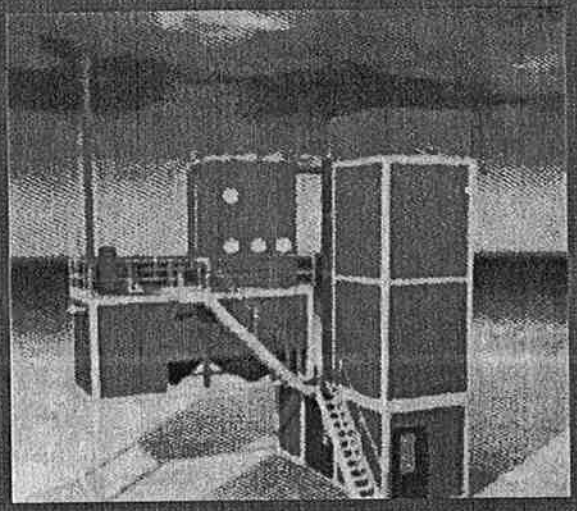
13. Dak Pone hydroelectricity project (Mang Canh commune, Kon Plong district, Kon Tum province)



- Project participants:
  - Power Company No3
  - Research Center for Energy and Environment (project developer)
- Activity: Hydro electricity generation

B. Potential CDM projects in Viet Nam (cont.)

14. Rice husk for power generation in Long An industrial park (Long An industrial park, Tan An town, Long An province)



- Project participants:
  - Peako Vinh Loi Company (sponsor)
  - Research Center for Energy and Environment (project developer)
- Activity: Rice husk fired power plant

B. Potential CDM projects in Viet Nam (cont.)

15. Biogas Project Phase II (50 provinces of Viet Nam)

- Project participants:
  - Department of Agriculture, Ministry of Agriculture and Rural Development of Viet Nam
  - Netherlands Development Organization in Viet Nam
- Activity: Construction of 150,000 domestic biogas plants over a period of 5 years in 50 provinces of Viet Nam
- Estimated CO_2 reduction: 7.5 million tons CO_2 equivalent during all lifetime

B. Potential CDM projects in Viet Nam (cont.)

16. Wind power of industrial scale, Phuong Mai site, Binh Dinh province, Viet Nam

- Project participants:
  - Phuong Mai Wind Power Joint - Stock Company (sponsor)
  - Research Center for Energy and Environment and Asian Carbon Group (project developer)
- Activity: Wind electricity generation

B. Potential CDM projects in Viet Nam (cont.)

17. Thu Duc Power Plant Unit 3-Fuel Switch Model Project (Thu Duc district, Ho Chi Minh city)

- Project participants:
  - Electricity of Viet Nam (EVN)
  - New Energy and Industrial Technology Development Organization of Japan (NEDO)
- Activity: Switching fuel from heavy-oil-fired Unit 3 boiler (66MW) to a natural-gas-fired
- Estimated CO_2 emission reduction: 58,000 tons CO_2 per year

B. Potential CDM projects in Viet Nam (cont.)

18. Wind + Diesel Hybrid electricity supply system Project in Phu Quy Island (Binh Duong province)

- Project participants:
  - Research Centre for Energy and Environment (Ho Chi Minh City Branch)
  - Electricity of Viet Nam (Electricity Company No.2)
- Activity: Establishment of a wind-diesel hybrid electricity supply system composed of two components: 6.6 MW diesel and 6.6 MW wind power that can supply the Island with economically and environmentally friendly electricity for its socio-economic development goals
- Estimated CO_2 emission reduction: 106,371 tons CO_2 during the crediting period (10 years)

C. Conclusions

- This list of potential CDM projects is open and not restrictive. This aim is to continue to complete as many new potential CDM projects as are identified
- Existing laws and regulations are being reviewed
- Appropriate legal framework for CDM activities are being developed including ownership of CERs, tax and financial investment issues etc. The Prime Minister's instructions to implement Kyoto Protocol in Viet Nam is being formulated and issued in next period

C. Conclusions (cont.)

- National CDM fund for CDM activities in the country needs to be established
- MoU will be developed and signed with potential buyers of CERs
- CDM issues will be integrated into national and local socio – economic development strategies and plans
- Viet Nam facilitates participation of foreign investors and welcomes them to Viet Nam

Thank you very much for your attention

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Unilateral CDM Project

Project developer's perspective
&
Financial Structuring

Chintan Shah
Senergy Global Pvt. Ltd.

SenergyGlobal

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Senergy Global Pvt. Ltd.

- Only Indian entity into transactions involving
  - o Carbon credits
  - o RE based electricity
- Entering into ERPAs (Emission Reduction Purchase Agreements) with plausible sellers
- Does hand holding as a part of its services till registration of the project
- Has networking & linkages in EU & Japan

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CDM : Changing perceptions

- CDM : Hangover of GEF & AIJ
- AIJ a precursor of CDM
- Early perceptions (pre-Marrakech) about CDM
  - Entities from Annex I country would put up project in non-Annex country, that may/would involve
    - Technology transfer
    - Equity investments
    - Bilateral & multilateral partnerships
- Unilateral projects cannot be registered

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What is the reality ?

- Rules for CDM are in place
  - Having no correlation with the erstwhile notions
- DNA of various countries
  - Majorly checks with the sustainable development portion of the project
  - At times gets into the methodology of developing the baseline
  - Being a private sector initiative does not make it mandatory to declare the final buyer
- AOEs
  - Checks with the validity of the data/declaration that proves additionality
  - Checks the baseline methodology
- Technically speaking, and after certain clarifications made by UNFCCC, unilateral CDM project can be registered with the EB.

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Emergence of unilateral projects

- In most of the CO2 abatement projects
  - o CDM revenue is small
  - o Risks associated with development CDM projects has reduced,
    - ∞Approved methodologies
    - ∞Case-laws of various projects
    - ∞Various capacity building activities
  - o Investors would like to wait and watch for selling the CERs, thereby maximising their profitability

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The bad part...

- Post registration....
  - o ITL not in place - earliest may be by 2007-08
  - o Country specific 'registry' in place ..
    - ∞Risky enough as inter-registry transfer cannot occur
  - o Unilateral projects can be registered, but, CERs has to be transferred to one of the "Annex I" county that has registry

Unilateral projects exist only in theory but not in practice

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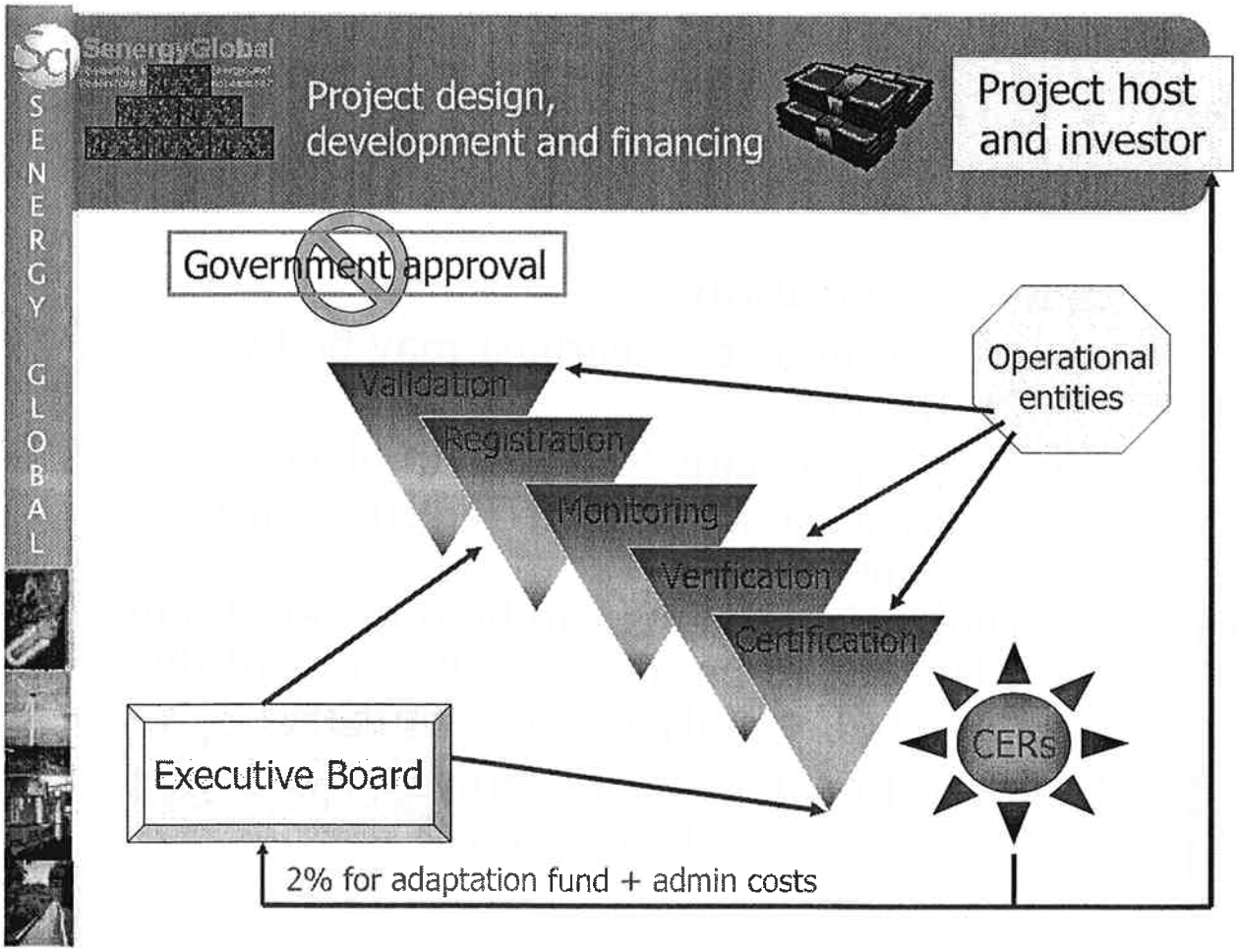
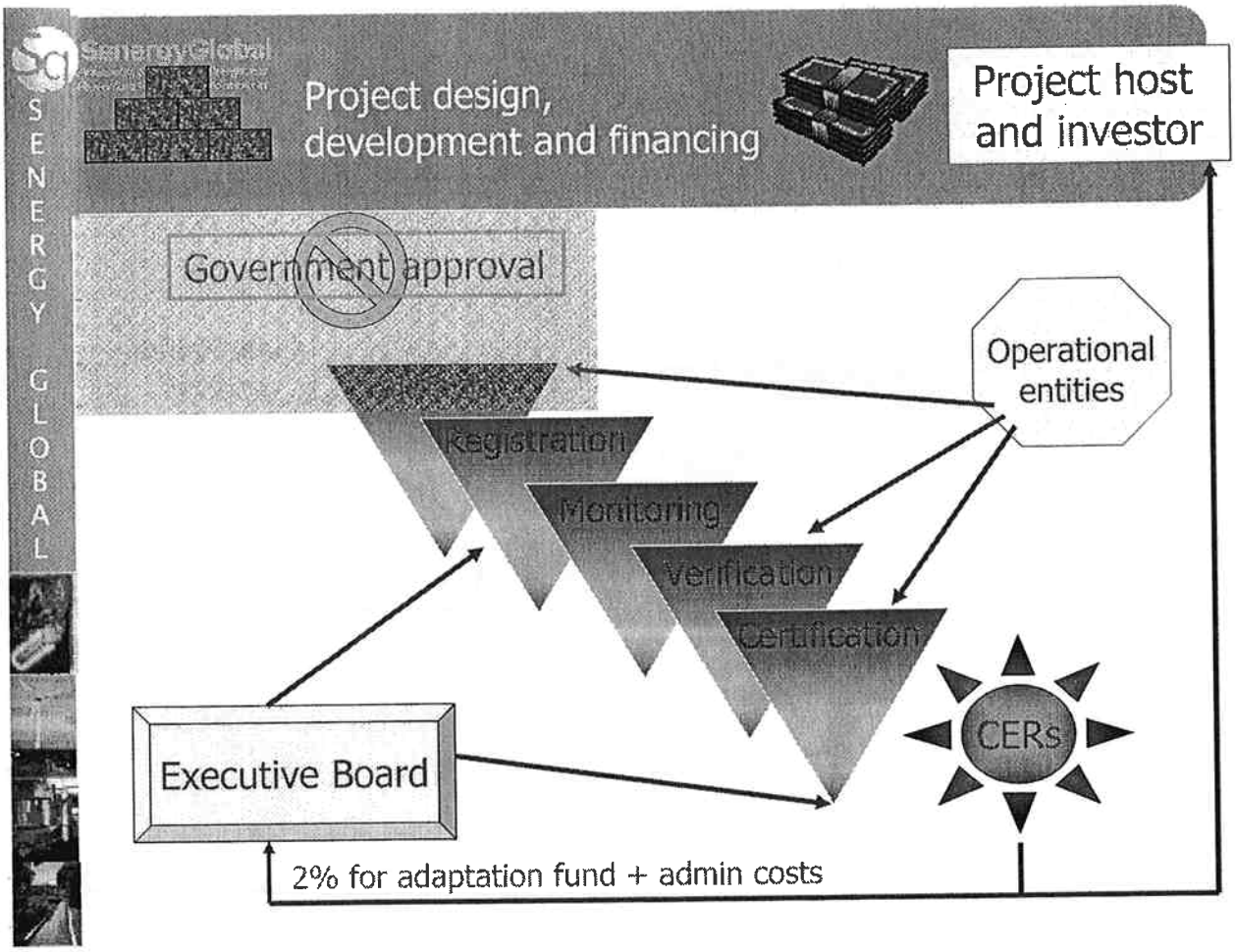
The leverage in unilateral projects

- Upfront structuring is tough for most of the projects
  - Perception of high risk in terms of DNA approval & validation report
  - The earlier structuring may be lead to lowering of price of CERs
- Most projects are likely to be unilateral till
  - DNA approval & validation
  - Lowering of risks
  - Major projects become bilateral before registration, or latest after registration but before they start generating CERs
  - Intermediaries play a vital role in such structuring

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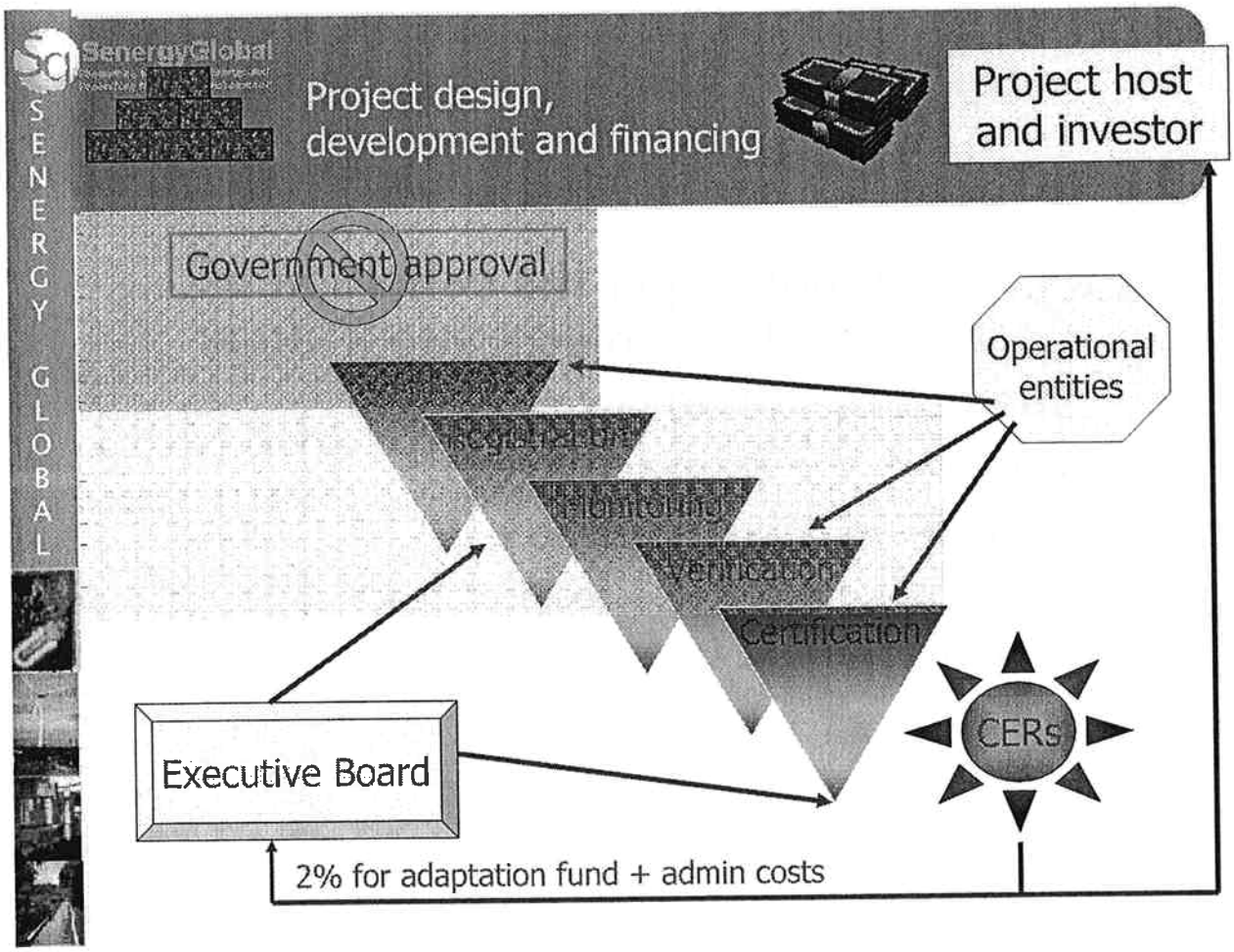
Project design, development and financing
Project host and investor
Government approval
Operational entities
Registration
Monitoring
Verification
Certification
CERs
Executive Board
2% for adaptation fund + admin costs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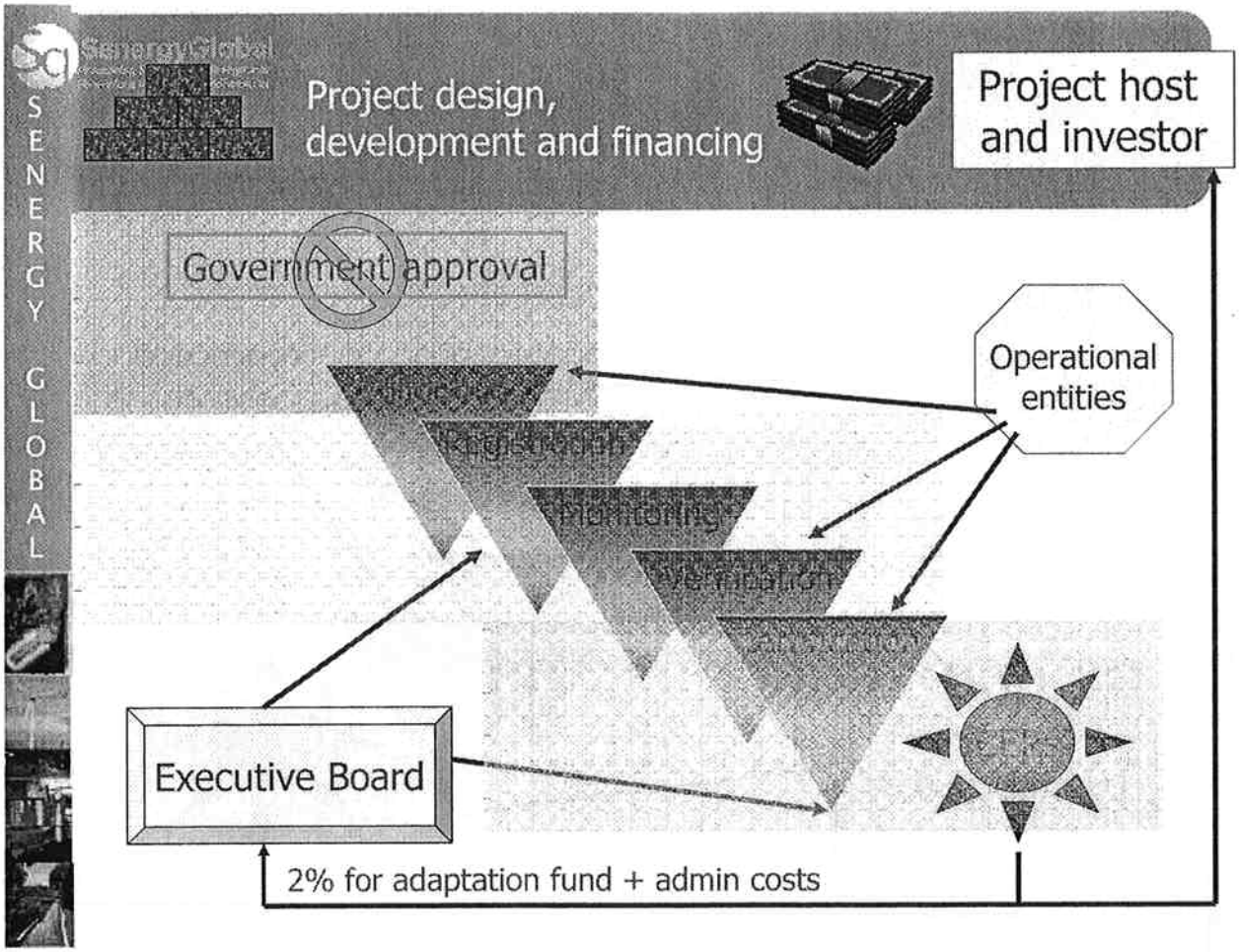
SenergyGlobal
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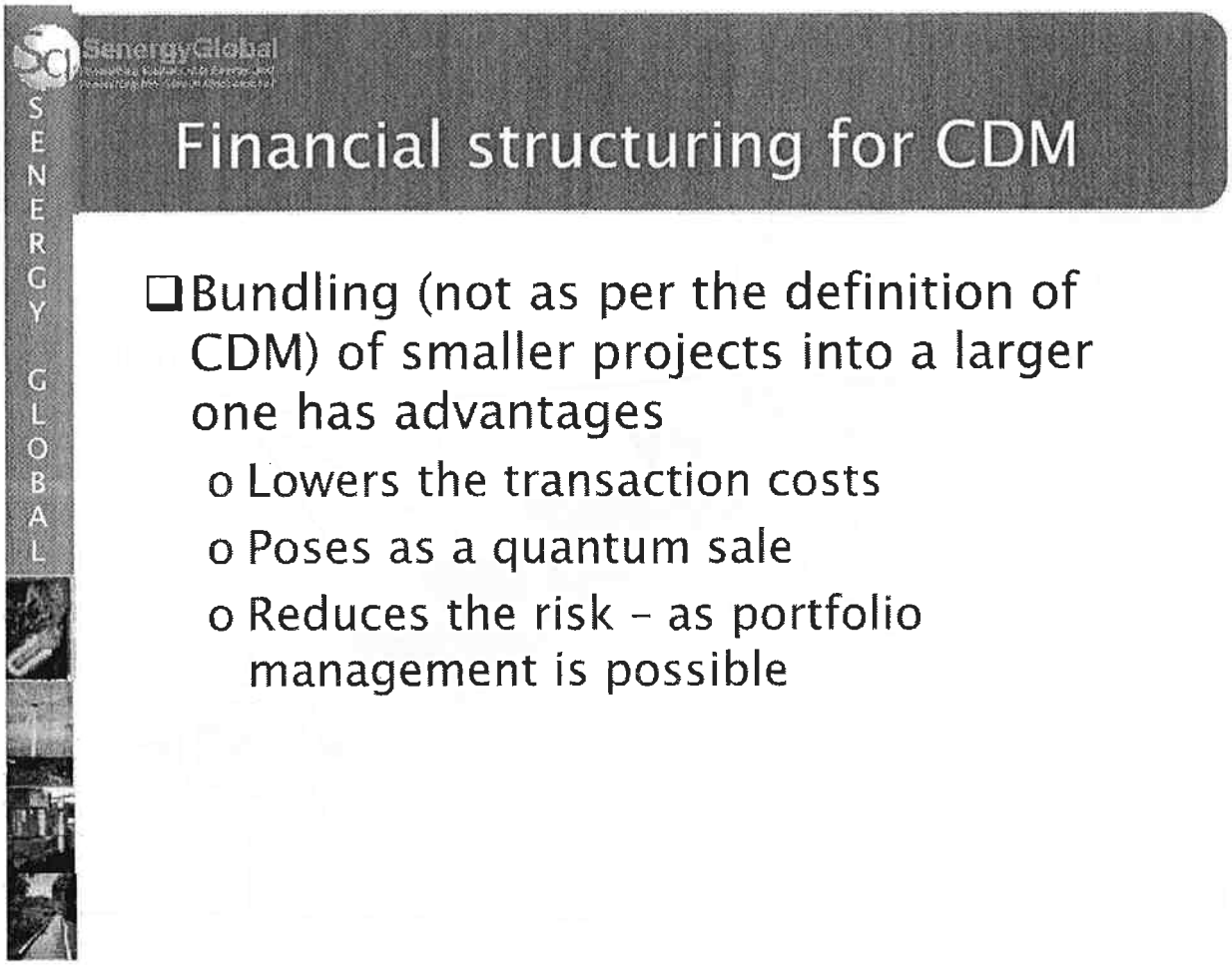
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Financial structuring for CDM
Bundling (not as per the definition of CDM) of smaller projects into a larger one has advantages
o Lowers the transaction costs
o Poses as a quantum sale
o Reduces the risk – as portfolio management is possible

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50 MW Wind Project

Case for CDM project

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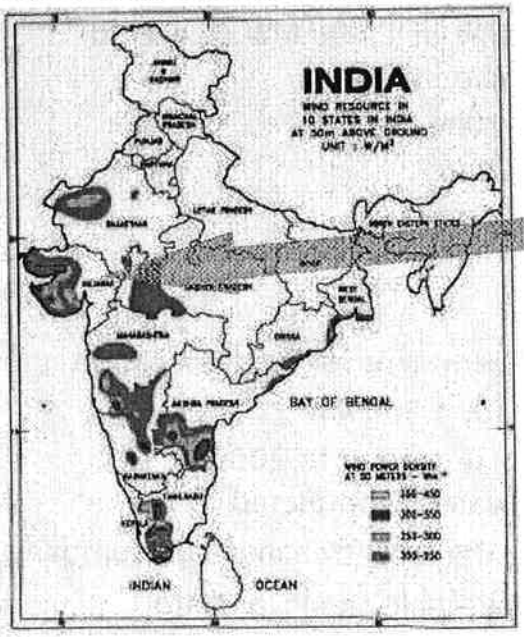
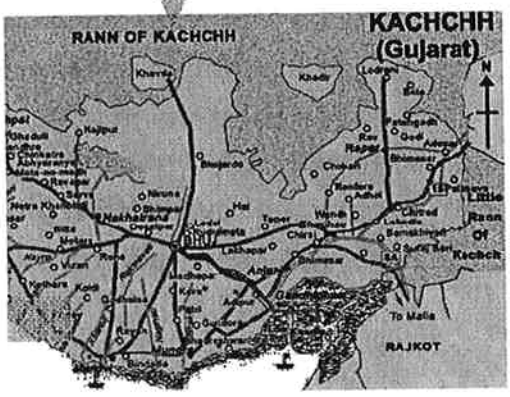
Project location & details





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About Project Promoter

- Promoted by SUZLON group
  - 7th largest wind turbine manufacturer & EPC contractor of the world
  - Installed more than 1,200 MW wind energy project in India
    - Installed more than 450 MW in current financial year (2004-05)
  - Offering wind turbine size ranging from 350 kW to 2 MW size
  - Project pipeline of more than 2,500 MW (till 2007)
- Only Indian company in the field of wind turbine manufacturing
- Market Leader in India for past 8 years
- Presence in Asia, Europe, North America
- Manufacturing facilities for wind turbine generators & rotor blades in India
- Implemented largest wind park in Asia of a capacity of 250 MW at Vankusawade in Satara (India) in a record period of 3 years

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Status of the project

- A part of the total expandable size of 1,500 MW size wind energy project (year wise expansion plan)
  - Phase I : 50 MW by March, 2006
  - Phase II : 350 MW by March, 2007
  - Phase III: 500 MW by March, 2008
  - Phase IV : 600 MW by March, 2009
- Signed a MoU with the local government for land allocation
  - Land allocation already done for 1,500 MW
- Detailed wind monitoring exercise started in 2002 at 10 different locations, and has now been completed
- Approval of evacuation plan by the local transmission company
- Has established manufacturing units in the local state

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Sustainable Development Benefits...

Natural Resource	*Savings per annum*	*Savings on a 20 year life-cycle basis*
Coal	457599 tonnes	9151980 tonnes
Water	0.7 billion gallons	14 billion gallons
Limestone	46719 tonnes	934380 tonnes

Pollutant	*Savings per annum*	*Savings on a 20 year life-cycle basis*
Sulphur dioxide	3199 tonnes	63980 tonnes
Nitrogen dioxide	3264 tonnes	65280 tonnes
Carbon dioxide	1.184 million tonnes	23.68 million tonnes
SPM	160 tonnes	3200 tonnes
HC	70.4 tonnes	1408 tonnes
CO	230.4 tonnes	4600 tonnes
Fly ash	40,000 tonnes	800,000 tonnes
Sludge formation	61760 tonnes	1235200 tonnes
Lead	37 tonnes	740 tonnes
Cadmium	1.28 tonnes	25.6 tonnes

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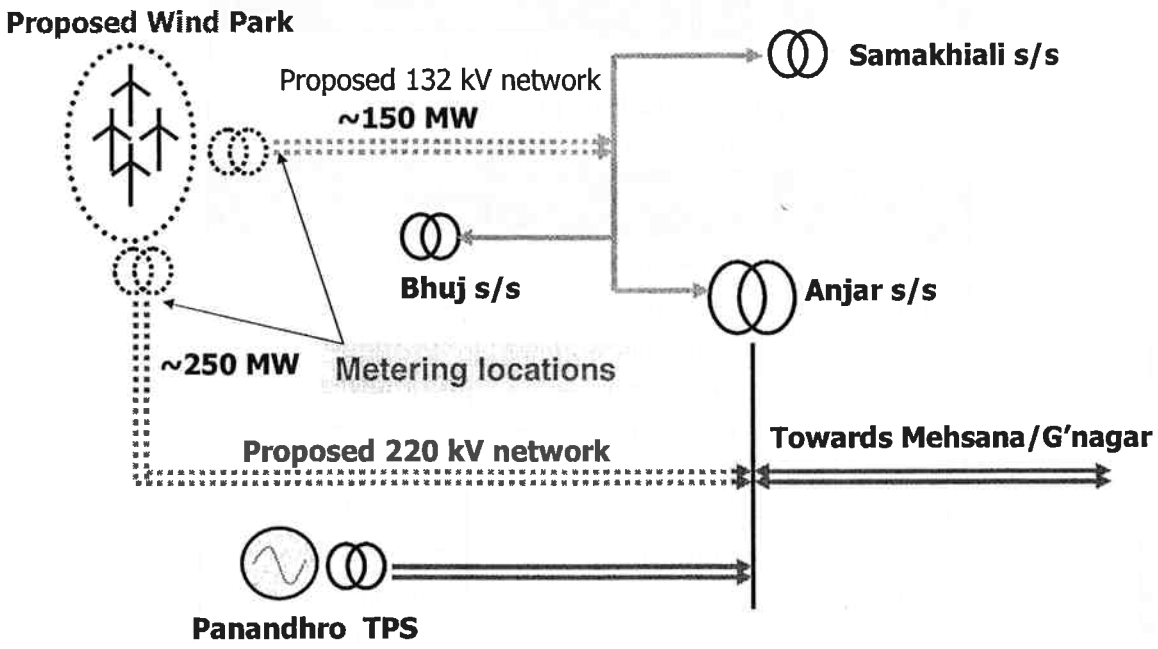
...Sustainable Development Benefits

Activity	*Employment type*	*Employment potential*
Implementation of Phase I & II	Direct/Indirect	10,000
During operation of the Phase I & II	Direct	800-1000
Manufacturing facility	Direct	200

Proposed Grid Interphase for Phase I & II



Project term sheet

No	Parameter	Details
1	Size of the project	50 MW
2	Estimated generation per annum	125 million units
	PLF	28%**
3	Project cost	US$ 58 Mio
4	Emission intensity of regional grid as per ACM 0002	0.93 kg CO_2/kWhe
5	Esti. CER generation per year	112,500 CERs
6	Technology features	1.25 or 2 MW size wind turbines
7	Tariff	6.02 US cents/kWh
8	Project IRR without CDM (in Rupee terms)	14% (20 years) 5% (10 years)

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Role of CDM & Financing instruments

- CDM revenue @ $6 dollars
  - IRR swing ~ 3%
  - RoE swing ~ 6.5%
- Possible to securitise the CERs stream
  - Promoter's financial, project management & implementation track record is very good
  - Securitised CER value can be converted into equity or preference equity ~ 5% of the project cost
- International funds (equity) available interested in a lower but risk free rate of return ~ 20% of project cost
- Promoter would invest to give comfort to different stakeholders

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Case – Study
50 MW wind energy project

Session III

Donor's perspectives on Financing CDM

ADB's Initiatives and Perspectives on Carbon Financing

Workshop on Financing Modalities of the CDM
27-28 June 2005
Jakarta, Indonesia

Toru Kubo
CDM Specialist
Finance and Infrastructure Division
Regional and Sustainable Development Department
ASIAN DEVELOPMENT BANK

ADB

Outline of Presentation

1. ADB in Brief
2. Past and On-going Climate Change Mitigation Initiatives
3. CDM Facility at ADB
4. Perspectives on Financing CDM

ADB

What is ADB?

ADB

ADB Headquarters: Manila, Philippines

ADB

ADB Basics

The Asian Development Bank (ADB):

- is a multilateral development finance institution established in 1966
- Provides lending and technical assistance
- has 63 members – 45 of which are from Asia and Pacific region
- Japan and the United States are the largest shareholders
- 2004 lending: US$ 5.3 billion (~14% energy sector)

ADB's mission aims to help its developing member countries (DMCs) reduce poverty

ADB's strategic agenda:

- focuses on pro-poor sustainable economic growth, inclusive social development, and governance for effective policies and institutions.

ADB

Past and On-going Climate Change Mitigation Activities

ADB

Climate Change Initiatives

- Over 50 Loans and TAs in the last 10 years (1994-2004) in over 15 DMCs, in areas covering Renewable Energy, Energy Efficiency and other GHG Reduction Measures and Technologies.
- REACH (Renewable Energy, Energy Efficiency and Climate Change) Program- Technical Assistance Program (started 2001) using four trust funds:
  - Netherlands Cooperation Fund for Promotion of Renewable Energy, Energy Efficiency and Greenhouse Gas Abatement (PREGA) ($6.0 million)
  - Canadian Cooperation Fund for Climate Change (Can $5 million)
  - Danish Cooperation Fund for Renewable Energy and Energy Efficiency in Rural Areas (DKK 30 million)
  - Finnish Technical Assistance Grant Fund (€1.9 million) (start 2005)

ADB

Program Achievements

- PREGA
  - Country Studies (focusing on experience with REGA technologies and policies) prepared for several countries
  - National Technical Experts trained in conducting pre-feasibility studies
  - Over 25 pre-feasibility studies covering various REGA technologies
- Canadian Cooperation Fund
  - Guidelines and action plans developed for small-scale CDM activities
  - Major CDM Capacity Building Study completed in China
  - Other multiple projects and TAs
- Danish Cooperation Fund
  - Multiple studies approved to promote renewable energy in rural areas and small towns

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Canadian Cooperation Fund - Projects

- China: "Opportunities for the Clean Development Mechanism in the Energy Sector"
  - Conducted 19 training and capacity building workshops at the national, provincial and local level
  - Developed detailed Handbook to guide project developers
  - Drafted Project Design Documents (PDDs) for 7 Small-scale CDM projects
  - Recommended an Institutional Framework for promoting and financing Small-scale CDM projects including a China Carbon Investment Facility
- Indonesia: Carbon Sequestration and Biomass Energy Pilot Projects
- India: Capacity Building for CDM (focus on financial sector capacity building)

ADB

Danish Cooperation Fund - Projects

- Mongolia: Renewable Energy Development in Small Towns and Rural Areas
- Indonesia: Power Welfare Scheme
- Afghanistan: Renewable Energy Development for Poverty Reduction
- Pacific Islands: Promotion of Renewable Energy and Energy Efficiency in the Pacific (REEP)
- Uzbekistan: Off-Grid Renewable Energy Development
- Philippines: Rehabilitation of Renewable Energy projects for Rural Electrification and Livelihood Development (Pilot Project in Southern Tagalog Region)

ADB

Underlying Finance for CDM Projects: Coalmine Methane Demonstration Project

- Capture of CMM from coal mining operation in Shanxi province, PRC
- Using CMM as a fuel in a 120 MW generation plant (combined cycle)
- Reduces methane release and displaces coal-fired power generation (baseline)
- ADB Loan Approved in 2004: $125 million
- Total project cost: $205 million
- ---
- Total volume of ERs expected (10 yrs): 29 million tCO_2e
- Contract ER volume: 3 million tCO_2e
- Contract value: US$12.75 million
- Contract price: US$4.25/$tCO_2e$ VER basis
- If all ERs sold at $4.25/$tCO_2e$ = US$120 million

ADB

Underlying Finance for CDM Projects: Gansu Clean Energy Development Project

- 98 MW run-of-river type hydro project (Xiaogushan Hydro) in Gansu Province, PRC
- Displaces (BAU alternative) 109 MW coal-fired power generation (baseline)
- ADB Loan approved in 2003: $35 million
- Total Project Cost: $87 million
- ---
- Total volume of ERs expected (10 year): 3.7 million tCO_2
- Also avoids annual emissions of 240 tons of particulate matter and 1,910 tons of SO2
- Contracted ER volume: 2 million tCO_2
- Total Contract value: US$8.50 million
- Contract price: US$4.25/$tCO_2$ VER basis

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ADB's CDM Facility

ADB

CDM in ADB: A Natural Extension

- Capacity building in the area of renewable energy, energy efficiency and climate change since late 1990s
- ADB Energy and Environmental Policies recognize the importance of focusing on projects with lowered environmental impacts
- Global Environmental Facility (GEF) access
- Many ADB Country Strategies acknowledge CDM potential and benefits
- CDM Facility established in 2003 (both internal and external facilitation objectives)

ADB

Rationale for the CDM Facility

- Significant GHG reduction potential and high quality CDM opportunities in lending portfolio
- Host country interest/request/pressure to have ADB's active involvement in CDM
- Existing multilateral and bilateral instruments focus on "procurement" over project development
- "CDM financier" and an "honest broker"
- CDM makes many marginal projects financially viable, allowing extension of loan services
- CDM-specific transaction costs can be kept low by integrating into normal due-diligence process

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Incremental CDM Analysis in ADB Project Due Diligence

General Project Analyses	Additional Analysis for Potential CDM Projects

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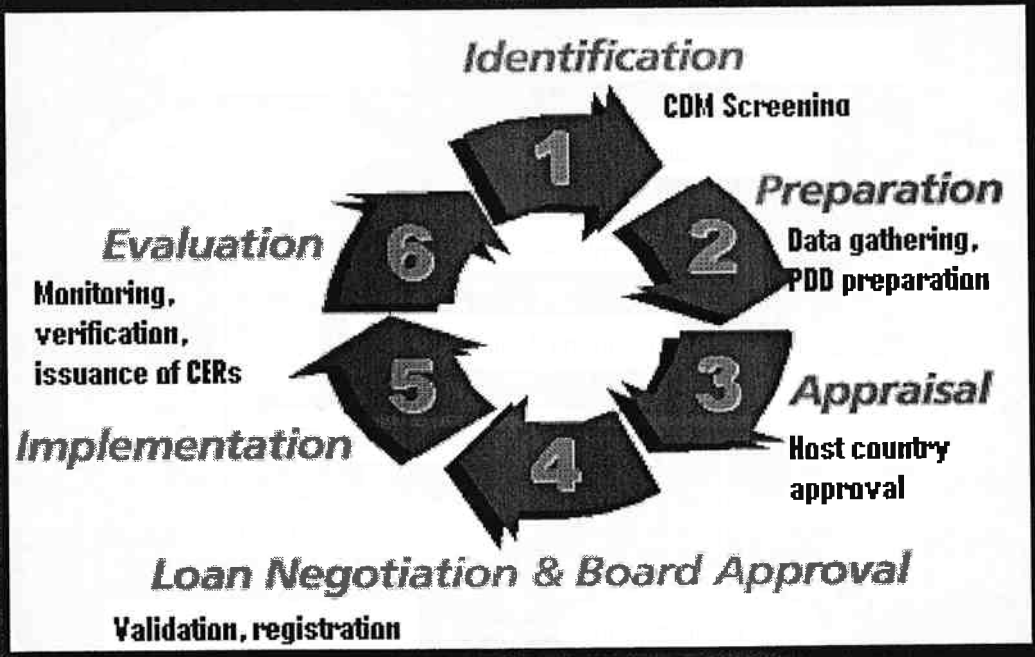
Integrating CDM into ADB Project Cycle



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ADB CDM Services & Resources

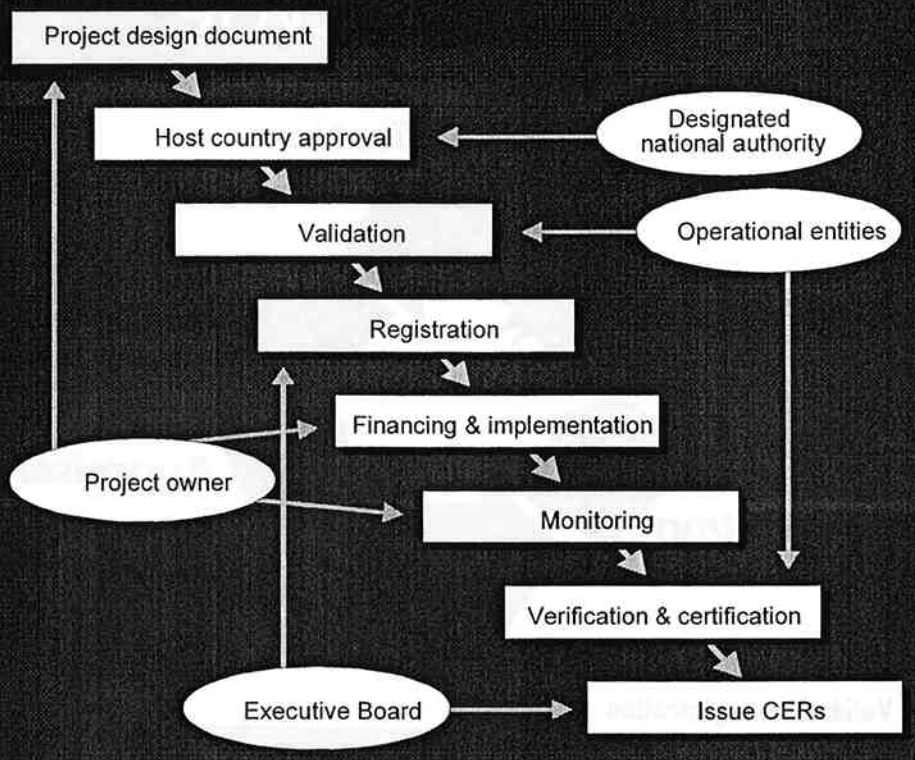
(available through the CDM Facility*)

- Screen projects for CDM potential (develop Project Idea/Concept Notes)
- Identification of potential buyers of credits
- Development of CDM documentation, including PDD and new methodologies (if required)
- Stakeholder Consultation
- Arrangement of validation/verification
- Facilitate Host Country Approval
- Assist negotiation of ERPA
- Local CDM capacity building

* Services are provided and implemented in conjunction with project/ loan cycle and under the overall supervision of the respective Regional Departments of ADB

ADB

CDM Project Cycle



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Prospective CDM Loan/TA Portfolio (2005-2006)*

Location	Project Type
China	CMM Utilization
China	Agricultural Waste Utilization
Indonesia	Geothermal and Small Hydro
Samoa	Micro Hydro
Pakistan	Rural Electrification and Renewable Energy
Indonesia	Agricultural Waste Utilization
India	Hydropower
China	Rural Electrification and Renewable Energy

*These proposed ADB projects, expected to deliver CERs in KP's first commitment period (2008-12) may be processed through the CDM Facility, in close coordination with respective ODs and with concurrence of DMC project developer.

ADB

For Project Developers

BENEFITS

- No up-front transaction costs – "risk-free"
- Assistance along every step of the CDM Cycle
- Opportunity to explore offers from multiple buyers
- Lowered transaction costs (costs capped at direct expenses, and process streamlined into existing project planning cycle)
- Targeted capacity building also provided

ACCESS

- Currently only available to projects which receive underlying finance from ADB (need to ensure quality)
- Propose public sector projects to ADB regional departments, through DMC government
- Propose private sector projects to ADB private sector window

ADB

For Carbon Buyers

BENEFITS

- Access to projects with secure underlying finance
- Access to projects with lower project risk (ADB-financed projects are compliant with stringent social/environmental regulations & guidelines, with continuous monitoring)
- Access to CERs from projects in time for the first commitment period (2008-2012)
- Lowered transaction costs
- Existing relationships with host country governments, risk of required Host Country Approval of CDM project reduced

ACCESS

- Express interest to CDM Facility, register as eligible buyer
- Submit conditions/preferences when PIN is provided through CDM Facility

ADB

Fuxin CMM/CBM Project

- Subproject under the Liaoning Environmental Improvement Project in Liaoning province, PRC
- Project will:
  - Improve extraction of CMM and pre-mining CBM
  - Install storage, compression and distribution systems to enable CMM/CBM use
  - Utilize CMM/CBM for heating, electricity generation, some flaring
- ADB Loan Approved in 2004: $15.8 million ($70 million to entire Liaoning project)

ADB

Fuxin CMM/CBM Project

- Loan fact finding initiated early 2004, CDM fact finding initiated simultaneously
- CDM support provided throughout project development cycle
- Loan approved on 25 Nov 2004; New methodology & draft PDD submitted to CDM Meth Panel early Feb 2005; Bidding process started Mar 2005
- 10-15 EOIs submitted, short-listed based on price, volume, up-front payment
- Developer makes all decisions on buyers; CDM Facility provides advice
- Total volume of ERs expected (7 yrs): 5 million tCO_2e
- Contract price: TBD – but may become one of highest to date

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Perspectives on Financing CDM

ADB

General Market

- ER prices surging
  - Kyoto Protocol coming into force
  - Clear penalties under EU-ETS for non-compliance
  - Uncertainty regarding "hot air" supply

HOWEVER

- Lack of political certainty beyond 2012
  - No market established yet for post-2012
- Difficult for financial sector to securitize ERs beyond 2012
- Long lead-time to develop and implement projects
  - Even if project identification initiated now, CERs can only be delivered from 2007 at the earliest
  - Few sectors that 3-6yrs of CERs can make significant impact on project cost/benefit
- Lack of viable projects that can deliver by 2012!

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Developers

THEREFORE

A) Develop concepts/PINs for projects with maximum ER impact (CMM, LFG, Livestock waste, Agro waste)
- If sufficient cash-flow, invest on own, sell later (for max value). Evaluate multiple buyers.
- If not, then find buyers providing up-front payment, but only for amount required for capital investment

B) Develop "bankable" SD projects with sufficient conventional return (IRR, NPV, etc)
- Look at projects that ERs can make a significant long-term impact, but does not rely on value beyond 2012 to be viable
- Build in CDM argument, and conduct basic CDM fact finding at the time of project development
- CDM EB's Additionality Tool gives much needed flexibility to project developers

ADB

Buyers

Over-supply of procurement vehicles: need to differentiate

- Time to consider equity, up-front payment, or loan backed by CER revenues
  - But only if you have credible partners with project development expertise in CDM countries
- Consider potential upside of credits beyond 2012 – great time to hedge risk before political scheme is set
  - Many developers are willing to discount significantly for post-2012 credits

(For some buyers)

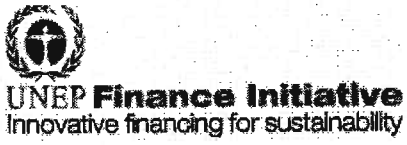
- Evaluate purchase of LULUCF credits
  - CER prices surging backed by "Linking Directive" of EU-ETS
  - EU companies can not purchase LULUCF credits – a window of opportunity for non-EU entities

ADB

Workshop on Financing Modalities of the Clean Development Mechanism
June 27&28, 2005, Jakarta

CDM: A Financier's Perspective and JBIC Operations

Toshiro Nishizawa
Japan Bank for International Cooperation (JBIC)
Chair, UNEP FI Asia Pacific Task Force Outreach Group



The Clean Development Mechanism (CDM)—an overview

- The Kyoto Protocol's Clean Development Mechanism (CDM) is a unique instrument in international climate policy.
- The CDM
  - ✓ supports the implementation of sustainable and environmentally friendly technologies in developing countries; and
  - ✓ helps industrialized countries meet their emission reduction obligations in a cost-effective way.

Certified Emission Reductions (CERs)

- CERs represents greenhouse gas (GHG) mitigation contribution of a project, measured in metric tons of carbon dioxide equivalent.
- CERs are a second product (for example, after electricity) obtained by a CDM project.
- In other words, CDM is "**a mechanism to monetize environmental value**".

Implications for the financial sector

- The financial sector is expected to play a key role in developing and promoting CDM projects.
- The global market for greenhouse gas emissions under the Kyoto Protocol could offer significant business opportunities for financial institutions.

Implications for the financial sector (continued)

- In reality, however, financial institutions' appetite for CDM projects is rather low, although the potential market for Certified Emission Reductions (CERs) exists, due to:
  - ✓ the specific risk structure of CDM projects;
  - ✓ various institutional barriers; and
  - ✓ the complexity in implementing a CDM project.

UNEP FI

- The United Nations Environment Programme Finance Initiative
- A unique global partnership between the UNEP and the financial sector
- About 180 member financial institutions worldwide
- Mission is "**to identify, promote, and realize the adoption of best environmental and sustainability practice at all levels of financial institution operations**".

UNEP FI (continued)

UNEP FI CEO briefing on
Finance for Carbon Solutions
January 2005

Available online at
http://www.unepfi.org/publications


CEObriefing

Finance for Carbon Solutions

The Clean Development Mechanism: The Financial Sector Perspective

A summary of key findings and messages follows:

CDM: the fundamentals

- Registering a project under the CDM is a long and complex process with a number of additional steps compared to conventional projects.
- In addition,
  - ✓ costs for the additional CDM procedures are more or less between $50,000 to 250,000;
  - ✓ it takes about one to three years before the registration of the project; and
  - ✓ the future of the CDM is unclear beyond 2012.

CDM: the fundamentals (continued)

Conventional projects

- Feasibility assessments
- Project structuring phase
- Implementation phase
- Operational phase

CDM projects

- Assessment of:
  - ✓ possible CER delivery
  - ✓ how to monitor emissions
  - ✓ CER market value
  - ✓ project methodology
- Drafting of project design document (PDD)
- Validation of baseline & monitoring plan
- Approval of host country
- Carbon reduction purchase agreement
- Registration of the project at the EB

CDM: a financier's perspective

- The sale of CERs can secure **an additional income stream** of the project.
- However, a CDM project entails three types of risks:
  - ✓ conventional project risks;
  - ✓ host country political risks; and
  - ✓ additional CDM process risks.
- For a financial institution, a question is **how to identify, allocate and assign those risks.**

CDM: a financier's perspective (continued)

- **Conventional project risks**—risks that are common to all the projects in developing and industrialized countries, for example:
  - ✓ cost overrun
  - ✓ market risks
  - ✓ counterparty credit risk
  - ✓ underperformance
  - ✓ currency risk
  - ✓ force majeur

CDM: a financier's perspective (continued)

- **Host country political risks**—the level of risk is higher in developing countries due to the often less developed legal and political infrastructure, for example:
  - ✓ confiscation, expropriation and nationalization
  - ✓ civil war
  - ✓ contract repudiation/frustration
  - ✓ host country sovereign risk
  - ✓ administrative barriers

CDM: a financier's perspective (continued)

- **CDM process risks**—specific to the generation and sale of CERs, for example:
  - ✓ CDM Executive Board non-approval
  - ✓ CDM risk, i.e., no CDM beyond 2012
  - ✓ monitoring/verification risk
  - ✓ institutional barriers
  - ✓ CER legal ownership

CDM: further barriers to project implementation and financing

- First, the CDM process, which is long and often perceived to be inefficient
- Second, the heavy and steadily increasing workload of the CDM Executive Board
- Third, a lack of institutional capacity both in host and buyer countries
- Fourth, a problematic issue of the project's additionality

Recommendations: how can the CDM process be improved?

- Simplify, standardize and streamline **the CDM process**
- Provide prompt and clear guidance on the CDM regulations **beyond 2012**
- Foster the development of **institutional CDM capacities** in host and investor countries
- Rethink the interpretation of **additionality**

JBIC

JBIC is an official financial institution providing policy-based financing to implement the Japanese Government's external economic policy.

International Financial Operations	Overseas Economic Cooperation Operations
Export Loans	ODA Loans
Import Loans	Private-Sector Investment Finance
Overseas Investment Loans	
Untied Loans	
Guarantees	
Equity participation	

JBIC (continued)

JBIC is a UNEP FI signatory,

and serves as Chair of the UNEP FI Asia Pacific Task Force Outreach Group since April 2005.

JBIC (continued)

JBIC's activities are guided by six priorities:

- Contributing to the stability of the international financial order
- Supporting economic and social development in developing countries
- Securing Japan's stable access to natural resources
- Supporting capital- and technology-intensive exports from Japan
- Supporting the development and expansion of Japanese industries' international operations
- **Supporting developing countries in addressing global issues**

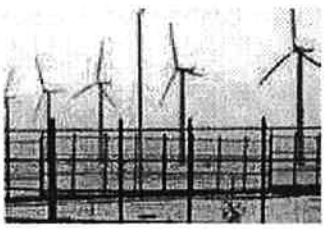
JBIC operations

JBIC supports projects to alleviate greenhouse gas (GHG) effects through various operational instruments.

JBIC operations (continued)

Renewable energy

- Export loan for geothermal power plant in Mexico, June 2000
- Guarantee for private placement bonds to finance geothermal projects in the Philippines, June 2000
- ODA loan to Zafarana wind power generation project in Egypt, December 2003



JBIC operations (continued)

Renewable energy (continued)

- ODA loan to Lahendong geothermal power plant project in Indonesia, March 2004
- ODA loan to Ulubelu geothermal power plant project in Indonesia, March 2005

JBIC operations (continued)

On top of supporting renewable energy projects,

- Investment to Prototype Carbon Fund, May 2000
- Participating in investment fund for ESCO, May 2004
- Contributing funds to Japan GHG Reduction Fund (JGRF) and establishing Japan Carbon Finance, Ltd. (JCF), December 2004

JBIC operations (continued)

On top of supporting renewable energy projects, furthermore,

- ODA loan to afforestation projects in China and India among others
- Untied loan to support a coal gasification project in Anhui Province, China, February 2005
- Untied loan to support a methane gas recovery project in Shanxi Province, China, March 2005

CDM and JBIC operations

CDM candidate projects

- Wind power generation project in Zafarana, Egypt, December 2003, supported by ODA loan
- Geothermal power plant project in Lahendong, Indonesia, March 2004, supported by ODA loan
- Geothermal power plant project in Ulubelu, Indonesia, March 2005, supported by ODA loan
- Methane gas recovery project in Shanxi Province, China, March 2005, supported by untied loan

JBIC's strength to support CDM projects

- Capacity to provide **underlying finance** to CDM candidate projects
- Accumulated **knowledge and experience** in dealing with environmental projects and the Prototype Carbon Fund (PCF)
- **A strong tie with host countries** (government, government agencies, and private sector entities) based on decades' of operational experience and the global network with 26 representative offices

JBIC's strength (continued)

- A close tie with **Japanese industries** with technological advantages
- **Partnership** with:
  - ✓ financial institutions
  - ✓ international organizations
  - ✓ other government agencies
  - ✓ local governments
  - ✓ research institutions
  - ✓ NGOs

UNEP FI Asia Pacific Task Force

The Asia Pacific Task Force was launched in January 2005 with its activities focusing on:

- setting of "sustainability" priorities for the Asia Pacific financial sector;
- **creating a critical mass of Asia Pacific signatories** that are able to exchange ideas and best practice facilitated by a UNEP FI network; and
- integrating a triple bottom line approach to the operations of the Asia Pacific financial sector.

UNEP FI Asia Pacific Task Force Outreach Group Activities

The Outreach Group

under the umbrella of the Asia Pacific Task Force

- The aim is **to lead and coordinate various cross-boundary outreach activities in the Asia Pacific region**.
- Members: 8 signatories
- Associate members: 6 UNEP FI partners
- Chair: JBIC
- Co-chair: Association of Development Financing Institutions in Asia and the Pacific (ADFIAP)

Innovative financing for sustainability

"The financial sector has a key role to play in delivering market solutions to climate change."
(2002 Study, UNEP FI Climate Change Working Group)

Thanks.

Toshiro Nishizawa
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International Finance Department I, JBIC
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Information on JBIC available online at
http://www.jbic.go.jp/english

General Outlines of Japan Carbon Finance, Ltd.

JCF

June, 2005

Your Partner for Development & Success in CDM/JI Projects

& for Contribution to Sustainable Development

Company Profile

(1) Main Business Objective:

To purchase CERs and ERUs (ERs) issued until 2012 from CDM/JI Projects

(2) Fund Pool:

Called "Japan GHG Reduction Fund (JGRF)", all amount of which JCF can utilize to purchase ERs

(3) Committed Fund Amount:

Approx. US$ 140 million

(4) Establishment:

December 1, 2004

(5) Location:

Tokyo, Japan

(6) Fund Providers:

2 Policy-lending Institutions (Governmental Banks)
& 31 Major Japanese Private Enterprises

Sector	Fund Providers	
Policy-lending Institution	Japan Bank for International Cooperation (JBIC) Development Bank of Japan (DBJ)	
Utility	Tokyo Electric Power Co., Inc. Kansai Electric Power Co., Ltd. Chubu Electric Power Co., Inc. Tohoku Electric Power Co., Inc. Hokkaido Electric Power Co., Inc. Hokuriku Electric Company The Chugoku Electric Power Co., Inc. Shikoku Electric Power Co., Inc. Kyushu Electric Co., Inc. The Okinawa Electric Power Co., Inc. Electric Power Development Co., Ltd. (J-Power) Tokyo Gas Co., Ltd.	10 Major Powers & the Largest Gas Firms

(6) Fund Providers:

Sector	Fund Providers	
Oil & Manufacturing	Nippon Oil Corp. Idemitsu Kosan Co. Ltd. Japan Energy Corp. Kyushu Oil Corp. Sony Corp. Toshiba Corp. Sharp Corp. Fuji Xerox Co., Ltd. The Japan Iron and Steel Federation Taiheiyo Cement Corp. Toyota Motor Corp. Terumo Corp.	Major Companies in Oil, IT, Steel, Cement, Automobile & Medical Equipment fields
Trading	Mitsubishi Corp. Mitsui & Co., Ltd. Sumitomo Corp. Itochu Corp. Marubeni Corp. Sojitz Corp.	6 Major Investing & Trading Companies
Engineering	JGC Corp.	

Services

(1) Assistance for Project Development:

JCF are ready to bear following costs for development of CDM/JI projects in principle with a certain ceiling amount:
(No Need to Refund in principle)

- PDD Preparation
- Validation
- Initial Verification

(2) Purchase of Carbon Credits (CERs, ERUs):

JCF commits purchase of carbon credits under ERPA (Emission Reduction Purchase Agreement) (at a fixed price).

* Payment on Delivery in principle
* Purchase Price: to be decided on project-by-project basis

(3) Upfront Payment:

Upfront Payment for carbon credits can be considered on case-by-case basis. (depending on necessity and risks etc.)

Merits for Projects

(1) Additional Cash Flow:

- Improvement of Project Viability
  with additional Cash Inflow by selling CERs in US$
- Securing of Stable Profitability
  by getting commitment for purchase of CERs
- Front-loaded Revenue in Sweep Method

(2) Assistance in Development:

- Saving of Development Costs
  (PDD, Validation, Initial Verification etc.)
- Getting of Assistance and Orientation
  for development of CDM projects

(3) Possibility of Parallel-purchase / Equity participation:

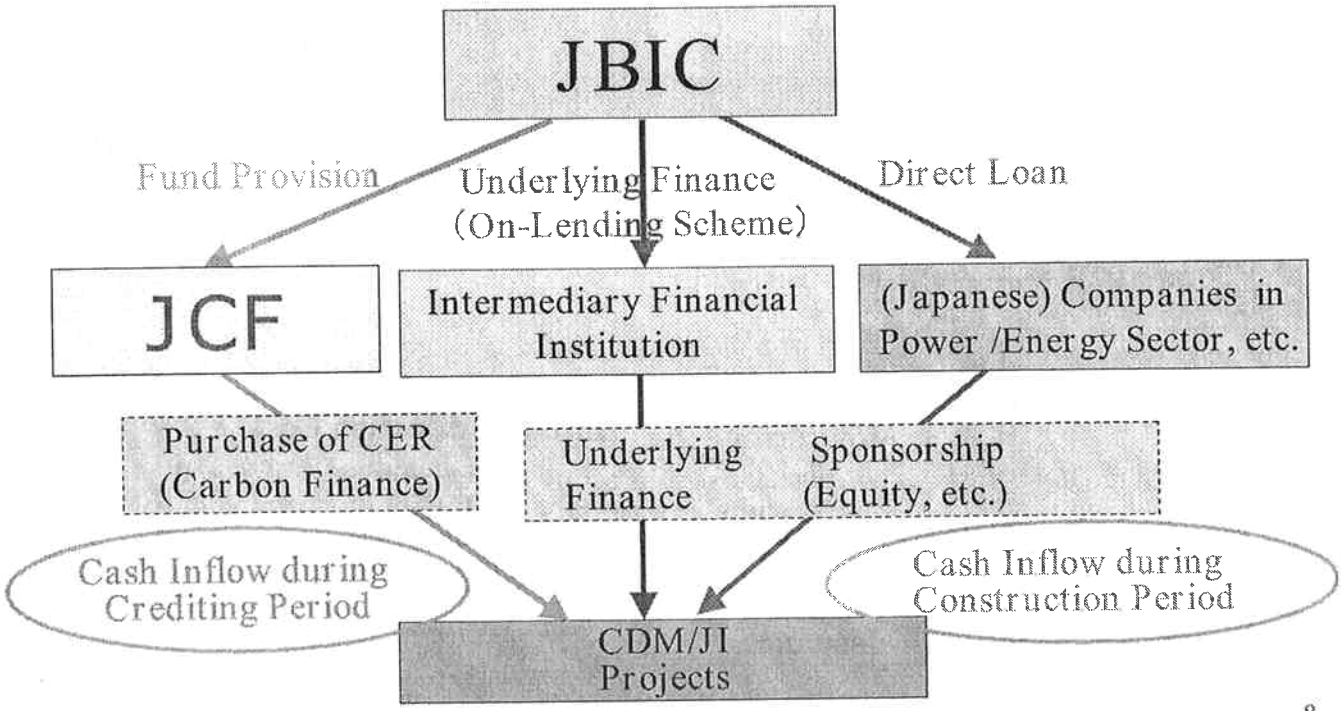
- A part or all of the remaining Carbon Credits may be purchased by our Fund Providers in collaboration with JCF.
- Participation as investors by some our Fund Providers may be possible.

Merits for Projects

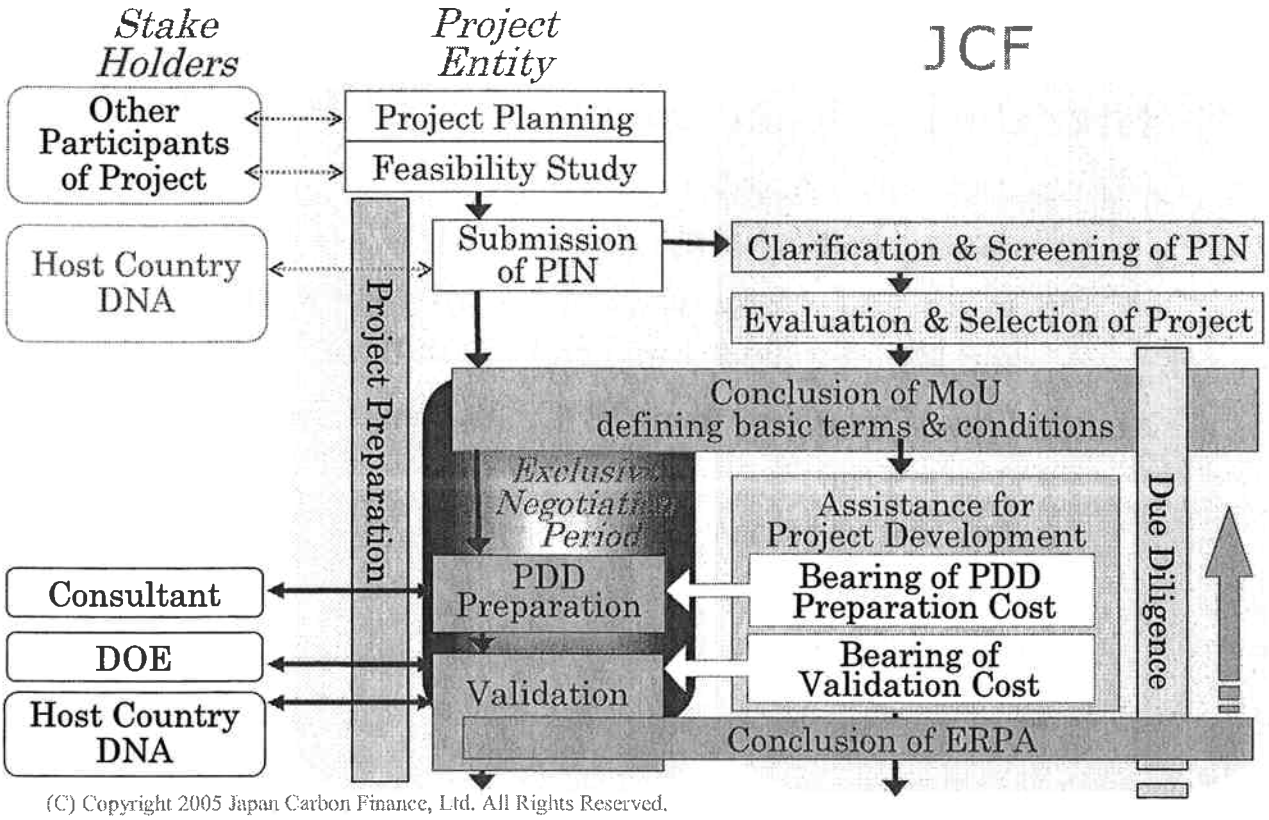
(4) Collaboration with and Support from JBIC & DBJ:

- Strong ties with Japanese Government issuing Written Approvals for CDM/JI Projects
- Cooperation and strong ties with Host Governments and Development Financial Institutions
- Underlying Financing from JBIC, such as;
  - A) Export Loan
  - B) Overseas Investment Loan
  - C) Untied Loan
  - D) ODA Loan, etc.

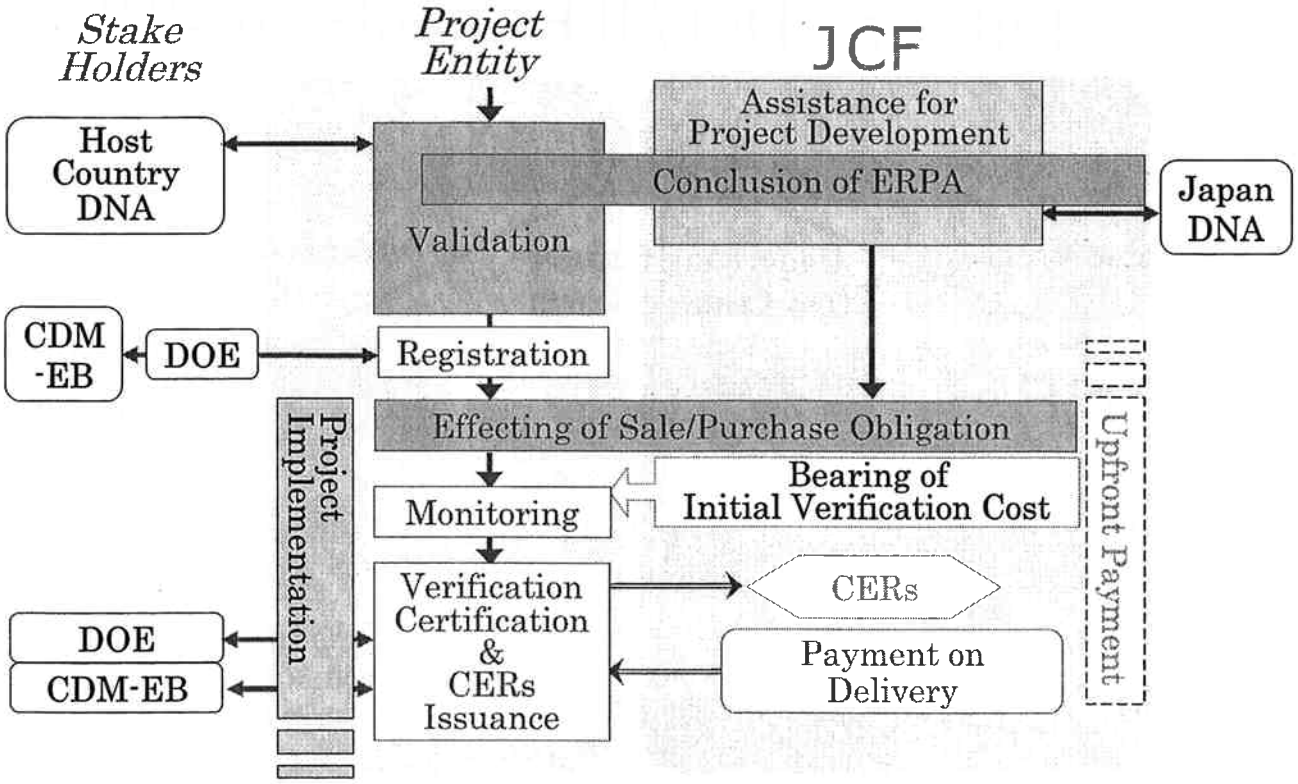
Example Model for Underlying Finance provided for CDM /JI Projects by JBIC



Operational Flowchart



Operational Flowchart



Key Criteria at Screening of PINs/PDDs

* Red: High Priority

- Project Description and Project Participants
- Fulfillment of Kyoto Rules:
  - Methodology (Baseline Study & Monitoring Plan)
  - Validation (Methodology Applicability, Data, Quality Control, etc.)
  - Possibility of Authorization & Approval by Host Country
  - Stakeholders' Comments
- Additionality
  - Investment Analysis/Barrier Analysis and Common Practice Analysis, etc.
- Environmental & Social Safeguard Requirements:
  - Compliance with Laws & Regulations, etc.

JCF Your Partner for Development & Success in CDM/JI Projects

* Red: High Priority

- Project Feasibility:
  - Construction Plan, Business Plan and Fund-raising Plan
  - Project-related Contracts
  - Concession/License & Permits
  - Creditworthiness and Competence of Project Sponsors
  - Experiences of Management and/or Project Operator
  - Commercially Viable Proven Technology
  - Financial Viability (Cash Flow Projection, Sensitivity Analysis, etc.)
- Contribution to Sustainable Development of Host Country
  - Environmental, Social & Economic Impacts, Technology Transfer Effects, etc.

* Red: High Priority

◆Purchase Conditions

- Price
- Volume

  More than 50,000t-CO2e/year is preferable.
- Delivery Schedule etc.

  Early commissioning project is preferable.

◆Portfolio Guideline

ERs to be purchased from:	approx. in USD, million
a Single Project	Up to 25
a Single Host Country	Up to 37
a Single Sector *	Up to 41

*Sector: "Sectoral Scopes" listed in UNFCCC web site which include
A) Renewable Energy, B) Waste Handling and Disposal,
C) Manufacturing Industries (Energy Efficiency, Fuel Switching, etc.),
D) Fugitive Emissions, E) Chemical Industries, F) Agriculture, etc.

For More Information, Contact

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Jakarta 12190, INDONESIA

Session IV

Commercial Banks perspectives on Financing CDM

Development Bank of the Philippines

R.A. Guarin

Mainstreaming CDM in Finance

a presentation
to the Workshop on
Financing Modalities of CDM

Objective

To Share views on:

- Operational Strategies on Mainstreaming CDM in DBP
- Funding Strategies for CDM Projects
- Integrating Carbon Revenues in CDM Project Finance Structure

Outline of Presentation

A. DBP Interest in CDM Market Opportunities and Risks

B. Strategies on

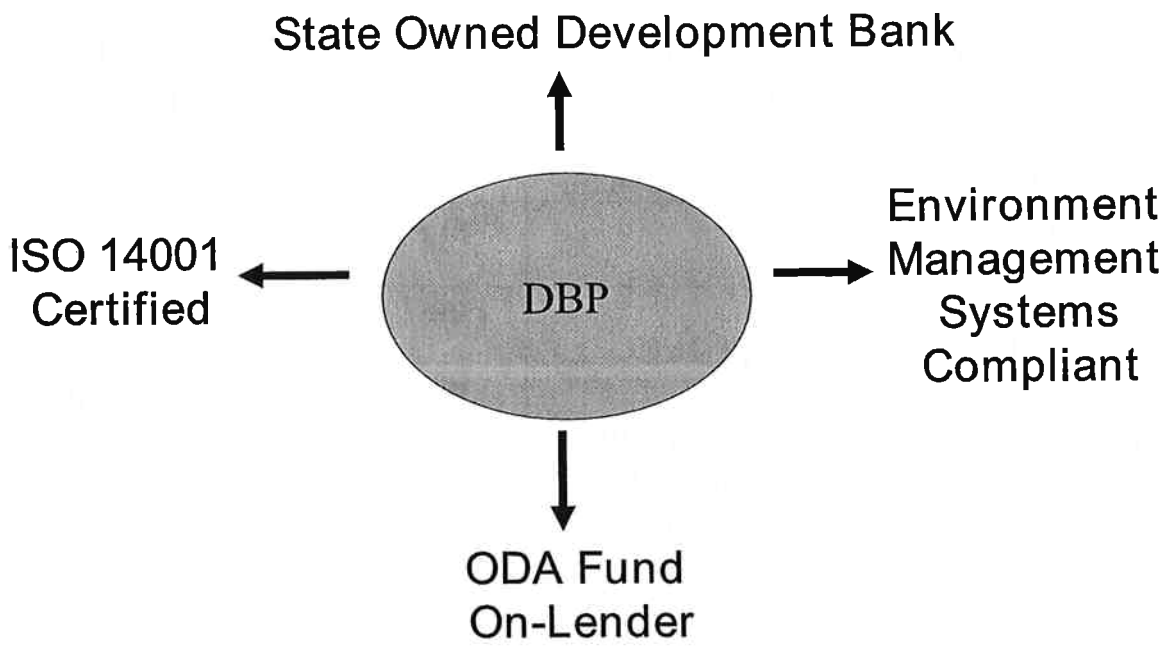
1. Optimization of Banking Operations in pursuit of CDM
2. Funding CDM Projects
3. Structuring CDM Finance

C. Lessons Learned and Recommendations

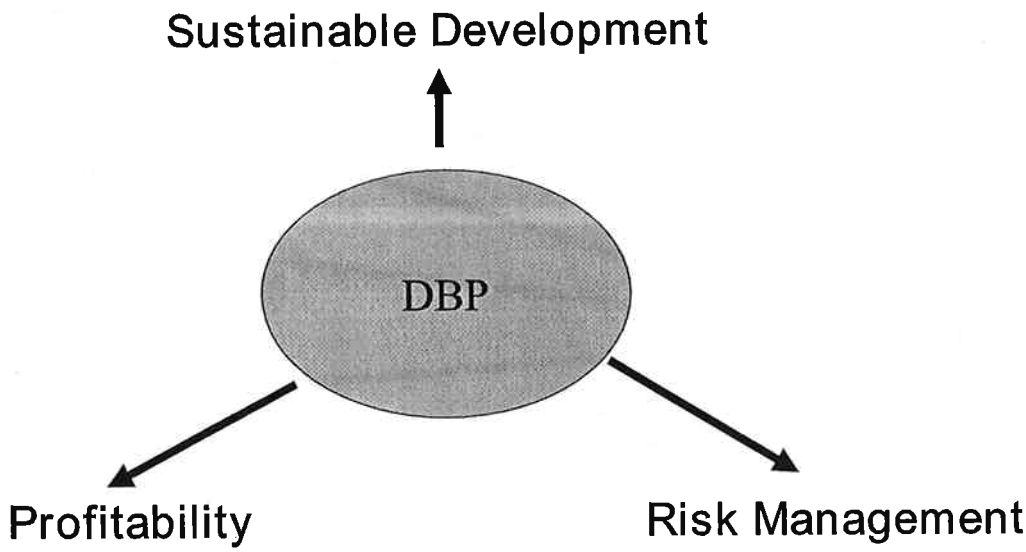
Development Bank of the Philippines

What is DBP?

Development Bank of the Philippines



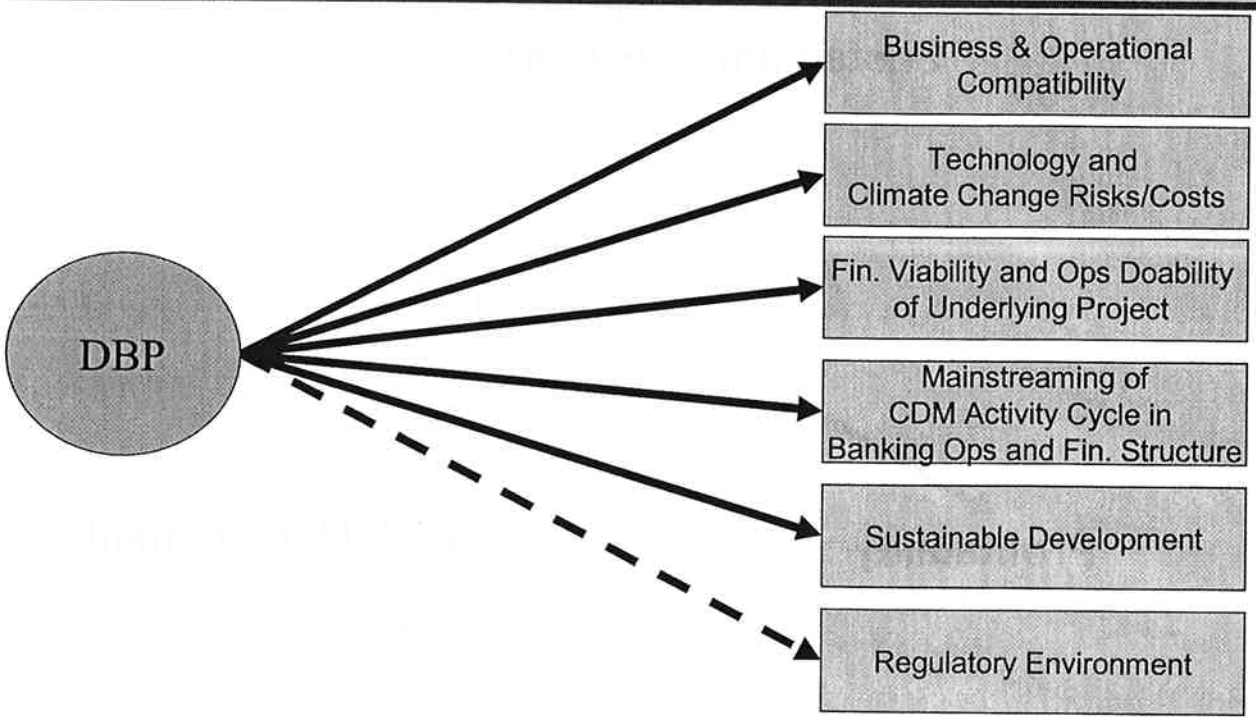
DBP Rationale for CDM Participation



DBP Identified Income Opportunities in CDM

A. BUSINESS ACTIVITY	B. INCOME TYPE
Green Capital Market Development	(fee/ trading gain/ capital gains/ CERs/ $CERs)
a. CDM project advisory services	Fee / $CERs
b. Underwriting of CDM Investment	Fee / Interest Income/$CERs
c. CDM Project Fund Management	Fee / Interest income/CERs
d. Carbon Asset Banking, Management and Trading	Fee / Capital and Trading Gains/CERs/$CERs
e. CDM Project Fund and Carbon Asset Risk Management	Fee/CERs/$CERs
f. CDM Trust Services and Climate Change Products	Fees / $CERS/FX

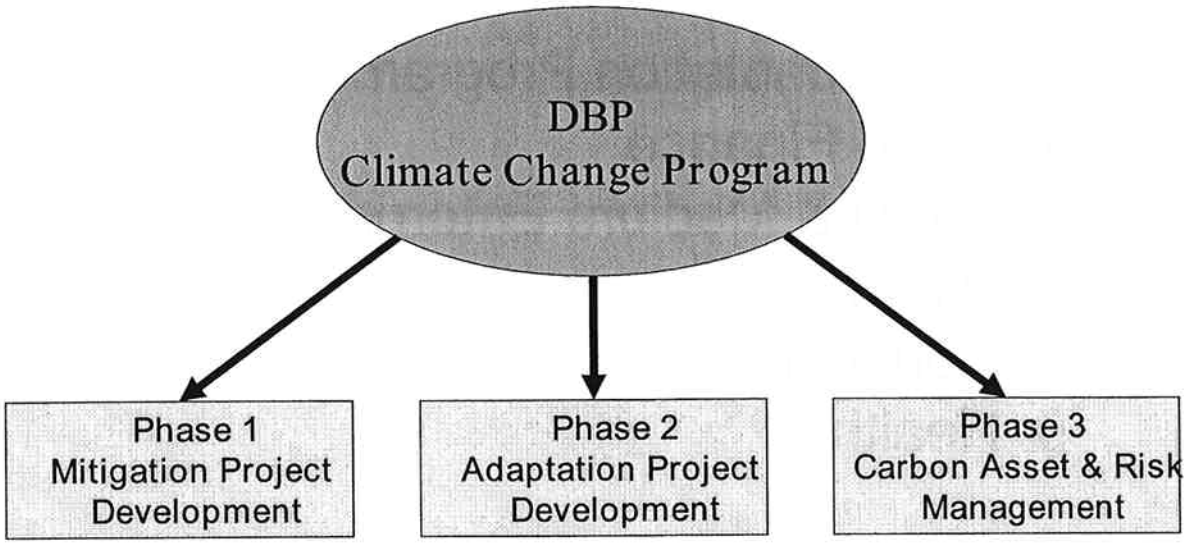
Identified Issues and Concerns of the Bank



DBP Developmental Approach on CDM

Climate Change Mitigation and Adaptation Program:
Holistic Policy Based Program Approach on CDM Project Development

Planning for the next moves



Created and Approved via Management Committee Resolution 0091 of May 16, 2003

Climate Change Program Platform Projects: Leveraging ODA for CDM projects

A. Potential Mitigation (CDM) Programs

1. Emission Reduction type
   - a. New & Renewable Energy
   - b. Rural Power Project
   - c. Efficient Lighting Initiatives
   - d. Fuel Switching
   - e. Solid Waste Mgt
2. Carbon Sequestration
   - a. Water Resources / Watershed Mgt.

Our existing programs are reoriented towards Climate Change and CDM...

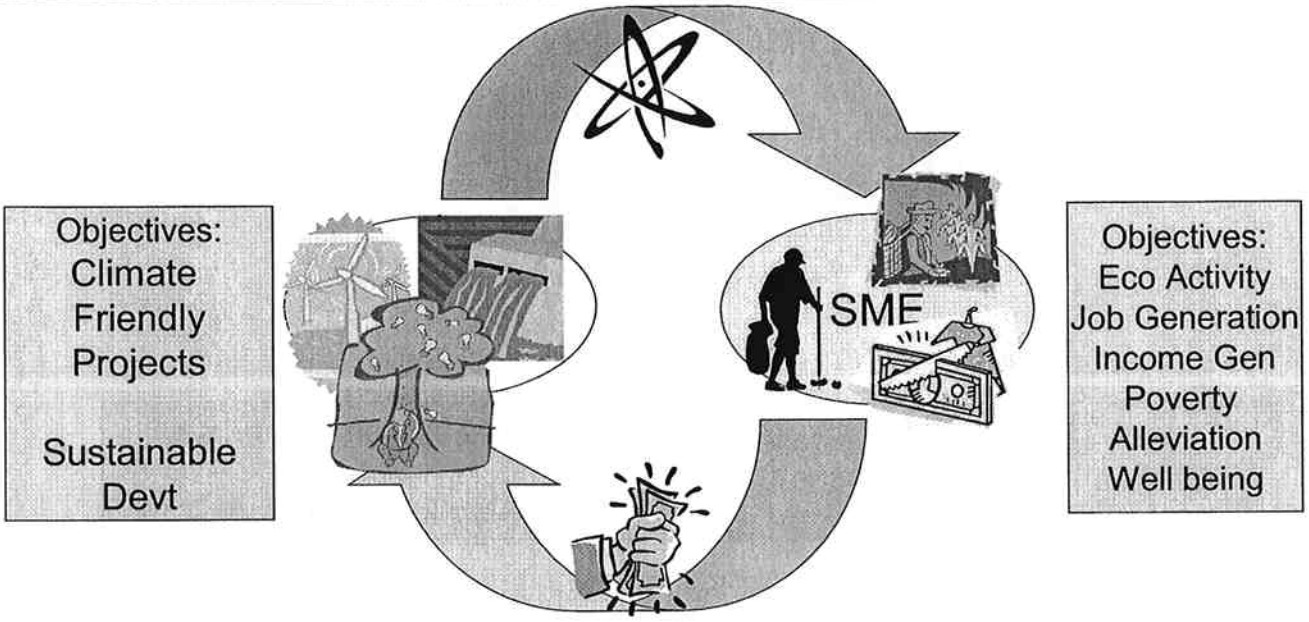
Climate Change Program Platform Projects

B. Potential Adaptation Programs

1. Micro Finance
2. Small & Medium Enterprise
3. Water
4. Housing
5. Health

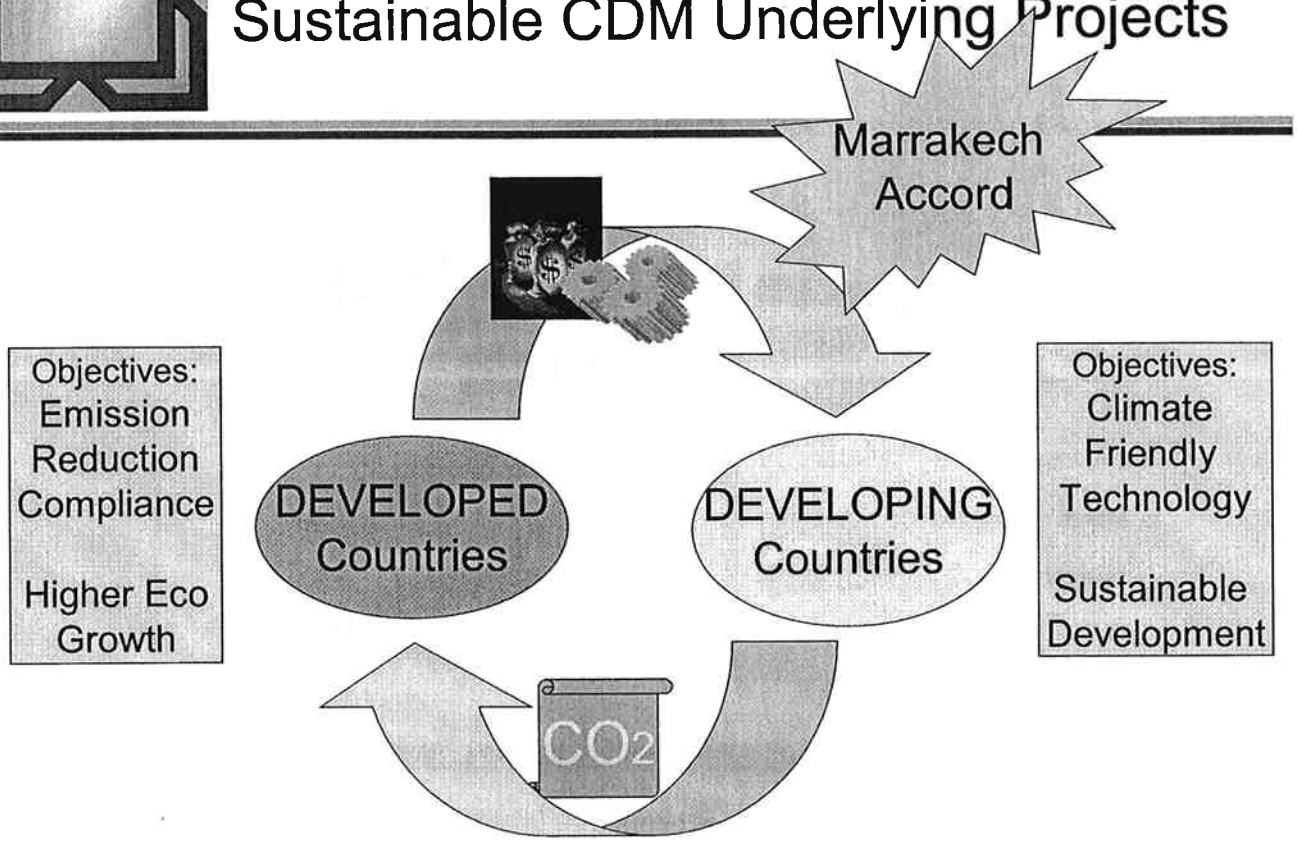
Even for the adaptation side

Clean Development Mechanism fro Sustainable Development Impact

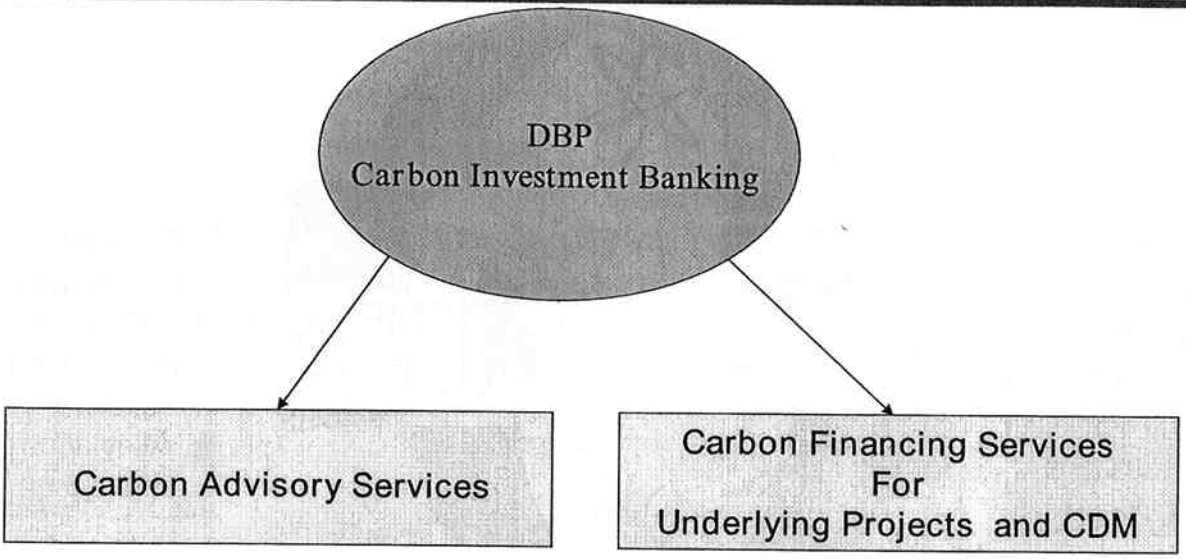


Integration of CDM Mitigation and Adaptation Programs for CDM project sustainability

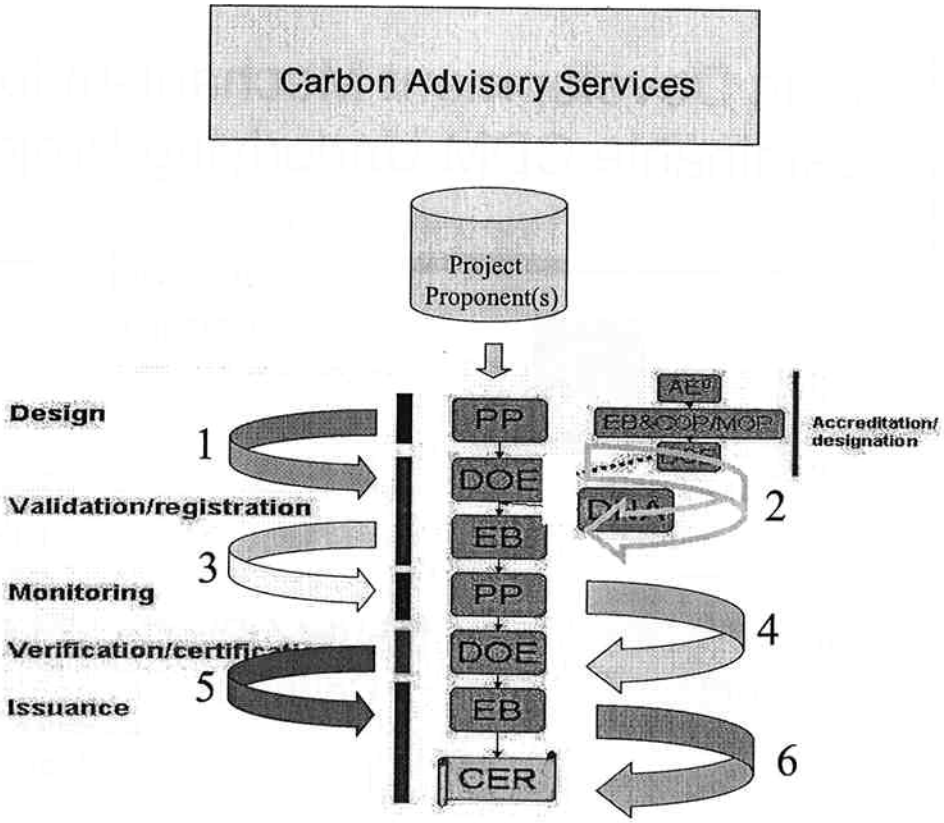
Clean Development Mechanism for Sustainable CDM Underlying Projects



Carbon Investment Banking: Tool for CDM Project Development



Management Committee Approved as of November 2003



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Source: UNFCCC Web site

We'll guide you through this meticulous process...

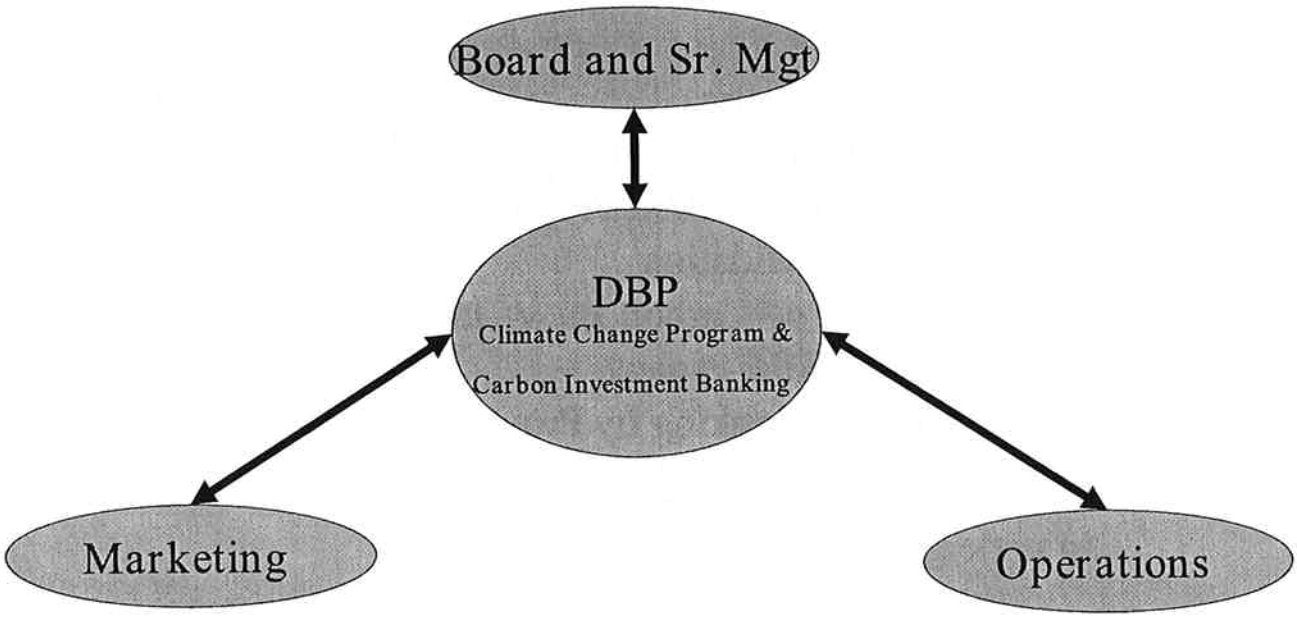
Carbon Finance Services for Phase 1 and 2

Carbon Financing Services
For
Underlying Projects and CDM

Total Carbon/CDM Project
Finance Structuring

Outright Funding and/or
Funding Negotiations/Arrangements
For Underlying Project
and/or
CDM Project Activity Cycle

DBP
CDM Internal Awareness Campaign & Institutional Capacity Building



Conducted by KLIMA…Campaign Running for the whole of 2003

Layman's CDM Marketing Template: Guide For Identifying CDM potential Projects To improve Search Time and Costs

1. Does the proposed project on Renewable Energy / Energy Efficiency / Emissions Capture / Reforestation reduce GHG in the atmosphere? In what way?
2. What other project scenario may happen in the absence of the proposed project?
3. Are there GHG emissions associated with the other project scenario?
4. Will the emissions associated with this other project scenario be greater than the emissions of the proposed project?
5. Is the GHG reduction brought about by the proposed project worthwhile to pursue?

Developed after a Capacity building Workshop Conducted by Mitsubishi Securities Group

CDM Integration in Investment Operations

DBP Options:

A. Borderline CDM Projects:

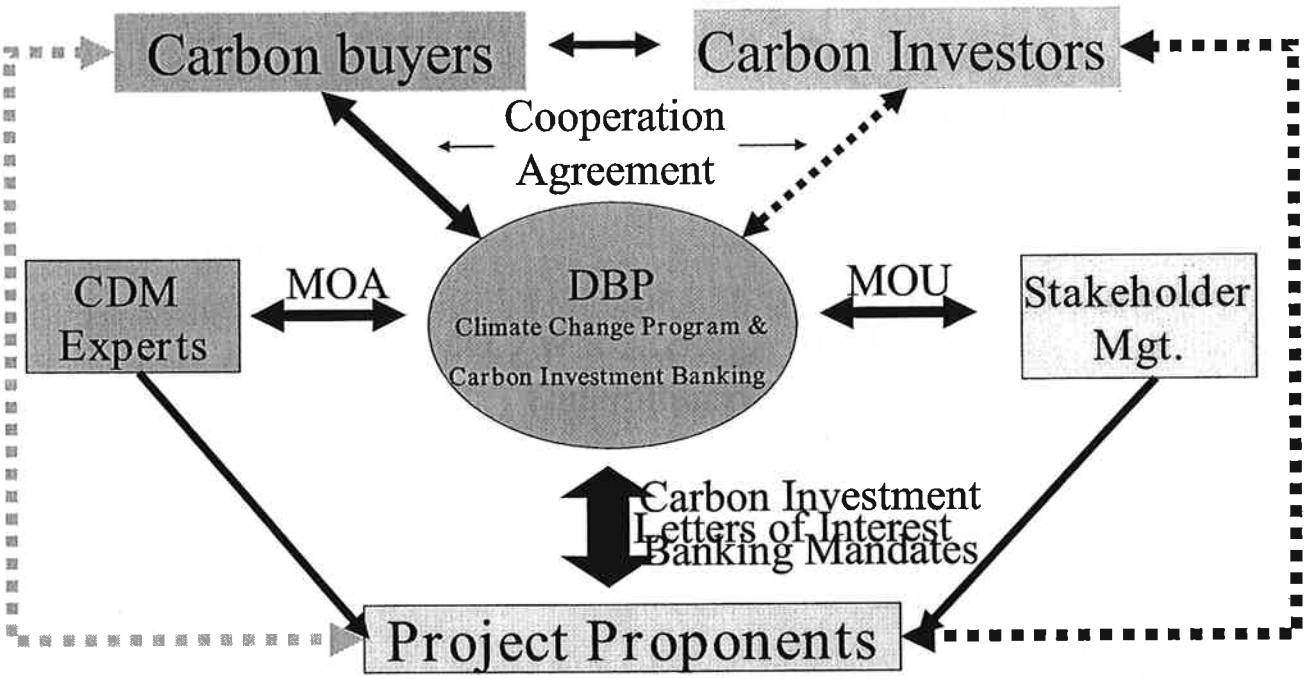
1. Key CDM Milestones as a Loan Pre- release condition of the CDM Project. CDM Project cannot proceed w/out
   - DOE Validation
   - ERPA w/ Carbon Buyer/Investor(s)

B. Investment Grade CDM Projects

1. As a Deed of Undertaking by Project Proponent CDM Project to proceed w/ the commitment to undergo CDM

To safeguard and ensure CDM Eligibility of project proposals being processed

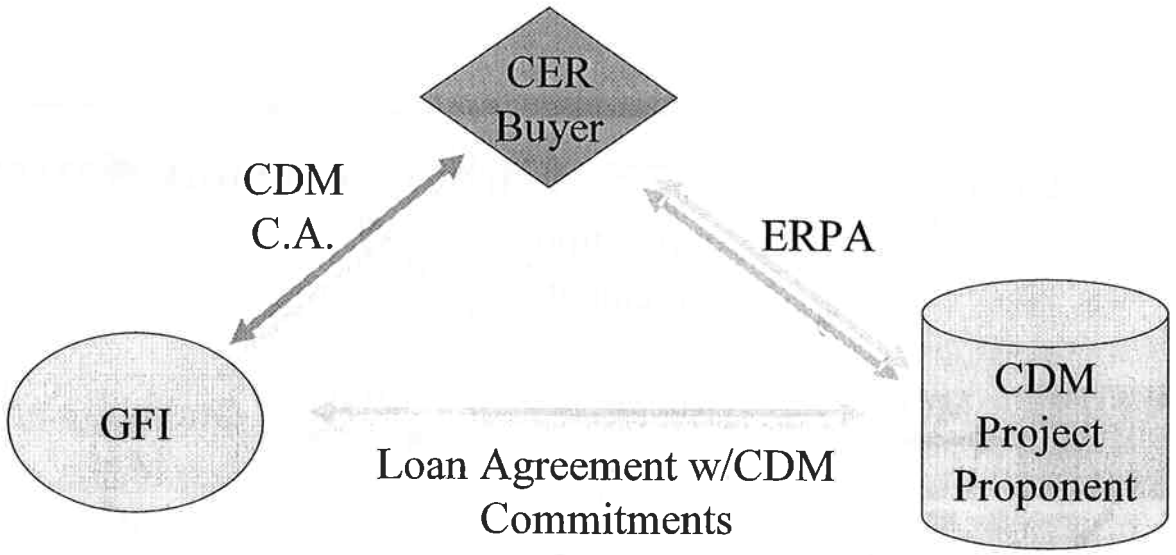
DBP Strategic CDM Linkage Devt



Development Bank of the Philippines CDM Experiences: A Banker's Viewpoint

How Can CDM Projects be Funded?

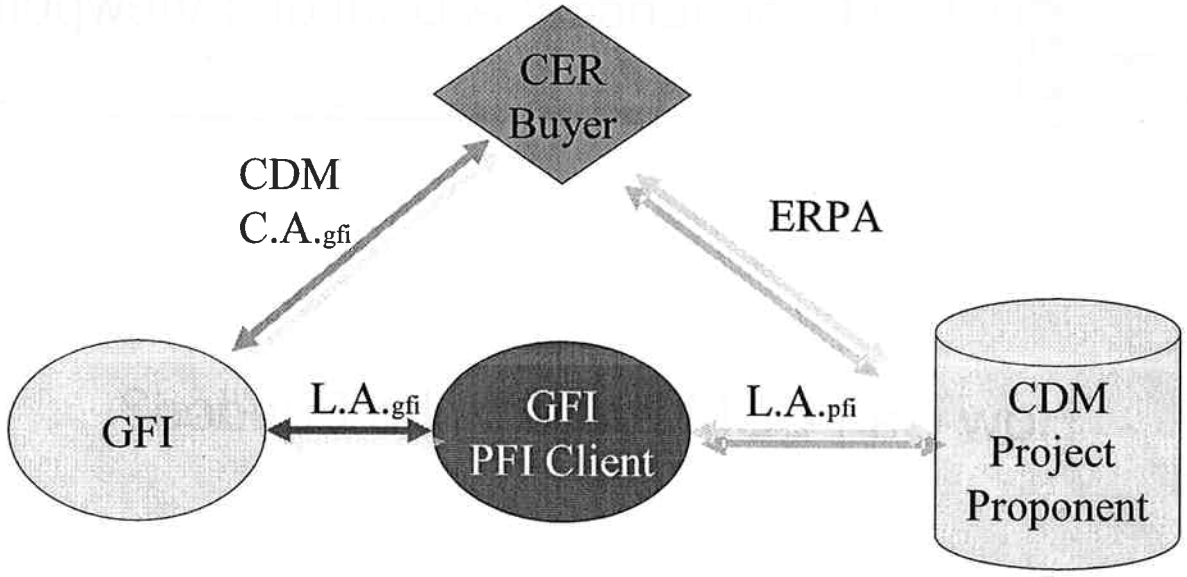
Basic Financing Structure 1
Leveraging the ODA via GFI for CDM Projects



Legend
GFI – Govt Financial Institution (i.e. DBP)
CDM - Clean Devt. Mechanism
C.A.- Cooperation Agreement
ERPA – Emission Redux Purchase Agreement

Using the existing investment framework

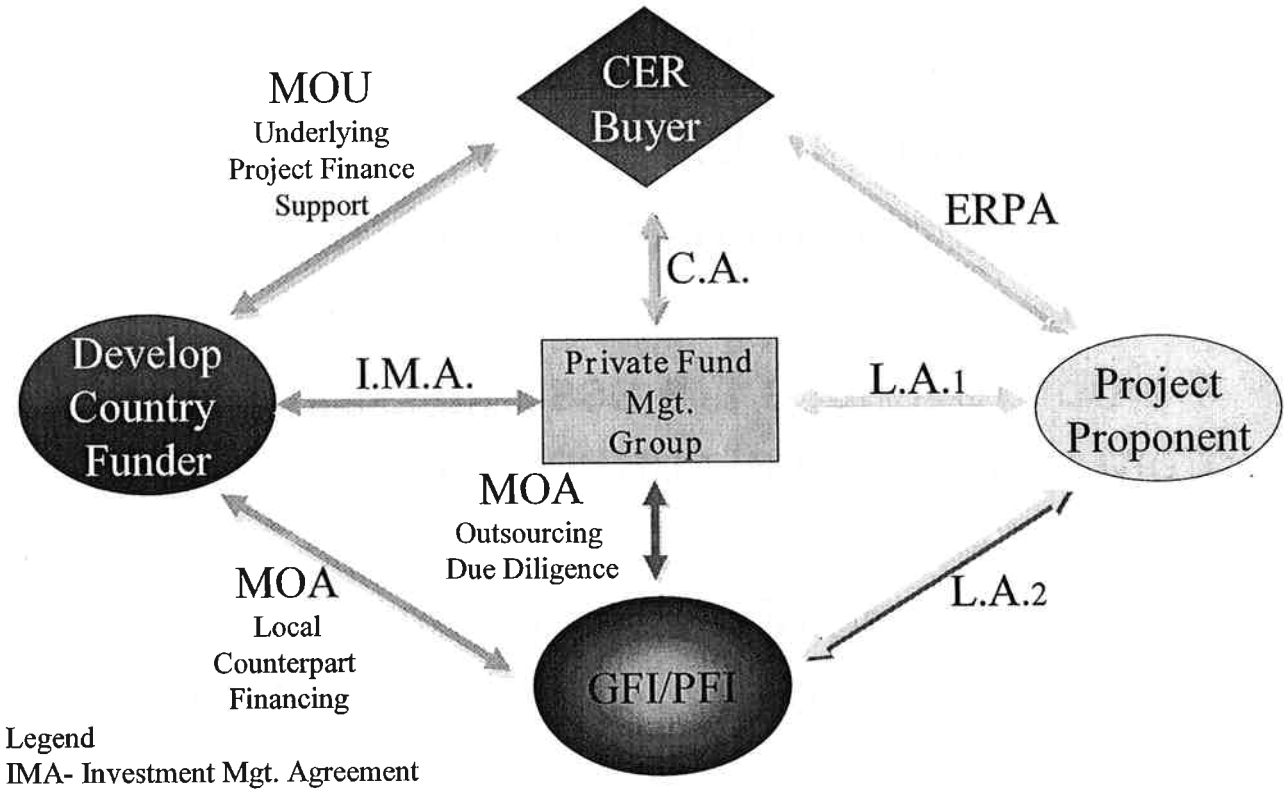
Basic Financing Structure 2
GFI On-Lending ODA via PFI for CDM Projects



Legend
CDM - Clean Devt. Mechanism
ERPA – Emission Redux Purchase Agreement
C.A.- Cooperation Agreement
L.A.- Loan Agreement w/ CDM commitments

Shielding Credit Risk
Using the existing investment framework

Basic Financing Structure 3
An Alternative to the ODA via GFI model Funding Scheme



Legend
IMA- Investment Mgt. Agreement
MOA-Memorandum of Agreement
MOU-Memorandum of Understanding

Creating a new CDM investment guidelines to break barriers

Enhancing the Investments Features of Underlying Projects using the Carbon Revenues

How Can CDM Projects be Financially Structured?

Basic Assumptions for Examples

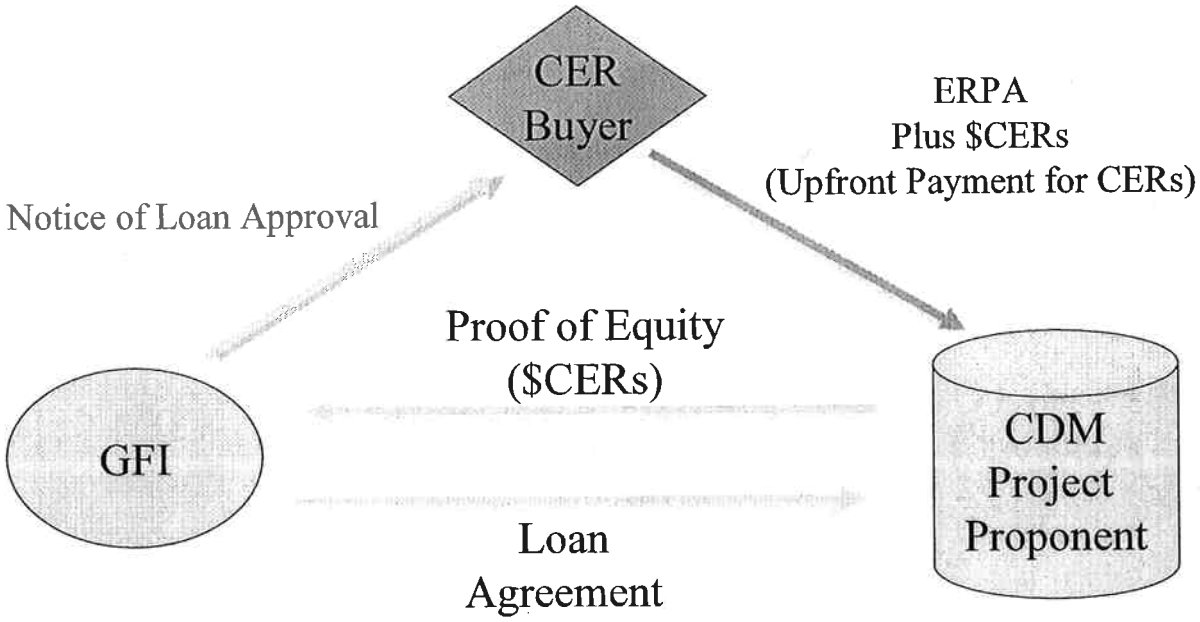
- No Diversion of ODA Funds
- CDM transaction costs to be borne by CER Buyer
- Carbon revenues are assumed converted from dollar to local currency by the investor/PFI/GFI
- Mutual sharing of carbon revenues between investor and project proponent

Demonstration
of
CER Revenue Application
On

Safety

Basic Financing Structure 1

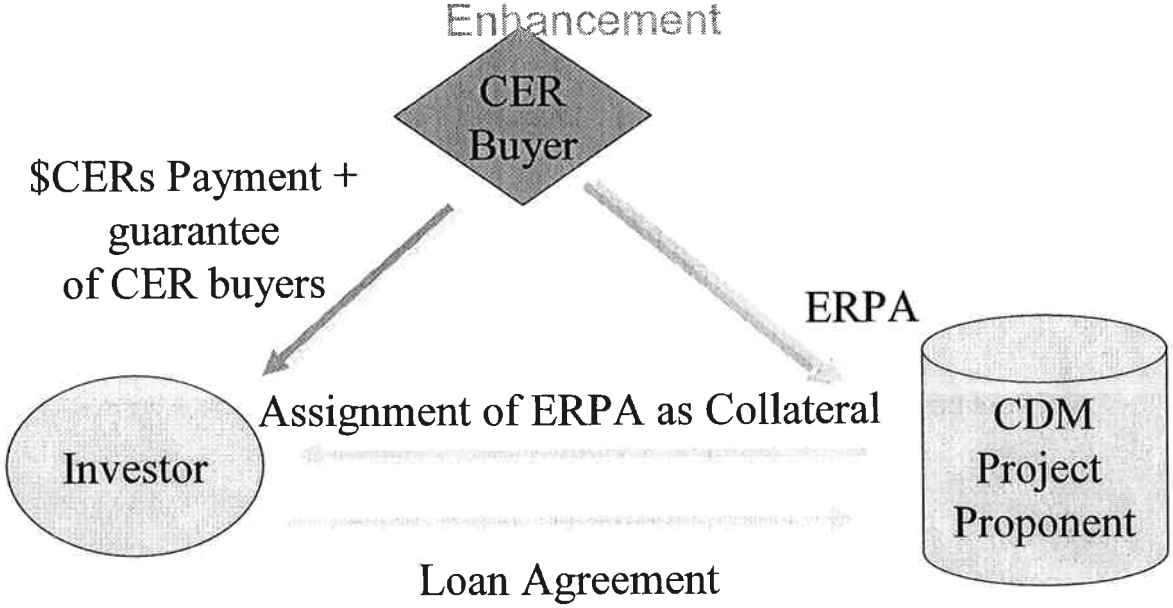
Application to Safety: $CER Upfront Payments as Equity



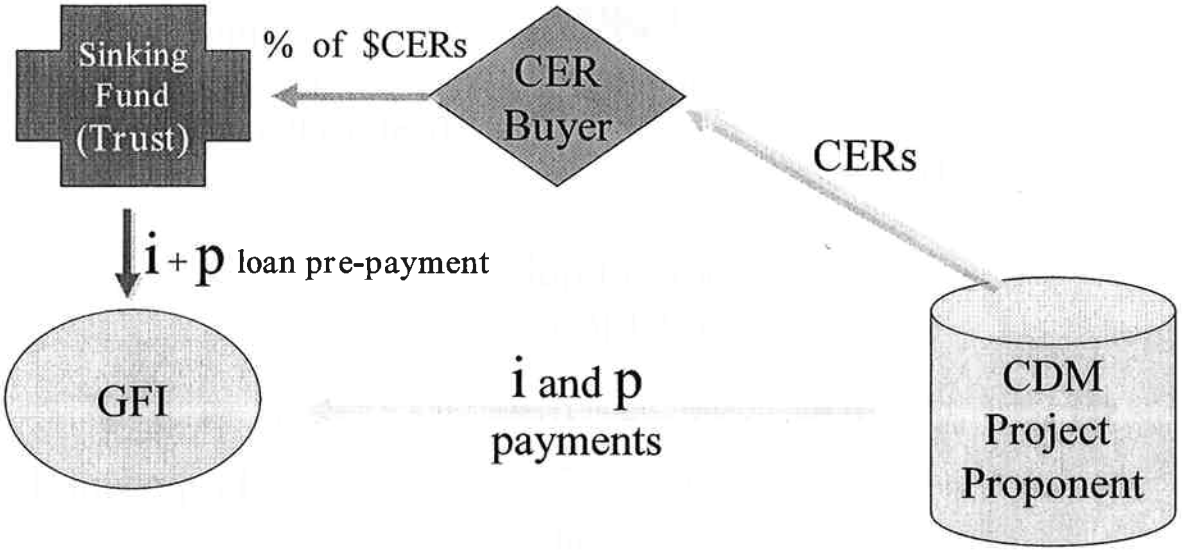
Upfront payment from ERPA as equity of borrower in loan

Basic Financing Structure 1

Application to Safety: ERPA as Collateral Enhancement

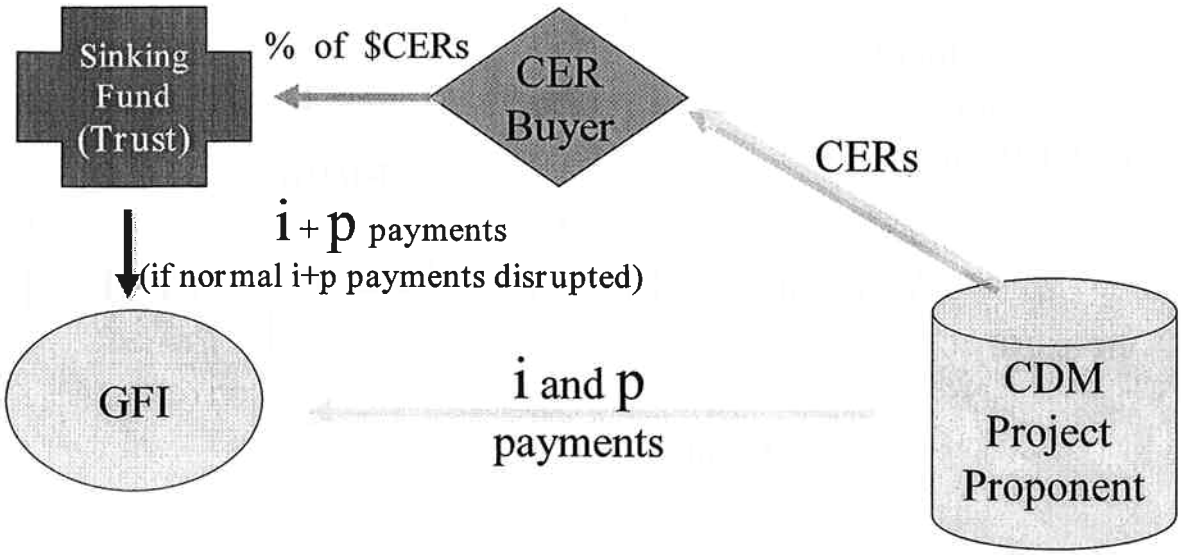


Basic Financing Structure 1
Application to Safety: Shortening Loan Term



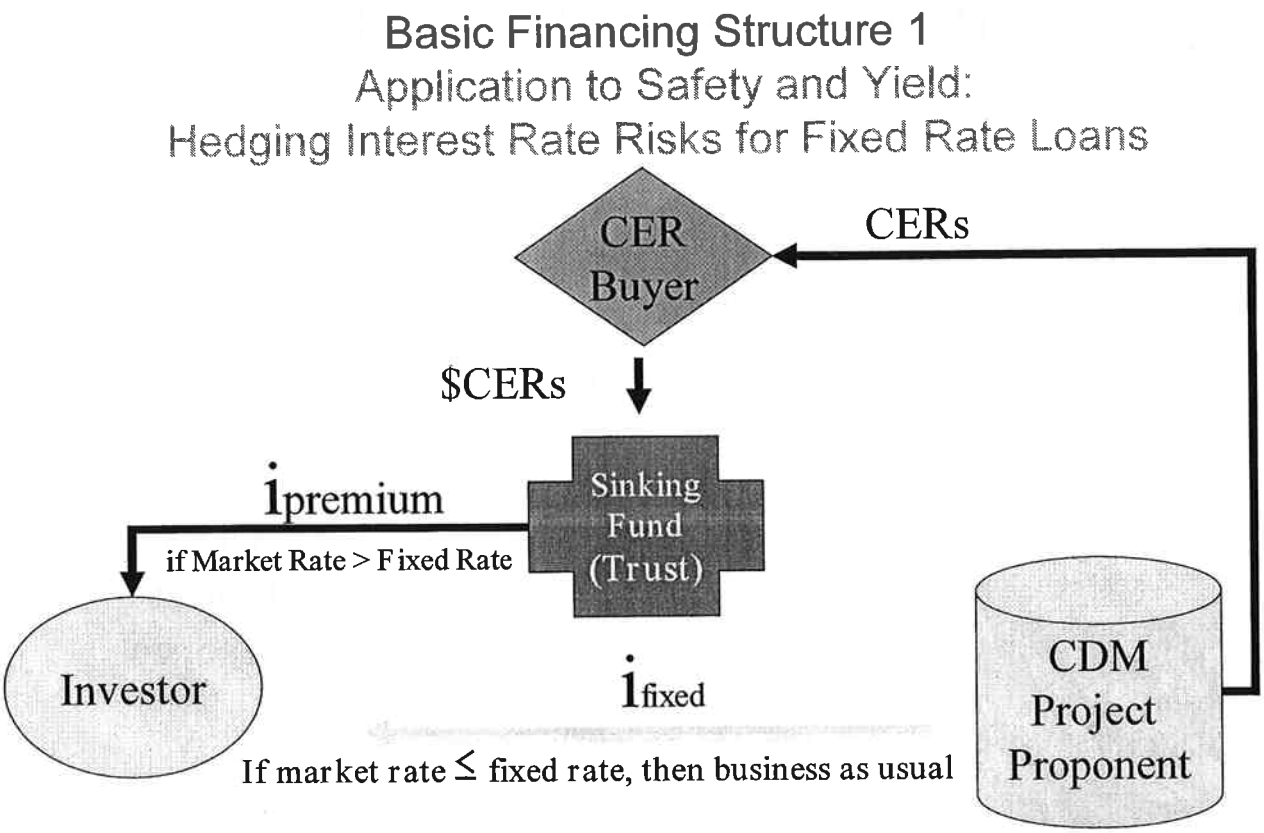
Repayment of i and/or p in reverse order of maturity of loan

Basic Financing Structure 1
Application to Safety: Securing i & p payments



Carbon Revenues to form sinking fund to secure i and p payment

Demonstration
of
CER Revenue Application
On
Safety
(Hedging Interest Rate Risks)



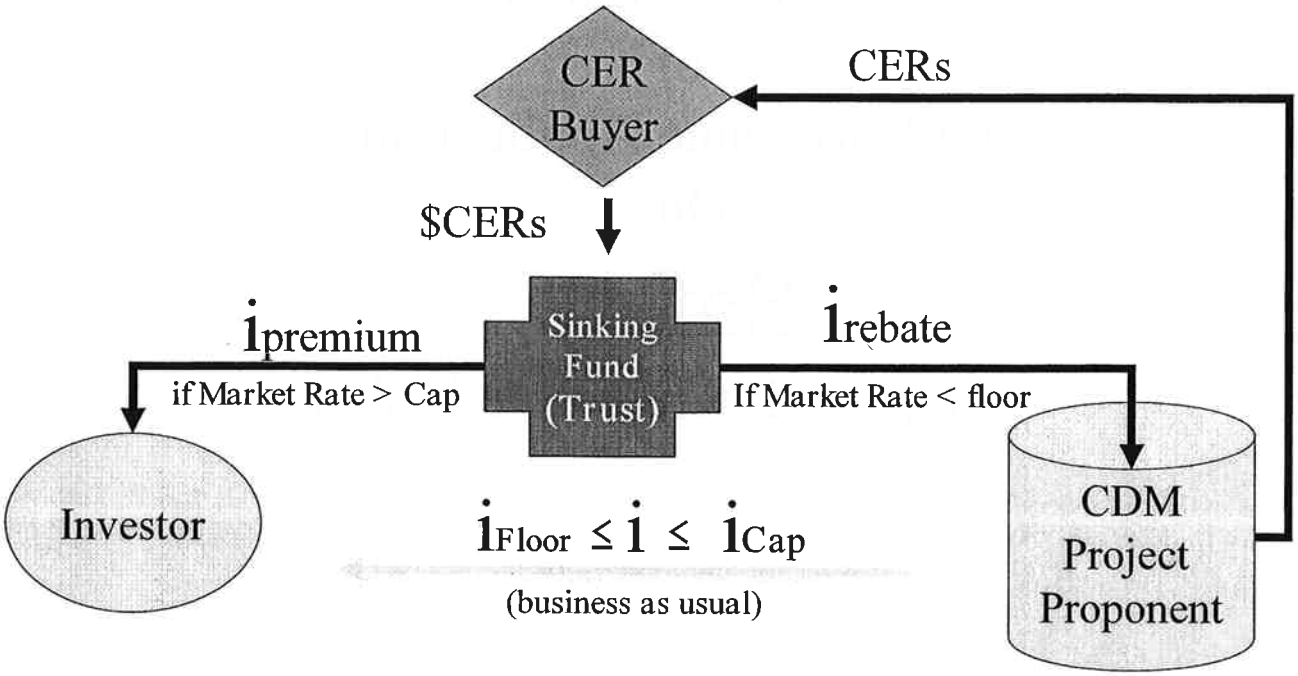
Legend:

$i_{premium} = i_{Market\ Rate} - i_{fixed\ rate}$

Applicable for loans w/ fixed rates in a rising interest rate scenario

Basic Financing Structure 1

Application to Safety and Yield: Hedging Interest Rate Risks



Legend:

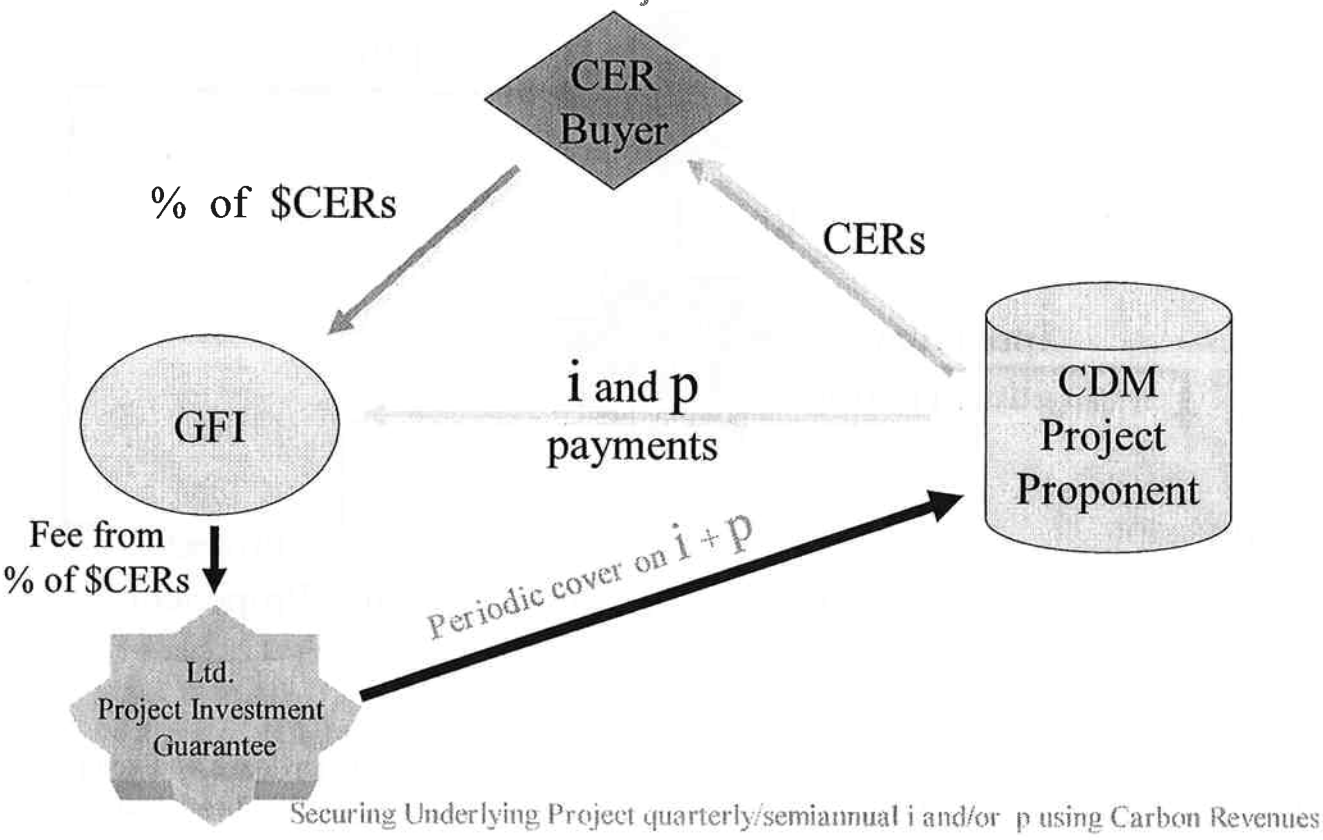
ipremium = iMarket Rate – iCap

irebate = ifloor - imarket

Applicable for loans with floating rates

Basic Financing Structure 1

Application to Safety: Buying Limited Guarantee for CDM Projects



Basic Assumptions for Examples

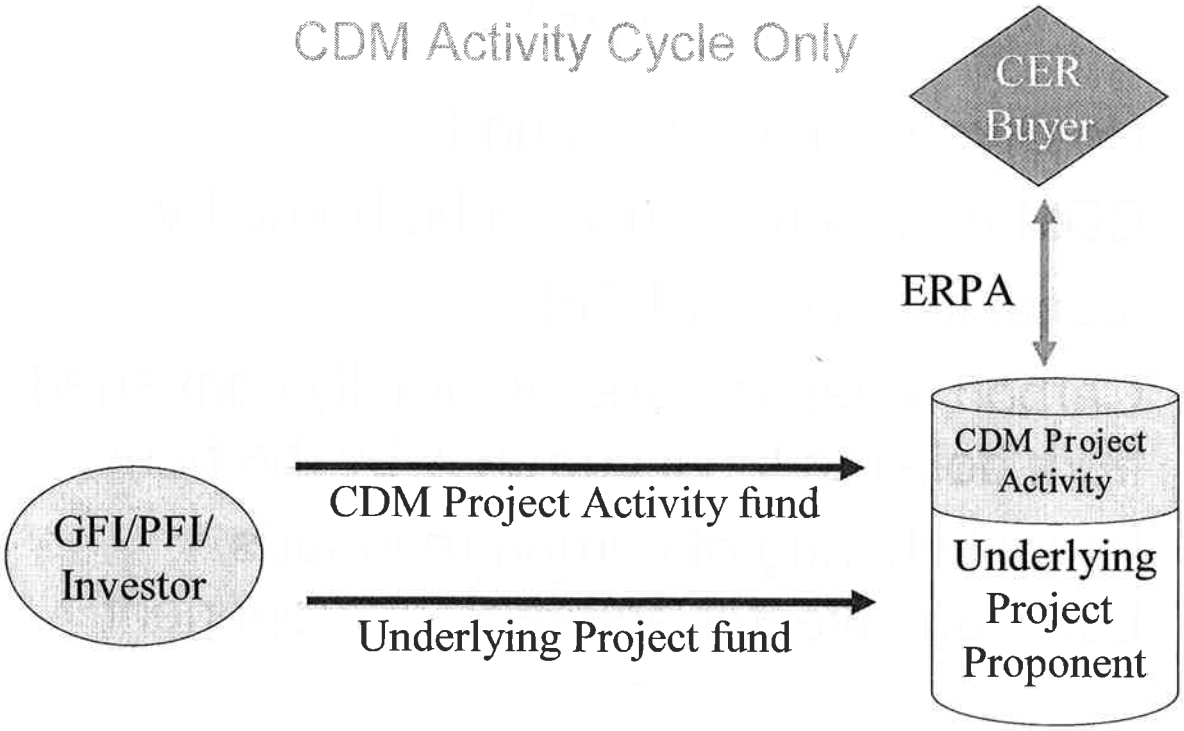
- No Diversion of ODA Funds
- CDM transaction costs to be borne by Local Investor/GFI/PFI
- Carbon revenues are eventually converted from dollar to local currency by the bank
- Mutual sharing of carbon revenues between investor and project proponent

Demonstration
of
CER Revenue Application
On

Liquidity

(Investments in CDM Project Costs)

Basic Financing Structure 1
Application to Liquidity for Investment on CDM Activity Cycle Only



Investing in the CDM project Activity cycle

Basic Financing Structure 1
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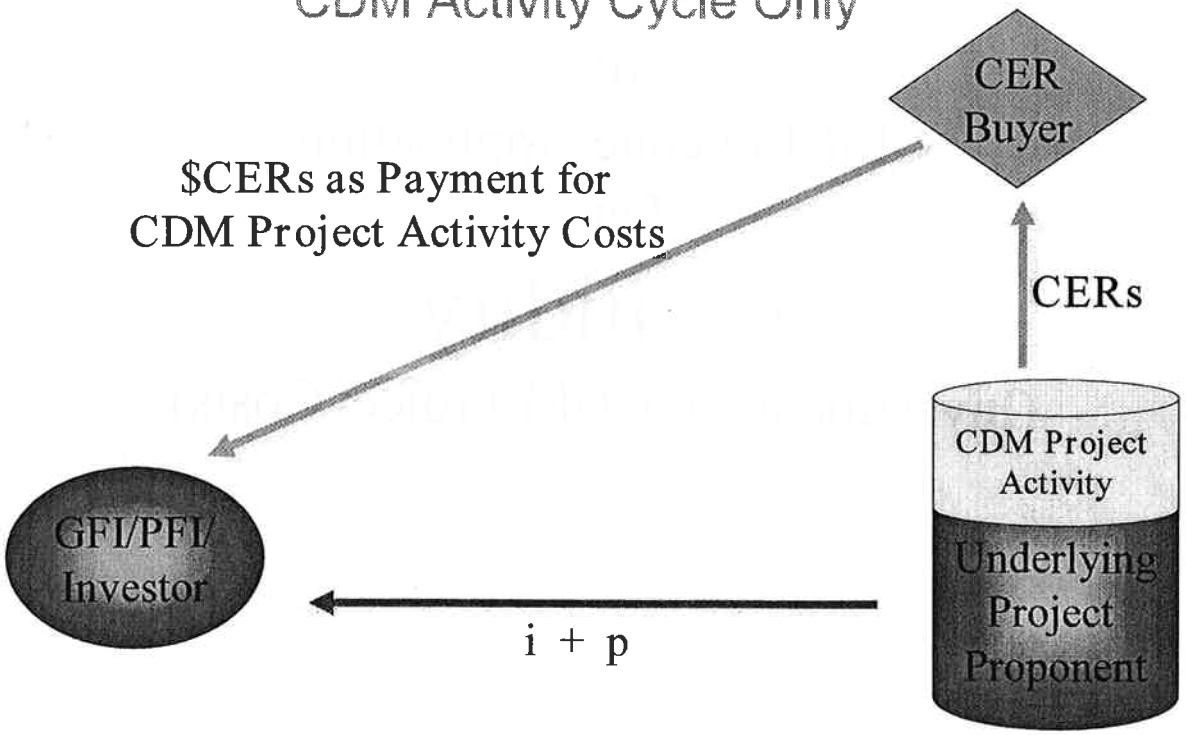
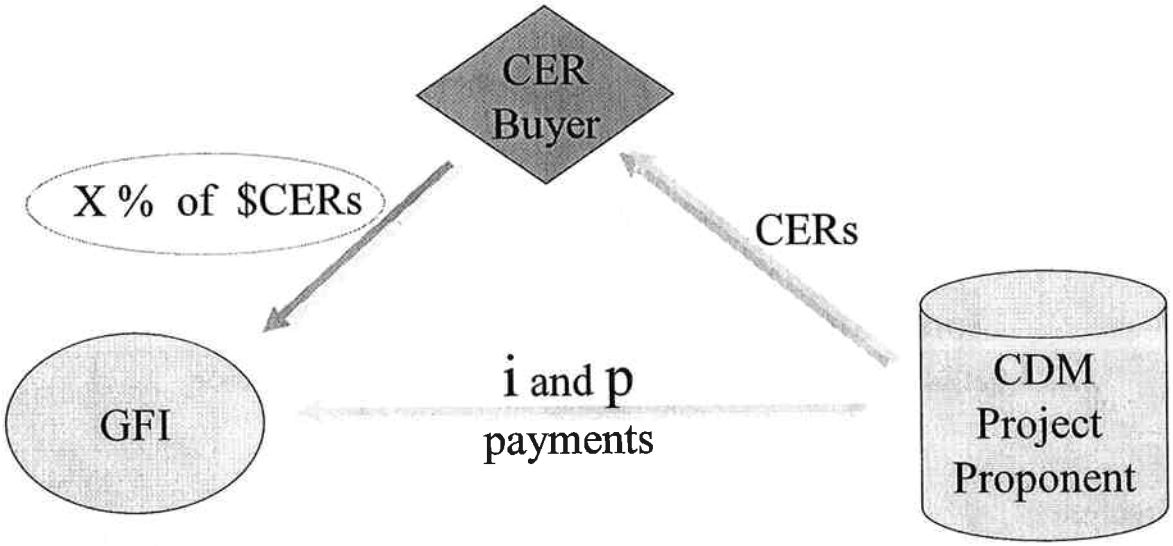


Investing in the CDM project Activity cycle

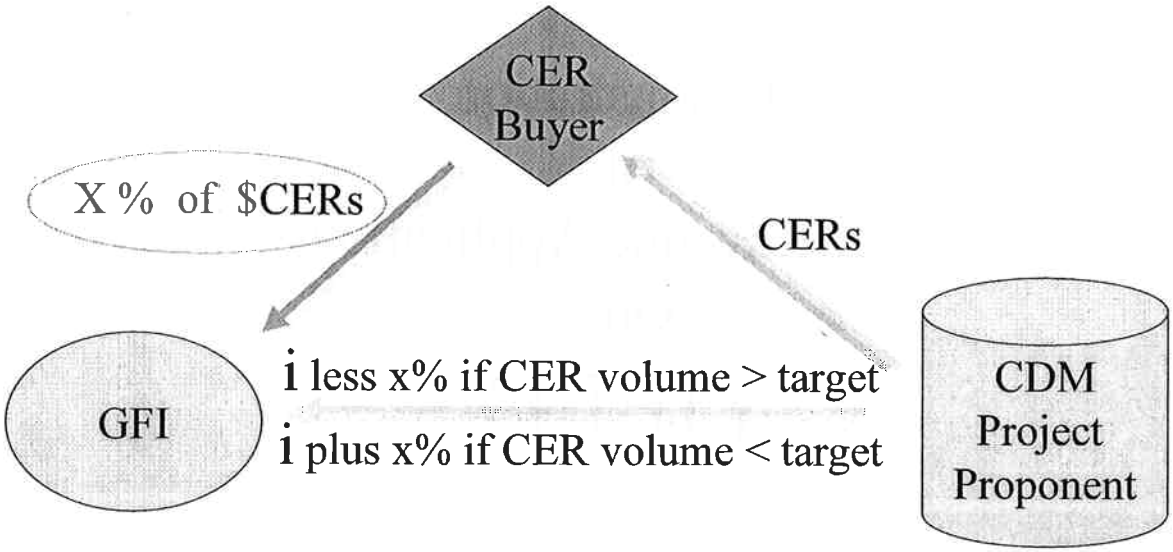
Demonstration
of
CER Revenue Application
On
YIELD

Basic Financing Structure 1
Leveraging the ODA via GFI for CDM Projects
Application to Yield



Legend
CER – Certifcate of Emission Reductions
$CERs- Dollar Proceeds of CERs Sale
i – interest
p - principal

Rewarding CDM Commitment of Project Proponent:



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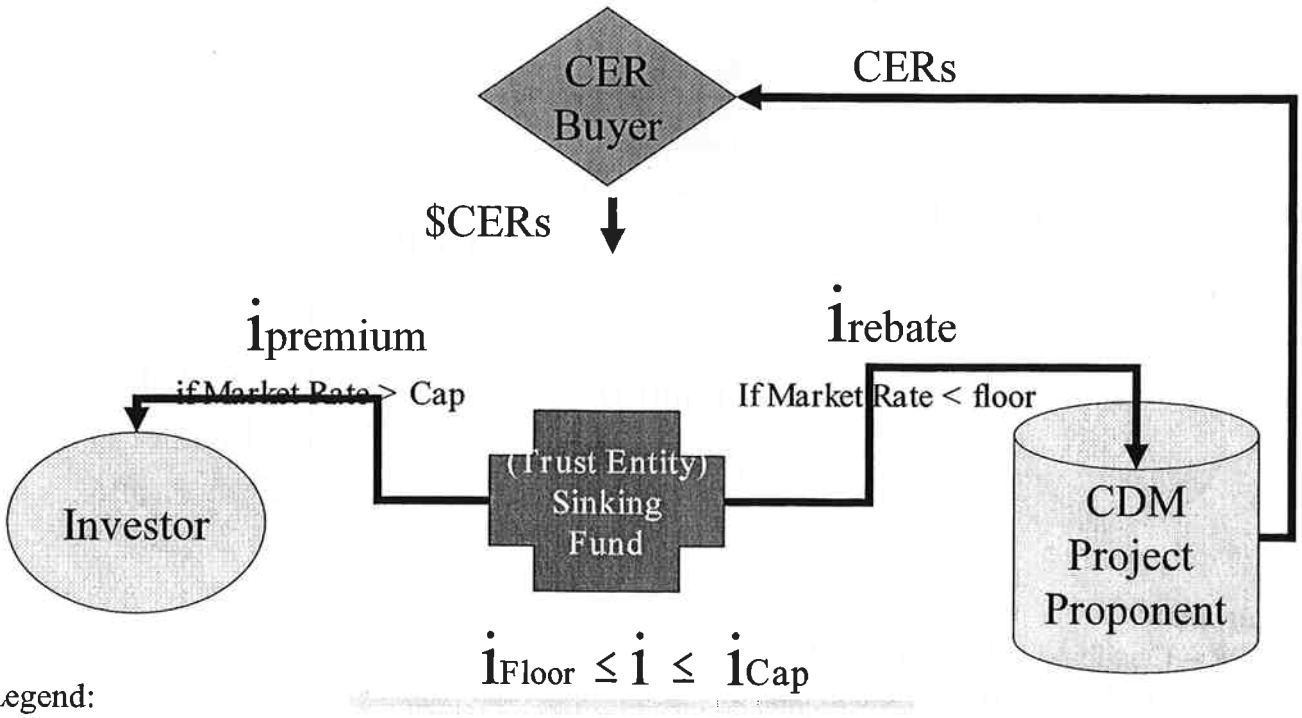
Carrot and Stick Approach

Rewarding CDM Commitment of Project Proponent:



$i_{Floor} \leq i \leq i_{Cap}$

(business as usual)

Legend:

$i_{premium} = i_{Market\ Rate} - i_{Cap}$

$i_{rebate} = i_{floor} - i_{market}$

Carrot and Stick Approach

Applications of Carbon Revenues To Traditional Energy Projects

Safety / Liquidity / Yield

- Enhancing Revenues or Yields
  - incorporating value of CER in cash flows to investor
- Securing interest or principal payments
  - creation of a sinking fund to capture CER Revenues for I + P payments
  - securitization of $C0_2$ credits
    - assignment of ERPA to funder
    - assignment of CERs to funder
- Shortening the Loan Term
  - Direct application of CER revenues on principal prepayment
- Diversifying Portfolio
  - New revenue generating scheme
  - creates a new asset class under CDM
- CER revenues as additional equity contribution to loan

Good Things We Have Learnt and Experienced due Climate Change Program

1. Attracting Carbon Buyers and Investors
2. Creating Good Guidelines or Best Practices on:
3. Search Time and Costs Can be Improved.
4. CDM Project Development Costs Can Be Lowered
5. Monitoring and Verification Processing Time and Costs can be improved
6. Funding Availability Can Be Maximized by:
   - Leveraging Dedicated ODA Funds for CDM Eligible Projects
7. Creation of a CDM Project Portfolio Can Enhance Bank
   - Revenue Potentials
   - Risk Mgt. Capacities

Areas for Improvement Among CDM Stakeholders

1. Awareness and Understanding Levels of CDM:

- Project Cost –Benefit Analysis – Weighing Potential Delay on Achievement of Key Result Area (KRA)/ Budgetary Targets vs. Over-all Income Opportunities from CDM Projects
- Among Relevant Corporate Clients/Accounts Of The Institution
- Between And Among Government Agencies On CDM Project Development
- In relation to Openness of Regulatory Agencies on Qualified ODA use for CDM projects
- As a Legitimate and Allowable Banking Business

Areas for Improvement Among CDM Stakeholders

2. Institutional Capacity Building and Development

- Capability to Cross-Sell Benefits of CDM Project Development Among Clients/Accounts
- Capacity to Identify CDM Projects Especially Those Emitting High Value GHGs
- Ability to Package Carbon Revenues into the Underlying Project by Account Officers
- Efficient Operational Integration/Mainstreaming W/in Institution's Project Development Cycle
- Expertise to Bundle Small Scale Projects

Areas for Improvement Among CDM Stakeholders

3. Total CDM Project Development

- Client Commitment To Undergo CDM Project Activity Cycle
- Flexibility On Easing Of Loan Structure Given The Carbon Revenues
- Acceptability Of CERs As A Security Or Collateral
- Faster And Synchronized CDM And Underlying Project Development And Processing
- Ability To Sell, Forecast, And Value CER Price And Revenue Impact Beyond 2012
- Negotiation w/ Carbon Buyers to Prevent Sale of Cheap Credits
- More Success Stories On CDM Project EB Registrations

Recommendations

I. Need for a Banker CDM Project Aggregator

II. Carbon Assets must be fungible and features standardized

III. Carbon Asset price must be linked to SD impact

IV. Create Independent Carbon Asset Rating Agency

V. Creation of new Investment Vehicles with CDM Oriented Guidelines

VI. Acceptance of CERs as new financial commodity among Financial Institutions

VII. Transparency, access to information re Pricing of CERs

VIII. Creation of a developing country Carbon Fund for bundling Small Scale Project, and as an asset and risk mgt. tool

Challenges in financing CDM Projects

Material for Discussion

Workshop on Financing Clean Development Mechanism

June 27-28, 2005

Structured Finance Division

Bank of Tokyo-Mitsubishi

Mitsubishi Tokyo Financial Group and its initiative on environment

Bank of Tokyo-Mitsubishi

MTFG at a Glance

Mitsubishi Tokyo Financial Group ("MTFG") was formed in April 2001. Core subsidiaries include;

- The Bank of Tokyo-Mitsubishi, Ltd.,
- The Mitsubishi Trust and Banking Corporation
- Mitsubishi Securities
- Union Bank of California

MTFG made a preliminary agreement to integrate its holding companies, banks, trust banks and securities with UFJ Holdings, Inc. in August 2004. It will create the world largest financial group in terms of its asset in October 2005.

- Total Asset: U$987 billion
- Risk Adjusted Capital Ratio: 12.95%
- The first and only Japanese bank listed on NYSE
- Rating: S&P A-, Moody's A1

Bank of Tokyo-Mitsubishi

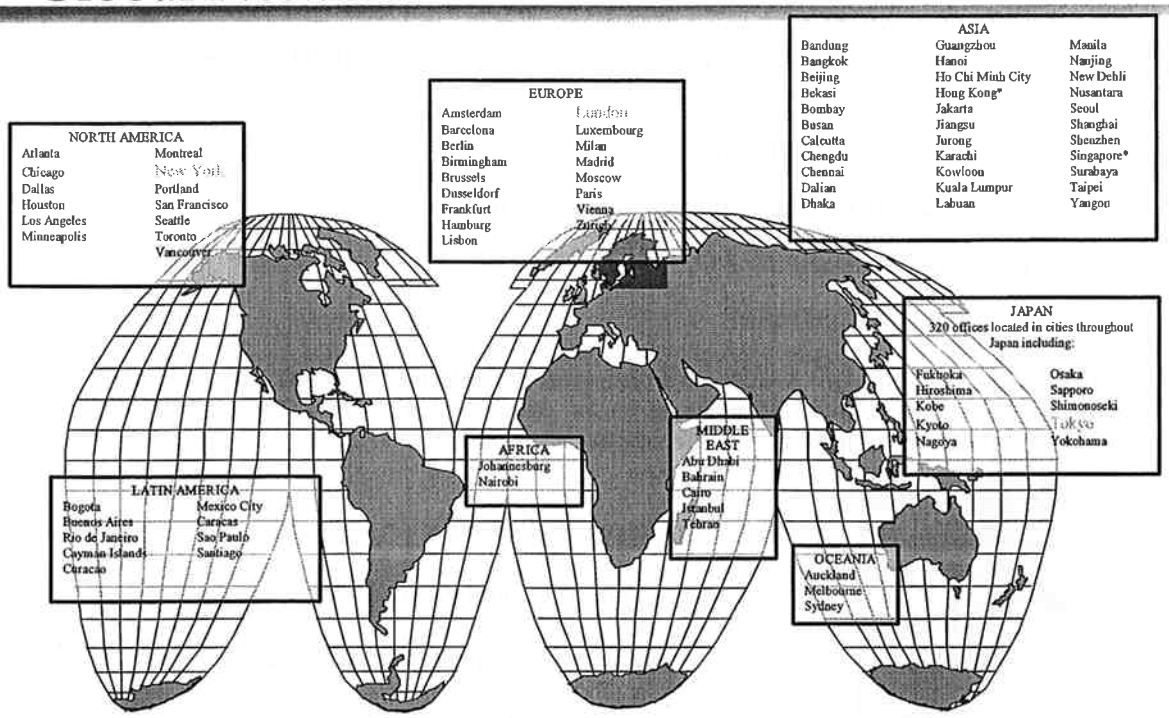
MTFG Capitalization

Rank	Bank Name	Assets (U$bil)	Market Cap(U$bil)
	MTFG + UFJ	1,786	97
1	Mizuho Financial Group	1,304	48
2	Citigroup	1,097	257
3	UBS	1,092	85
4	HSBC Holdings	1,067	162
5	Sumitomo Mitsui Financial Group	994	41
6	Mitsubishi Tokyo Financial Group	987	64
7	Deutsche Bank	795	47
8	J.P. Morgan Chase & Co	759	84
9	BNP Paribas SA	745	53

* Asset is as of December 03. (Mizuho, SMBC and MTFG are as of March 04). Market Cap is as of end March 2004.

Bank of Tokyo-Mitsubishi

Global Network



Bank of Tokyo-Mitsubishi

Project Finance League Table Status

Thompson Financial Project Finance
2004 League Table
Global Top 10 Mandated Lead Arrangers
Project Finance Syndicated Loans by volume

Rank	Bank	US$(m)
1	Citigroup	6,413.5
2	BNP Paribas	4,272.4
3	CSFB	4,178.3
4	Royal Bank of Scotland	3,784.5
5	Societe Generale	3,528.9
6	SMBC	3,475.1
7	Mitsubishi Tokyo Financial Group	3,455.9
8	HSBC	3,391.0
9	Korea Development Bank	3,325.4
10	ABN AMRO	3,154.8

Source: PFI 01/26/05 Issue 305

Bank of Tokyo-Mitsubishi

BTM and its challenges on environmental issues

BTM's top management's commitment to environment

- Environmental Management System (ISO 14001)
- Environmental Committee/ISO committee
- Environmental Statement and Policy

BTM's initiative on environment

- To contribute through financing activities (encouraging environmental related projects, reflecting environment perspective in credit process)
- To reduce emissions and use of energy, disposal of waste.
- To improve continuously through environment management system with company wide participation
- To reach out the society (Kids ISO and UNEP Finance Initiative)

Bank of Tokyo-Mitsubishi

Kazusa Waste Disposal Project

BTM's Role:	Financial Adviser and Lead Arranger
Project:	Build and operate a waste disposal facility in Chiba, Japan
Sponsors:	Nippon Steel Corporation and 4 cities and two other companies
Total Cost:	JP 15 billion yen (US$136 million)
Signed:	July 12, 2000
Note:	First PFI project in waste disposal project in Japan 2000 Deals of the Year Asia Pacific by Project Finance Magazine

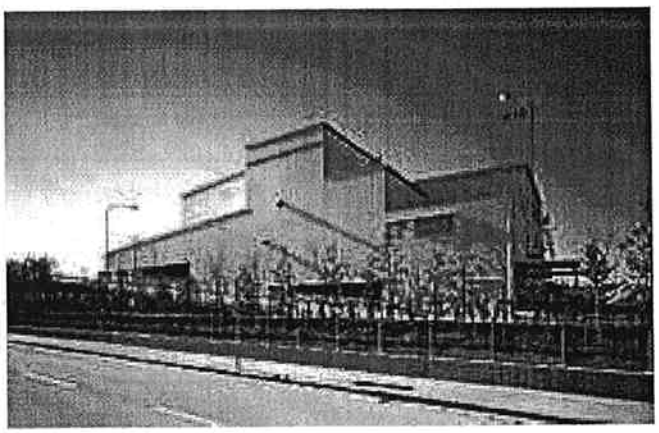


Photo by Nippon Steel Corporation

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Eurus Energy

BTM's Role: Financial Adviser

Project: M&A transaction of 50% ownership in former Tomen Power Holdings Corporation (currently Euros Energy)

Sponsors: Tokyo Electric Power Company

Total Cost: JP 10.5 billion yen (US$96 million)

Signed: Sep. 12, 2002

Note: One of the leading wind farm developers in the world.
Operation of more than 20 wind farms in Europe, the US and Japan with a combined capacity of approximately 700 MW.

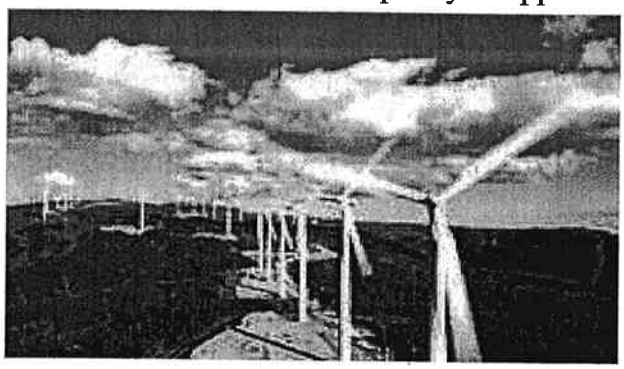

Photo by Eurus Energy

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Other Wind Power Plants

Signing	Project	Country	Capacity	Role of BTM
2002.10	Edens / Riva Calzoni	Italy	127MW	Arranger
2003.3	Cristal Rig	UK	50MW	Lead Arranger
2004.1	Innogy Zephyr (Beaufort)	UK	128MW + 296MW	Lead Arranger
2004.2	Three Wind	USA	61.5MW (41 plants) + 41.9MW(62 plants) + 50MW(50 plants)	Arranger
2004.10	Walkaway Wind	Australia	89.1MW (1.65MW × 54plants)	Participant
2004.10	Cefn Croes / Boyndie	UK	58.5MW+14MW	Lead Arranger
2004.11	Paul Hill & Rothess	UK	115MW	Lead Arranger
2004.12	International Power & Mitsui / EME Assets	Italy	303MW (13plants)	Mandated Lead Arranger
2005.2	Nishime Wind Power	Japan	30MW(2MW × 15plants)	Lead Arranger
2005.3	RES Wind	UK, Ireland & France	101.4 MW	Mandated Lead Arranger

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Other environmental related projects

Name	Project	Sponsor	Role
Hita biomass	Construction of Biomass (wood chip) Power Plant	First Esco	Lead Arranger
Bluesky	Installation of unleaded gasoline production units in Balongan Refinery	Pertamina	Lead Arranger

Bank of Tokyo-Mitsubishi

Financing of CDM

Bank of Tokyo-Mitsubishi

Our perspective on CDM

- Climate change is one of the most serious environmental issues.
- BTM will endeavour to develop financial solutions for global warming, thus enabling and encouraging our client base to further reduce their GHG emissions.
- BTM will continue to reduce its own emissions of GHGs as much as possible.
- BTM is ready to obtain CDM credits in order to neutralize any residual GHGs that cannot be covered by the activities mentioned above starting from its Head Quarter facility in Tokyo.

Bank of Tokyo-Mitsubishi

Future of CDM Markets

- CDM markets have high potential.
  - Many countries face difficulty in meeting the Kyoto targets
  - Demands for CDM credits (CER) are very high

Bank of Tokyo-Mitsubishi

Risks involved in CDM projects(I)

Risks	Mitigation
Completion Risk	•Lump Sum Turnkey Contract •Liquidated Damage
Technology Risk	•Proven Technology
Sponsor Risk	•Equity First •Track Record
Operation Risk	•O&M contract
Feedstock Supply Risk	•Long Term Supply Contract (Volume & Price)

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Risks involved in CDM projects(II)

Risks	Mitigation
Market Risk (other than CDM Credit (CER) Market Risk)	•Offtake Contract (Volume & Price)
Cashflow Risk	•Debt Service Reserve Account •Insurance (loss profit/damage) •Escrow Account •DSCR/LLCR
Country Risk (Political & Transfer)	•ECA Insurance/Guarantee
CDM Credit (CER) Market Risk (Volume & Price)	•Offtake Contract
CDM Credit (CER) Regulatory Risk (change of approval process)	

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Issues in financing CDM projects

Among the risks of CDM projects, the following two points are keys for financing CDM projects;

1. Value of CDM Credits (CER)

- Regulatory Framework
- CDM Credit (CER) Markets

2. Country Risk

- CDM projects are located in the emerging markets

Note: Larger size of transaction in comparison with current CDM projects would be able to cover the expenses such as legal fees and consultants fees.

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Value of CDM Credits (CER)

1) Regulatory Framework

Further development of Framework for the Post Kyoto and role of individual company in this mechanism

2) CDM Credit (CER) Markets

Price and availability of the CDM credits (CER)

Strong offtaker(s) can stabilize the value of the credit for a project

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Country Risk

CDM projects are located in the emerging markets. A project will face country risk.

The country risk is not different from the one in the standard project finance. Standard mitigation is using ECA cover such as JBIC and NEXI.

BTM is one of the most experienced banks that arrange the financing with JBIC and NEXI.

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Japanese ECAs Brief Description

Japan Bank for International Cooperation

- Established on October 1, 1999 through the merger of the former Export-Import Bank of Japan (J-EXIM) and the Overseas Economic Corporation Fund (OECF).
- Direct Lender / Guarantor
- Lender of Records
- Export-Tied and Export-Untied Application
- OECD Guideline Restriction

Nippon Export and Investment Insurance

- Established on April 1, 2001 as "Independent Administrative Institute " to manage "Trade and Investment Insurance system"
- Prior to the establishment of NEXI, Ministry of Economy, Trade and Industry (METI), former Ministry of International Trade and Industry of Japan(MITI)), was responsible.
- Insurance Provider of Political and Commercial Risks
- Export-Tied and Export-Untied Application
- OECD Guideline Restriction

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Conclusion

- CDM Markets have high potential.

- Financing CDM projects would be further facilitated, if
  - ➢Offtakers commit to purchase credits for a long term
  - ➢Country Risks are covered by the ECAs.

<u>BTM will continue to seek the ways</u>
<u>to finance CDM projects, especially in Asia.</u>

Bank of Tokyo-Mitsubishi

Financing Unilateral CDM Projects in India
- The Next Challenge

Mohanjit Singh
Vice President, Corporate Finance
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mohanjit.singh@yesbankltd.com

June 2005

YES Bank - Introduction

YES Bank is the newest entrant in the Indian commercial banking landscape

PAID UP CAPITAL
USD 47 Million

SUBSTANTIAL DEBT RAISING ABILITY

TOTAL STAFF *
Over 240

* As of April 2005

- Promoted by experienced and professional bankers who have a successful track record of entrepreneurship
- Backed by internationally reputed investors (Rabobank, Citigroup, Chrys Capital & AIF Capital)
- Knowledge driven approach to banking
- International Advisory Network Access
- One of the best management teams in the country
- Established relationships with domestic & international corporates

Envisaged unfolding of the business model

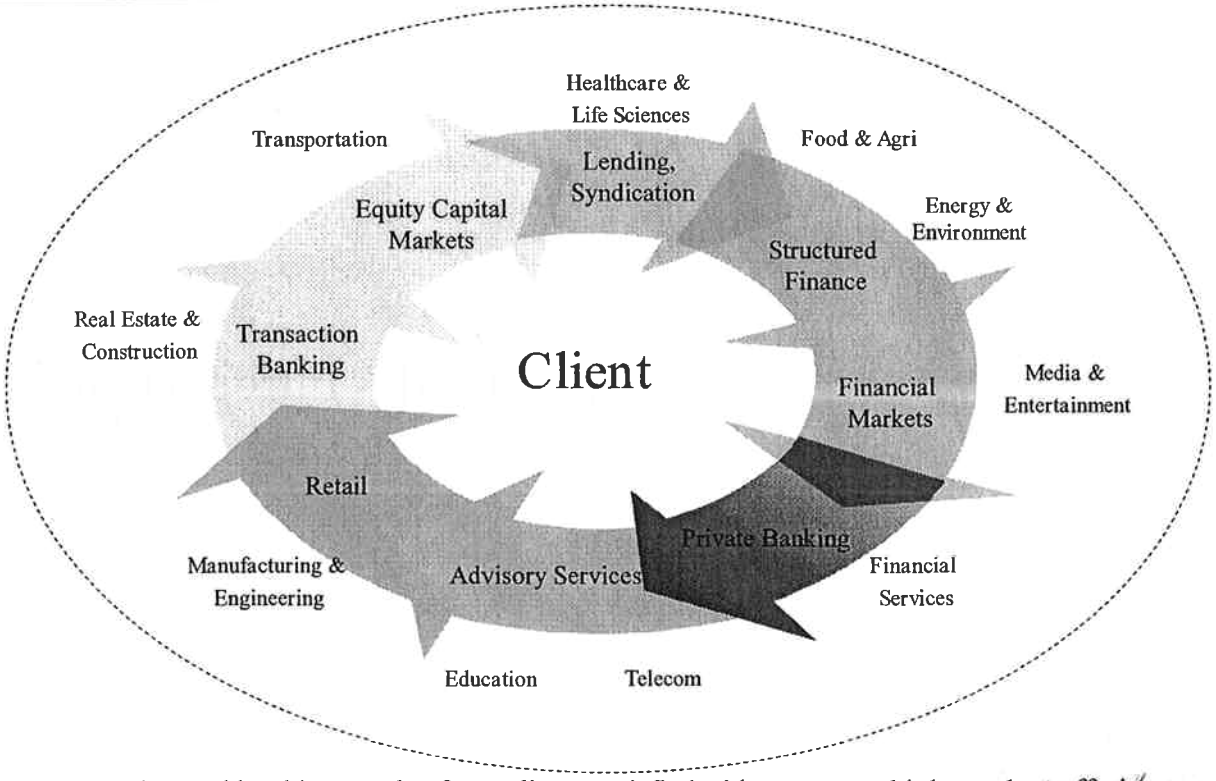
Investment Banking: • M&A • Private Equity • Restructuring • Infra Advisory	Commercial Banking: • Loans • Infrastructure Financing	• Trade Finance • Treasury • Cash Management • Debt Placement	• Wholesale trade products • Merchant banking	Retail Banking Private Client Banking Investment Banking: • Broking • Fund Management

YES Bank is the outcome of a professional commitment to establish a high quality, technology driven, state-of-the-art private Indian Bank catering to "Emerging India"

Banking on Knowledge

YES BANK

A Customer-focused Integrated Service Model .....



End to end banking needs of our clients satisfied with strong multiple product offerings

Banking on Knowledge

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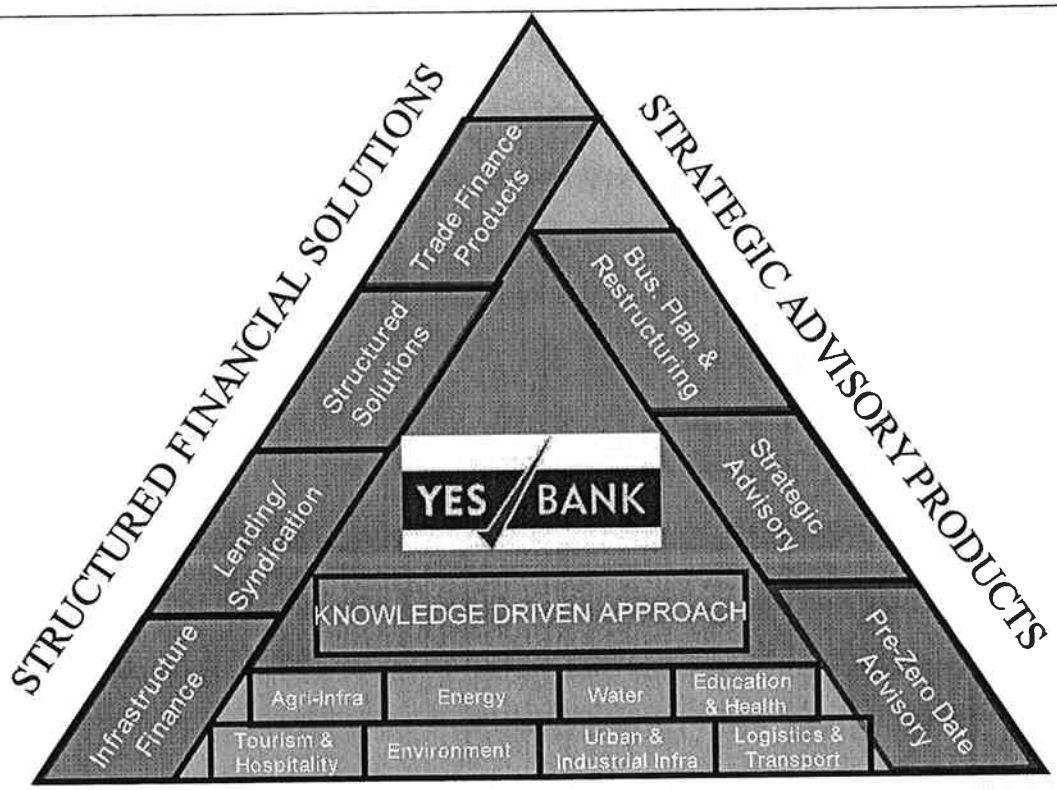
.... complements a Full-Scope Infrastructure Practice



Banking on Knowledge

SECTOR SPECIALISTS

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CDM – The Indian Market

India has been at the forefront of the nascent yet evolving CDM market ....

- Ministry of Environment & Forests, Govt. of India has been chosen as the DNA
  - The committee comprises of high powered inter-ministerial participants as members
- Renewable Energy projects comprise a major share of the 46 projects that have received host country approval
  - Biomass/Cogeneration (16), Industrial Processes (15), Municipal Solid Waste (1), Fuel Switching (2) and Renewables (12)
  - No project in Energy Efficiency and Forestry
  - Total CER potential of 35 mn ton of CO_2 eq.
- Netherlands, PCF (World Bank) and Japan have been major buyers
  - However, many new buyers entering the market – Canada, Austria, Spain
- Project Development has been balanced across the country
  - South (16), North (14), East (11) and West (3)
- India has again been ranked as the top CDM country (Source: Pointcarbon)

The international CDM market itself has witnessed significant positive developments

- Kyoto Protocol has moved from the realms of shelves to reality
  - First few projects registered with CDM EB; DOEs announced
- CERs volumes traded are increasing exponentially
  - Market picking up despite the uncertainties as corporates and governments are forced to act on internal pressures
- Price of CERs remain stable across pockets
- First unilateral CDM project registered in April 2005 - Cuyamapa Hydroelectric project

However, one needs to maintain cautious optimism since the market remains heavily skewed

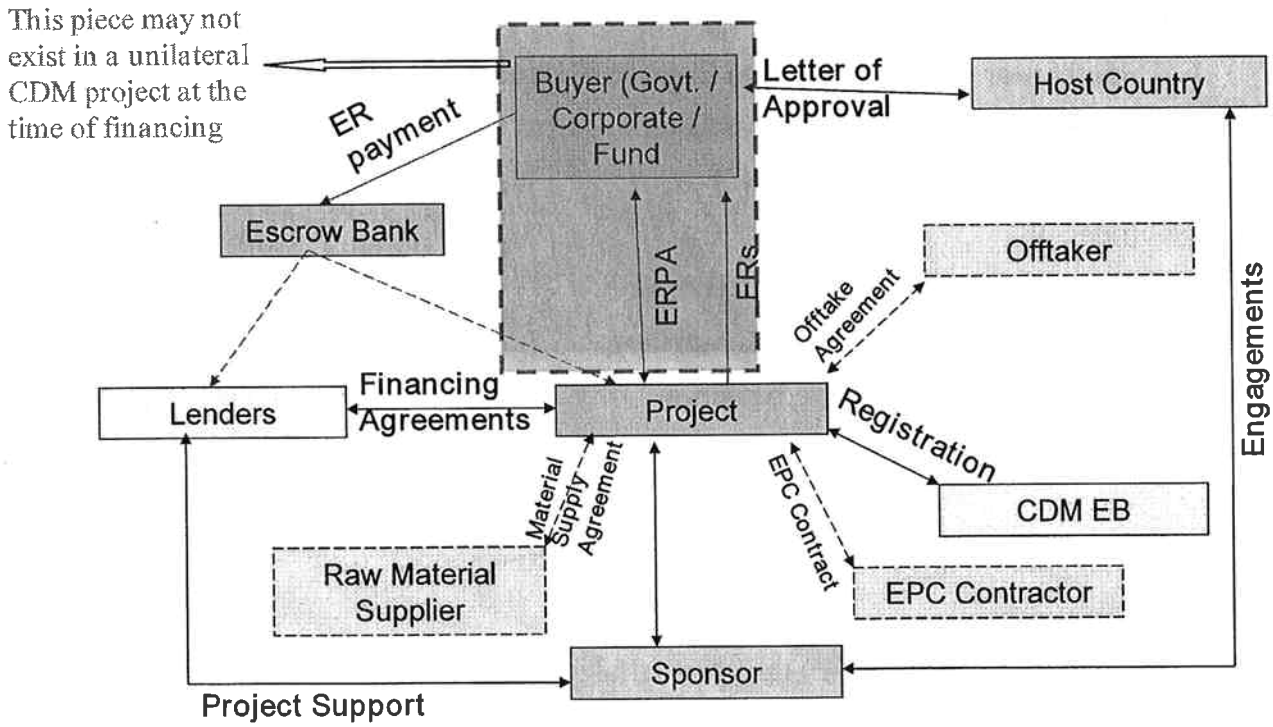
-HFC_{23} projects (2) comprised 1/3rd of emissions & Japan, World Bank & Netherlands accounted for 90% of the market.

-5 countries supplied 2/3rd of ERs;

-Although termed a "commodity", CERs continue to be heterogeneous

CDM Project Financing – Lender's perspective

The CDM transaction builds on the existing structure for the underlying project



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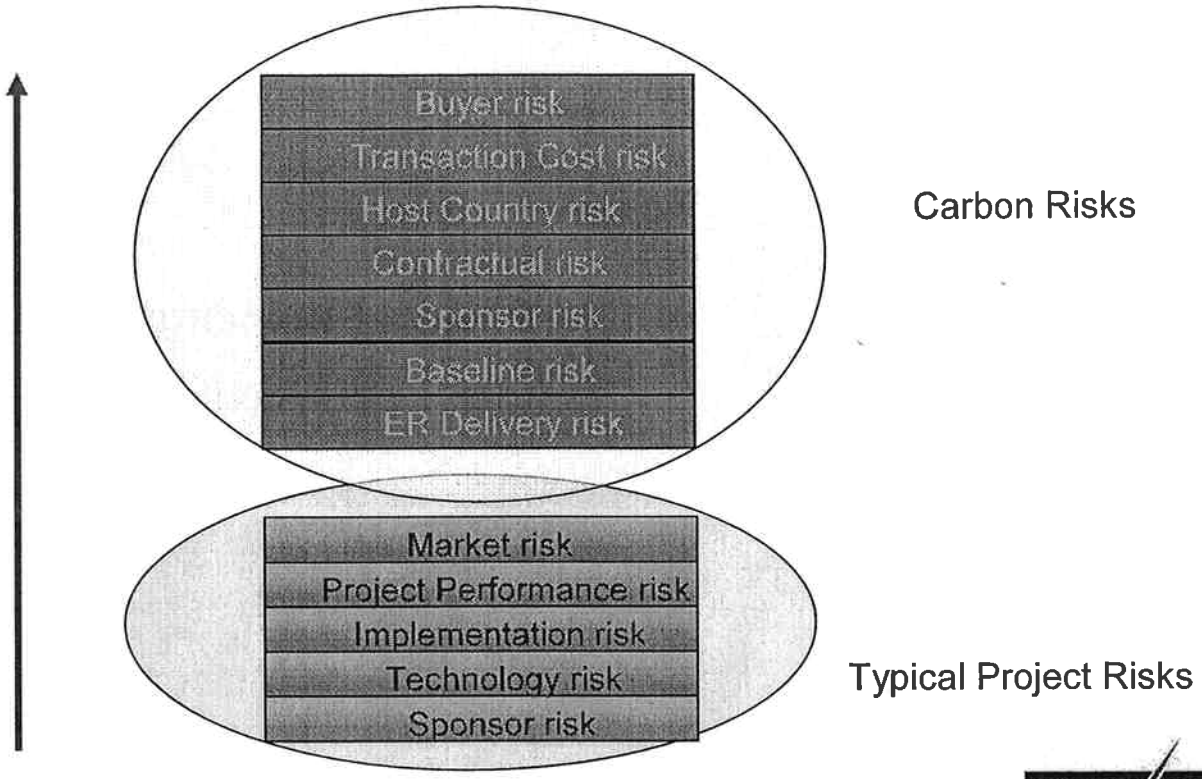
Identification of risks is the first step in evolving a suitable contractual structure for the project



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Lenders typically follow principle of allocation of risk to the party best positioned to manage it, some examples

- CER Delivery risk
  - Projects near to implementation in greater demand
  - Credit enhancement and Over-collateralization
  - Non-Delivery Risk insurance (?)
- Baseline risk
  - Sufficient margins in committed offtake
  - Early crediting to have an early warning
  - Credible parties measuring baselines
- Sponsor risk
  - Assess ability to bring in equity
  - Co-operation with strong and experienced partners
- Host Country risk
  - In case where Governments are part offtakers, clear seniority of claim over CERs
  - India's top ranking helps

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Risk allocation, some examples ....contd.

- Reduction of transaction costs
  - Cooperation with experienced partners
  - Economy of scale: not too small projects or bundling of projects
- Buyer risks
  - Enter into long term, fixed volume contracts
  - CER price fixed and in hard currency (US$ /Euro)
  - Options for excess CERs /2nd commitment period to be specified upfront

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Unilateral Projects – The Next Challenge

Unilateral CDM project represents an additional risk for the lenders ....

- Since the risk assessment of the project would vary with the offtake arrangement, a lender has to make crucial assumptions regarding the same for a unilateral project
  - Who would be the buyer – Sovereign Annex I party /blue-chip corporate /fund /intermediary
  - What price to expect for the CERs & currency
    - A large CDM project might not have one buyer, but multiple buyers
  - What would be the main terms of the ERPA
  - What would be the eligible period of the CERs – 5 years /7 years /10 years
  - Would the buyer be interested in altering the project contours

... in a market not adequately equipped to assess such projects

- Major stakeholders involved in financing of the projects include, from amongst, the following
  - Project developers
  - Equipment suppliers
  - CER Buyers
  - Commercial banks
  - Insurance agencies
  - Multilateral agencies
- Most of the institutions mentioned are not fully equipped to appraise carbon mitigation projects

What would facilitate development of unilateral projects

- Standardization of the market
  - To ease recognition and movement between markets
  - To minimize risks involving cross-border cross-regulatory systems
  - To impart liquidity and transparency in the market
- Presence of large corporate project developers
  - Experience of working in international markets and of developing large projects unilaterally
  - Presence of a large balance sheet as a contingent back-up
- Implementation of projects with proven technology
  - Surrogate for level and vintage of CERs being generated

.... Facilitation of unilateral projects

- Working through an institution (bank /intermediary) that can act as a "bridge" between project developer – buyer and financial markets
  - Would assist in faster financial closure of projects
  - Till such time as capacity building initiatives being instituted by agencies such as ADB bring the desired result
- Development of hybrid projects for the first few transactions
  - Contain a mix of assured revenue contracts and merchanting revenue CERs
  - Assured contracts to cover at the minimum debt service

Till the CDM market is commoditized, differential criteria would be used to finance balance sheet & SPV projects

- Projects set up by corporates and structured to be financed utilizing the existing balance sheets would continue to get funded
  - On terms fairly similar to that of other projects set up by these corporates
  - With the underlying risk being that of the corporates
  - Primarily by banking institutions that have a lending relationship with the corporate
- Projects that require project financing (non-recourse) would require significant contractual framework
- Thus, a balance sheet financed CDM project would have comparatively faster financial closure than a non-recourse off-balance sheet financed CDM project

In nutshell .....

As the carbon market moves from infancy to maturity, Indian CDM market offers tremendous opportunities for CER buyers. Development of unilateral projects would create a new league of "off-the-shelf" projects for CER buyers and further consolidate India's position as the eminent CDM nation.

We look forward to getting associated with you

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Telephone: +91 22 5669 9000
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Banking on Knowledge

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Asia

CDM financing : Explored

N Y Dinesh Babu
Asia Carbon International B.V
Workshop on Financing Modalities of CDM
28 June 2005

Early Expectations from CDM

- TT : involving technology giants from Annex I
- Investments in clean energy projects to harvest CERs
- International FIs to structure & implement new models
- Integration of carbon finance with underlying project finance
- High CER price levels to influence project investment
- CDM as risk mitigation tools and
- Develop models for high SD oriented rural energy projects

FIs and CDM

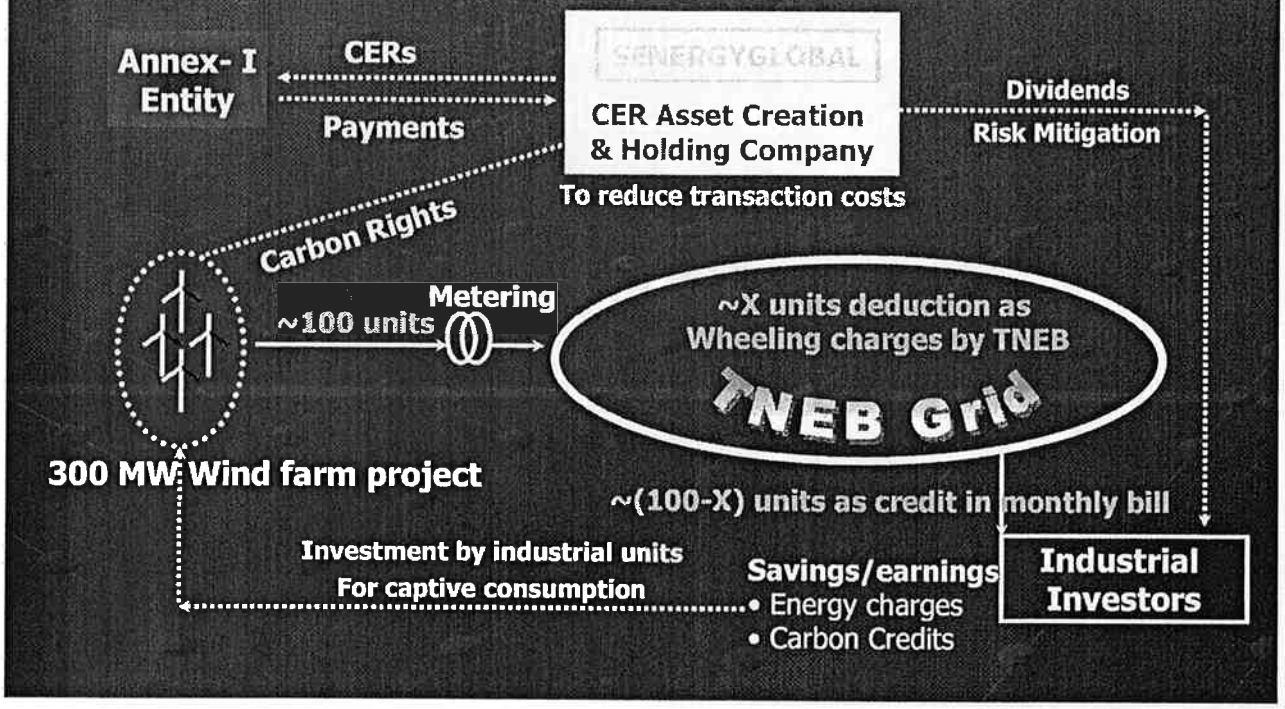
- International FIs reluctant
  - Additional risks with host of uncertainties
  - Lack of linkages with local FIs
  - Low CER revenues
- CER revenues yet to be recognized by local FIs for leveraging financing
  - Low awareness levels and skills
  - Low CER revenues
  - Provide consultancy & share incase of success

Impact of CDM financing : Case study

- Project cost per MW — Rs 42 Mio ~US$1 Mio
- Total project cost — Rs 21 Bio ~ US$500 Mio
- Projected PLF (average) 32-34 % (@ generator controller) (against all India average of 20%, & TN average of 25%)
- Average wind speed — 7-7.5 m/s
- O&M (including insurance) cost — 1.7-2%
- Cost of generation (in Rs/kWh) — Rs 2.39/kWh
  Levelised annualised — 5.3 US(C)/kWh
- Estimated El. Genrtn. per annum — 1400 Million Units
- Estimated CERs from the project — 10.47 MtCO2 (till 2012)
  - IRR change : 3-6 % (substantial change)
  - RoE change : 5-9 % (substantial change)

(Southern Indian Region Baseline)

Project structuring for CER Assets



CDM financial models

- Equity participation
  - Heavily discounted but serves the purpose of the project promoters (seller)
- Debt
  - Mismatch between CER returns and debt
  - Co-financing options – collateral / mortgage
- Project O&M cost
  - Limited application (wind farms and bundling)
  - CER price fluctuation
- ERPA based loan / equity : Promissory notes
  - Delivery risk – need for insurance (comes with a high premium yet complex)

CDM financial models : insight

- Market players are already into it
  - FIs, Banks and Corporates developing innovative concepts and implementing
- Benefits always lopsided – cost for the innovation
- High risk proposition
  - CDM yet to streamline
  - Spot CERs trading yet to happen (again benefits to be misplaced)

ACI Group of Companies

- Founded on Feb 4 2003
- Presently headquartered in the Netherlands
- Regional presence in Singapore
- Research Centre in Vietnam –
  - Asia Carbon Vietnam
- Offices in Malaysia, Indonesia and Australia
- Working partners in Sri Lanka, Thailand, India, Philippines, and Suriname

The Asia Carbon Group
"Total carbon solutions"

Capacity Building	Project & Carbon Advisory ACaDF™	Project / Carbon Finance	ACX-Change™	Asia Carbon Fund™
•Region specific focused Capacity Building. •Backed by clearly defined pilot projects •Development of local expertise •Mentoring service for local consultants •Set up Local Center of Excellence ❑PDD expertise ❑Local OE- operating at local costs	•Identification of CDM project opportunity •Evaluation & Initial documentation •Preliminary CDM due diligence •Framing the PIN •Pitching to investors •Framing the PDD •Taking the project thru the whole approval / certification process	•On approval – assisting with the fund raising •Effective structuring of the investment •ESCO model in case of energy projects •VC + incubation model – hand hold the local developers	•Carbon Asset Management. •Complete alignment of interests – there is no scope for conflicts of interests. •Portfolio / mutual fund approach provides better valuation + scope for non performance insurance. •A Win-Win solution •Lowest Transaction costs in the sector	•Manage CDM related investments into Asia •Set up project execution + Management team •Advantages – Adequate safe guards – Quality management – Complete transparency – Exit option after harvesting CERs – Return on investment to cover cost of funds + premium for risk – Structured finance – to optimise local debt component

AC-aDF™

- Presently Operational
- Initial Corpus: USD 200,000 , growing

- Objectives:
  1) identify, fund & develop PDDs for CDM projects
  2) harvest and management of Carbon Assets
- Status
  - 3 PDDs under finalisation in Vietnam
  - Few identified and under finalisation in India, Malaysia, Indonesia, Sri Lanka and Philippines

AC X-Change™

First CDM focused exchange in the World.. To aggregate sellers of carbon credits from developing countries...

- Web based 24 x 7
- Soft launch – Carbon Expo - May 2005, Cologne, Germany.
- Fully operational by end 2005
- Virtual on-line platform with built in registry, trading, clearing and settlement facilities
- Partnered with new values (Climex, Holland)

"The supreme reality of our time is the vulnerability of our plant."
– John F. Kennedy

Thank you

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Head, Climate Change
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Session V

Host countries' policy on CDM implementation

CD4CDM PHILIPPINES

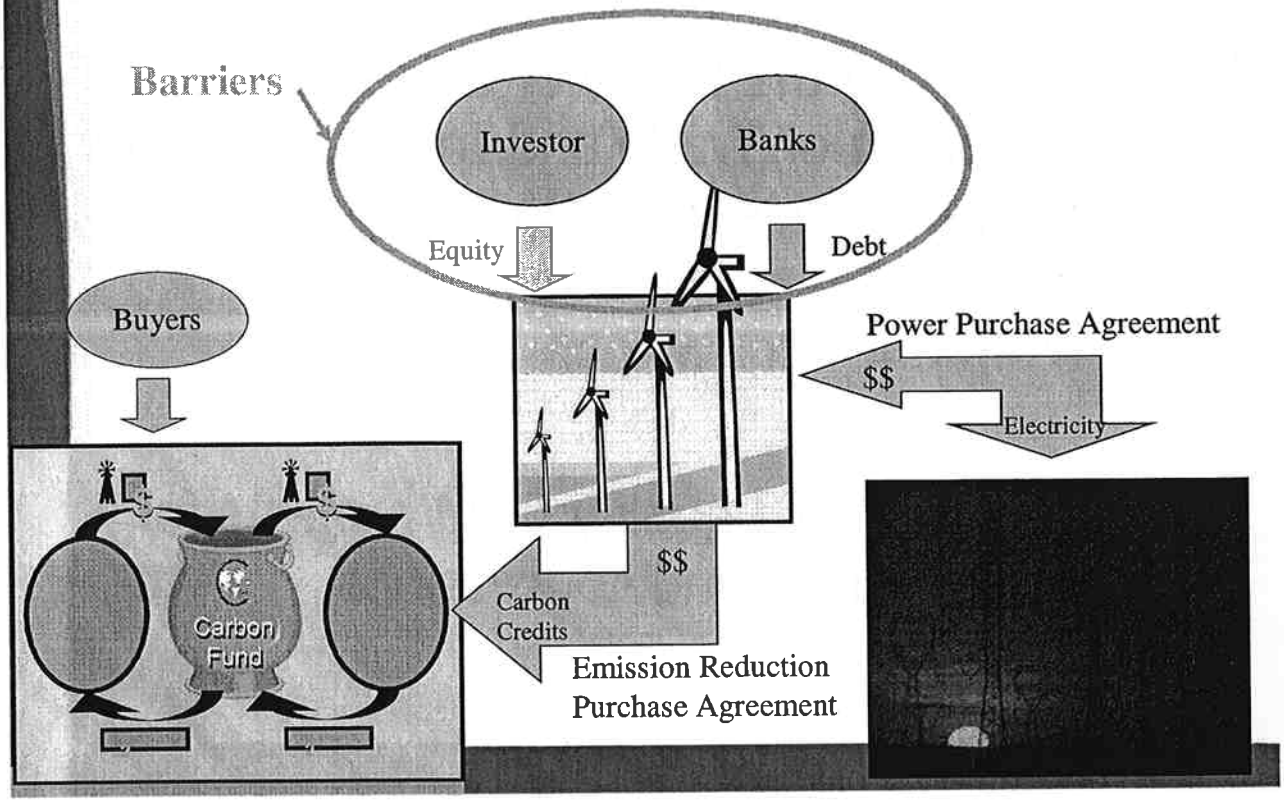
Some policy measures which may attract commercial financing of CDM projects in the Philippines

Workshop on the Financing Modalities
of the Clean Development Mechanism (CDM)
Jakarta, Indonesia
28th June 2005

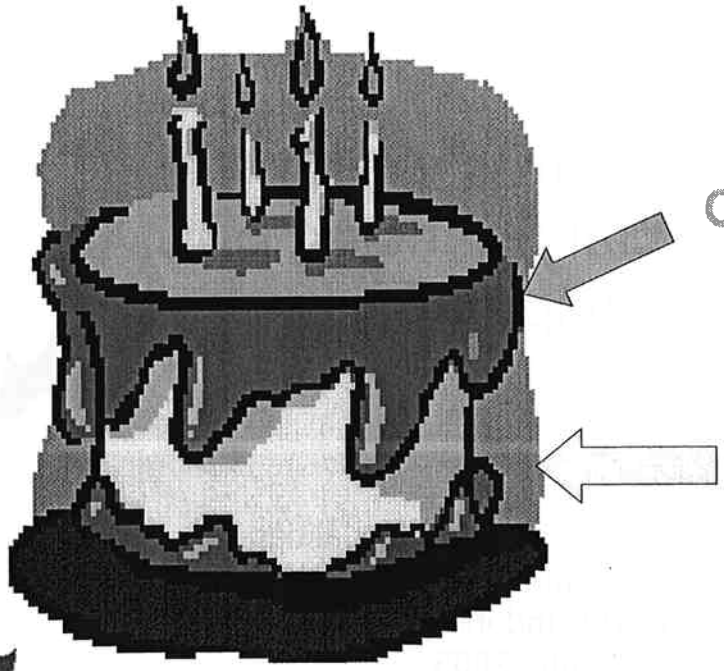
klima

Financial structure of CDM Project

CD4CDM PHILIPPINES



Carbon revenue as enhancement



1. Investment Incentives

- Inclusion by the Board of Investments – Department of Trade and Industry of CDM project activities as a "Preferred Investment Area" in the Philippine Investment Priority Plan

- Inclusion would qualify CDM projects for tax exemptions and concessions

1. Investment Incentives

- Income tax holiday
  - For between first 4 to 6 years of commercial operation
  - **Question: Would CER revenue be covered under this income tax holiday?**
- Tax & duty exemption on imported capital equipment & accompanying spare parts
- Tax credit on domestic capital equipment
- Tax credit for taxes and duties on raw materials

2. Guidelines on ERPA

To be issued by

- Central Bank
- Bankers Association of the Philippines

- Issue guidelines on how commercial banks can use the Emission Reductions Purchase Agreement (ERPA) in their appraisal of loan applications

2. Guidelines on ERPA

- What criteria can be used to judge the credit-worthiness of the ERPA? For example:
  - VER? or CER?
  - If CER, post 2012 uncertainty
  - Assessment of the contracted price of the ER
  - Risks in the non-delivery of the contracted ER
- How much of the contracted value of the ERPA can be considered in the project cash flow assessment by the bank?

3. Bond financing

- Department of Finance could facilitate and guarantee bond financing of CDM projects
- Issue municipal bonds for renewable energy projects, landfill projects
- Issue Zero Coupon bonds for forestry projects

4. Incentives for renewable energy projects

- Proposed Renewable Energy Bill

- Higher tariffs for power produced by renewable energy
- Priority dispatch for power produced by renewable energy

Maraming salamat!!

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Workshop on
Financing Clean Development Mechanism
Jakarta, Indonesia
27-28 June 2005

Policy Measures to be taken by Parties to the UNFCCC to mitigate and share the risks on CDM

Presented by Heng Chan Thoeun, Team Leader for
Capacity Building, CD4CDM Project
Ministry of Environment, Cambodia

1

Contents

2

1. Background Information

- Party to both the UNFCCC (1995) and the Kyoto Protocol (2002)
- The Ministry of Environment (MoE) is the National Focal Point for the UNFCCC and the Kyoto Protocol
- MoE is the Designated National Authority (DNA) working with other concerned ministries/institutions.

3

2. Potential Risks

- Political instability of host countries (sovereign risks)
- New international legal framework
- Inadequate legal framework of host countries
- Uncertainty beyond first commitment period
- Price uncertainty, no disclosure of CERs prices
- Illiquid and complex market (hard to make, hard to sell, hard to buy)
- Difficulties for host countries to monitor and verify SD benefits
- Lack of funding for the EB to function.

4

3. Policy Measures to Mitigate and Share the Risks on CDM

- Sovereign risks => insurance
- New international legal framework => clarification of rules
- Inadequate legal framework of host countries => establish legal framework
- Uncertainty beyond first commitment period => improved commitment to COP/MOP negotiations
- Price uncertainty, no disclosure of CERs prices => disclosure of CER market prices
- Illiquid and complex market => more projects approved in shorter timeframe, improve CDM registration and approval processes
- Difficulties for host countries to monitor and verify SD benefits => Conditional approval based on SD performance, requirement of DOE to verify SD performance
- Lack of funding for the EB to function => immediate payments from Annex-1 countries.

5

Thanks for your attention!

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Workshop on the Financing Modalities of Clean Development Mechanism (CDM)

Jakarta, Indonesia 27 - 28 June 2005

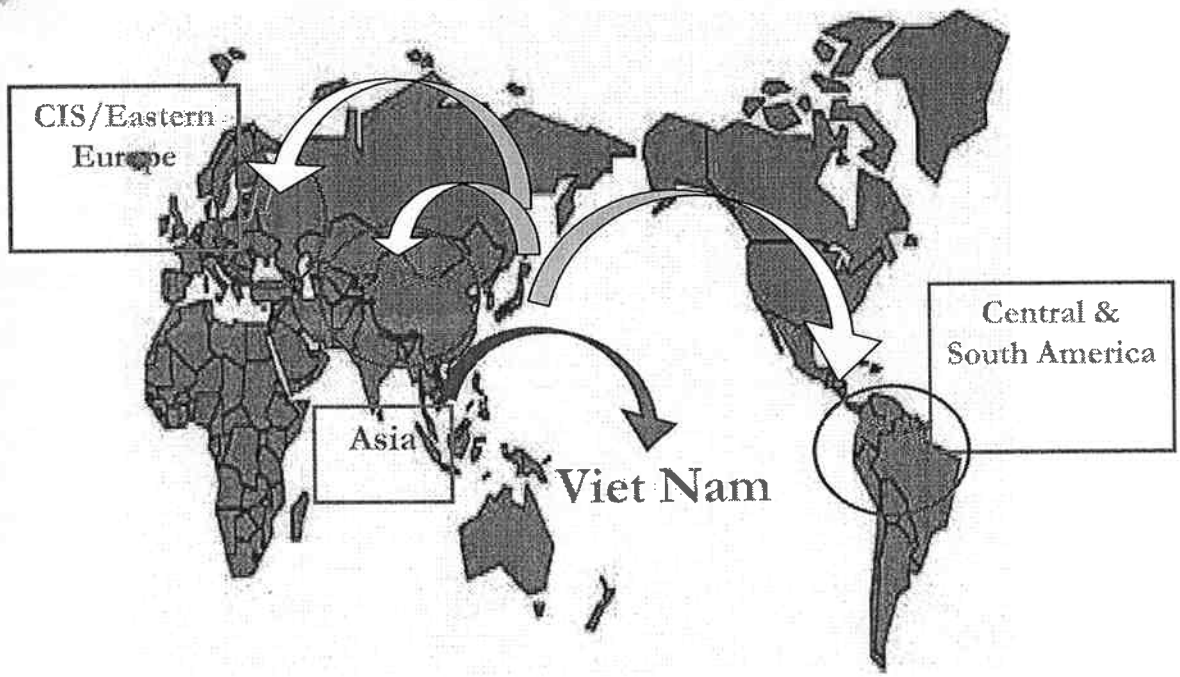
The Finance Mechanism for CDM project in Viet Nam

Currently, Challenge and Opportunity Assessment Overview

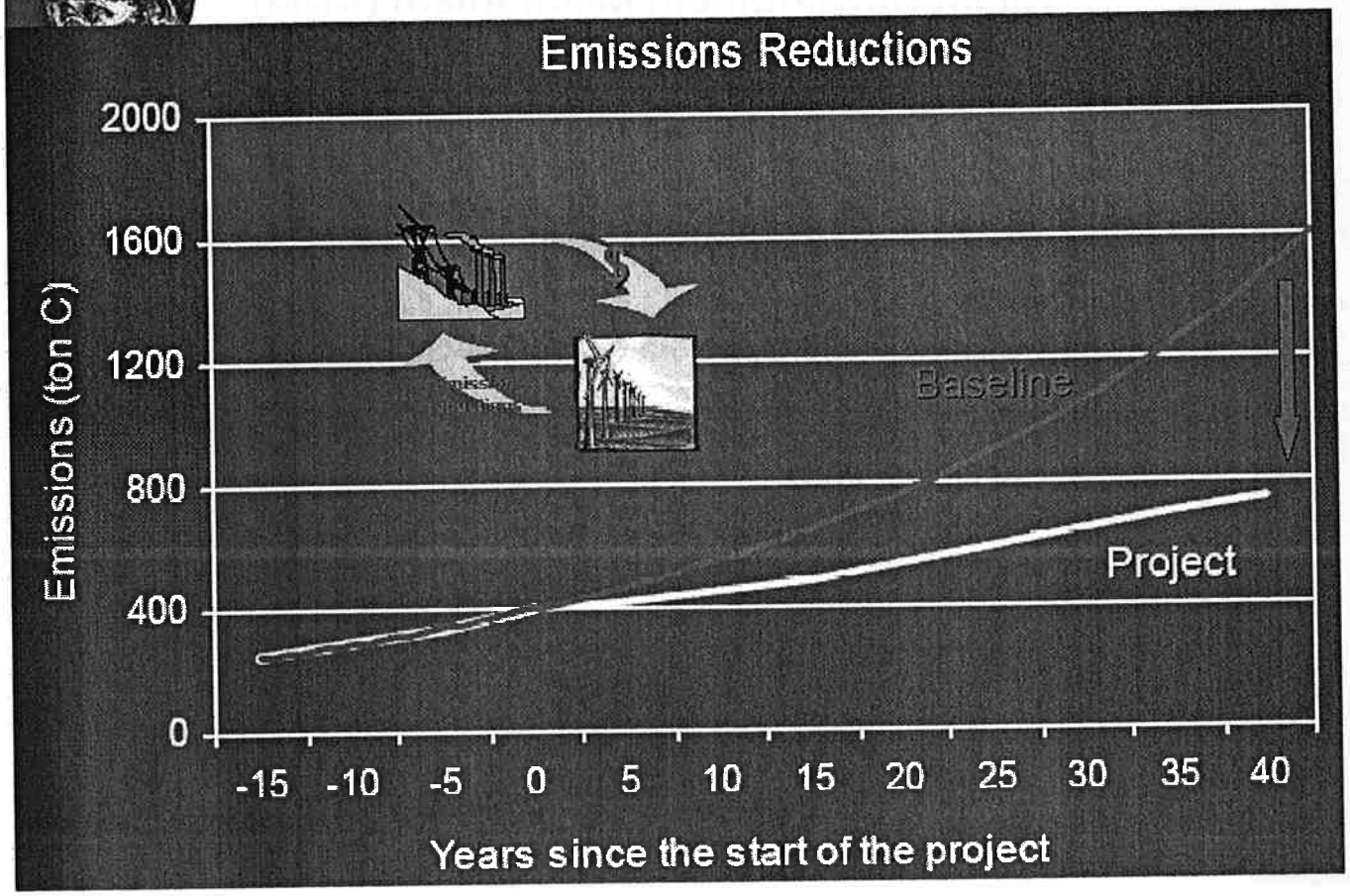
Nguyen Chi Quang Ph.D.
Senior Expert and Advisor
CDM Project and Climate Change
Viet Nam

Ministry of Natural Resources and Environment

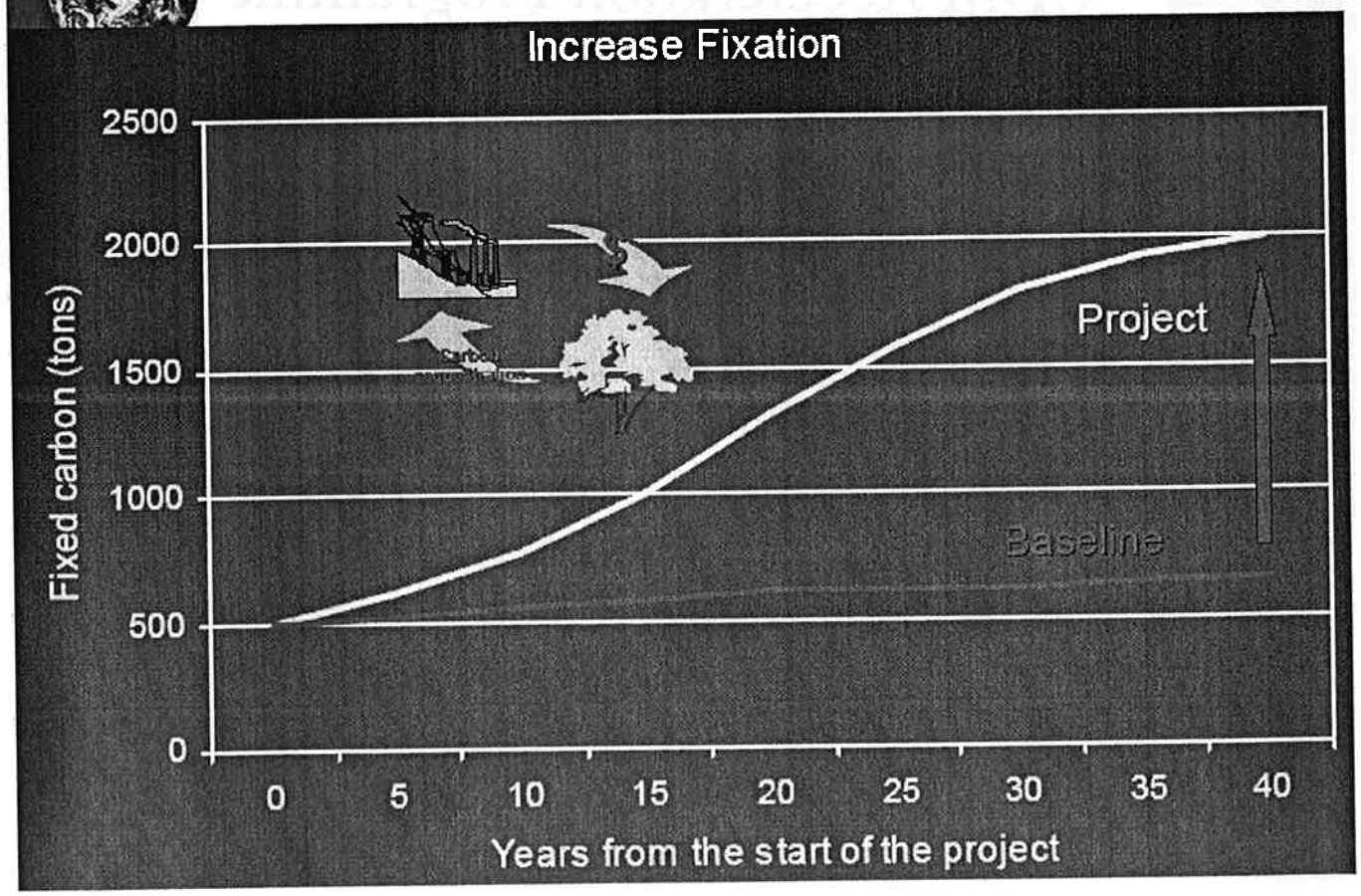
CDM Acceleration Programme



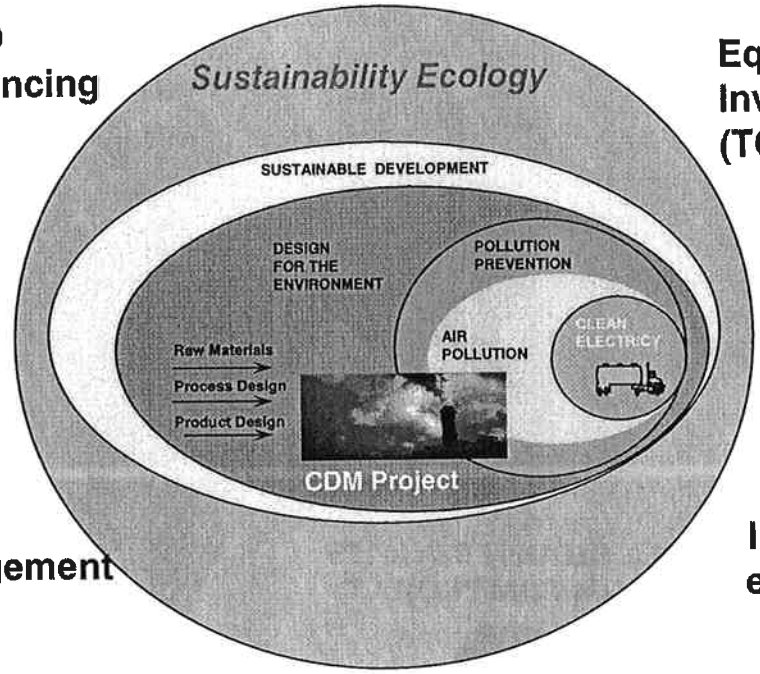
Additional Carbon: Sources



Additional Carbon: Sinks



NEED TO FINANCING A CDM PROJECT ?



R&D Financing

Equipment & Investments (TCA, etc.)

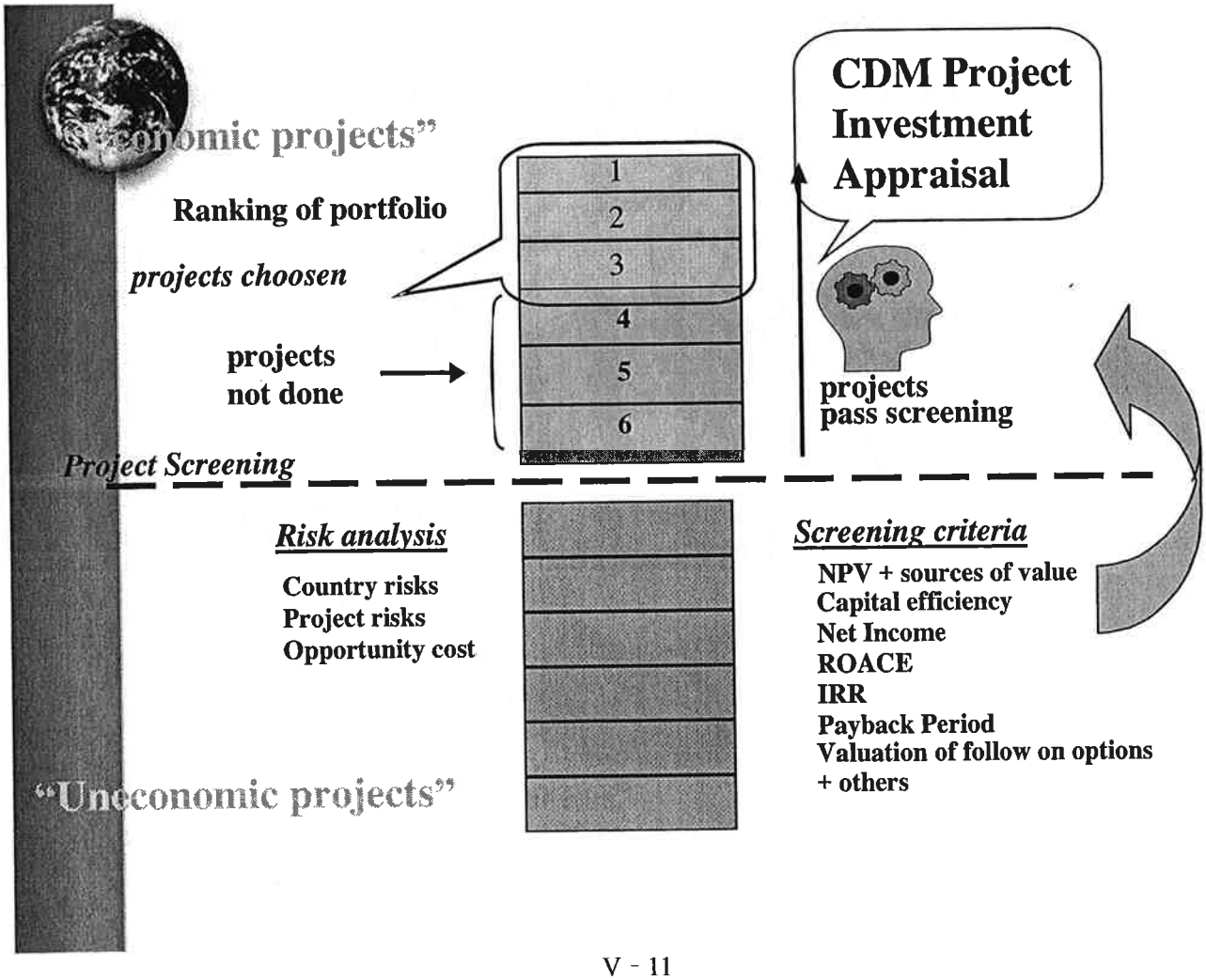
Enabling Financing

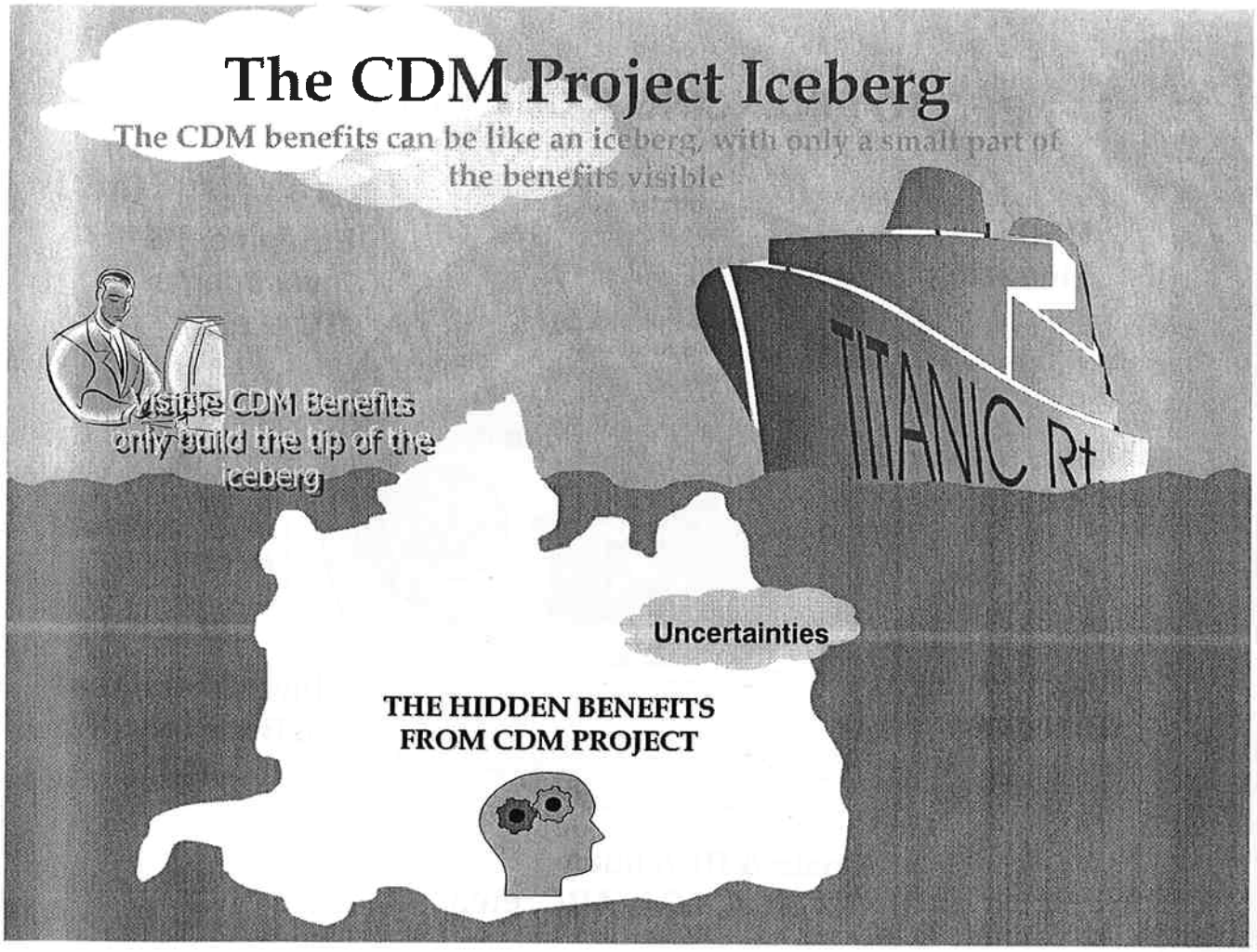
CLEAN DEVELOPMENT MECHANISM

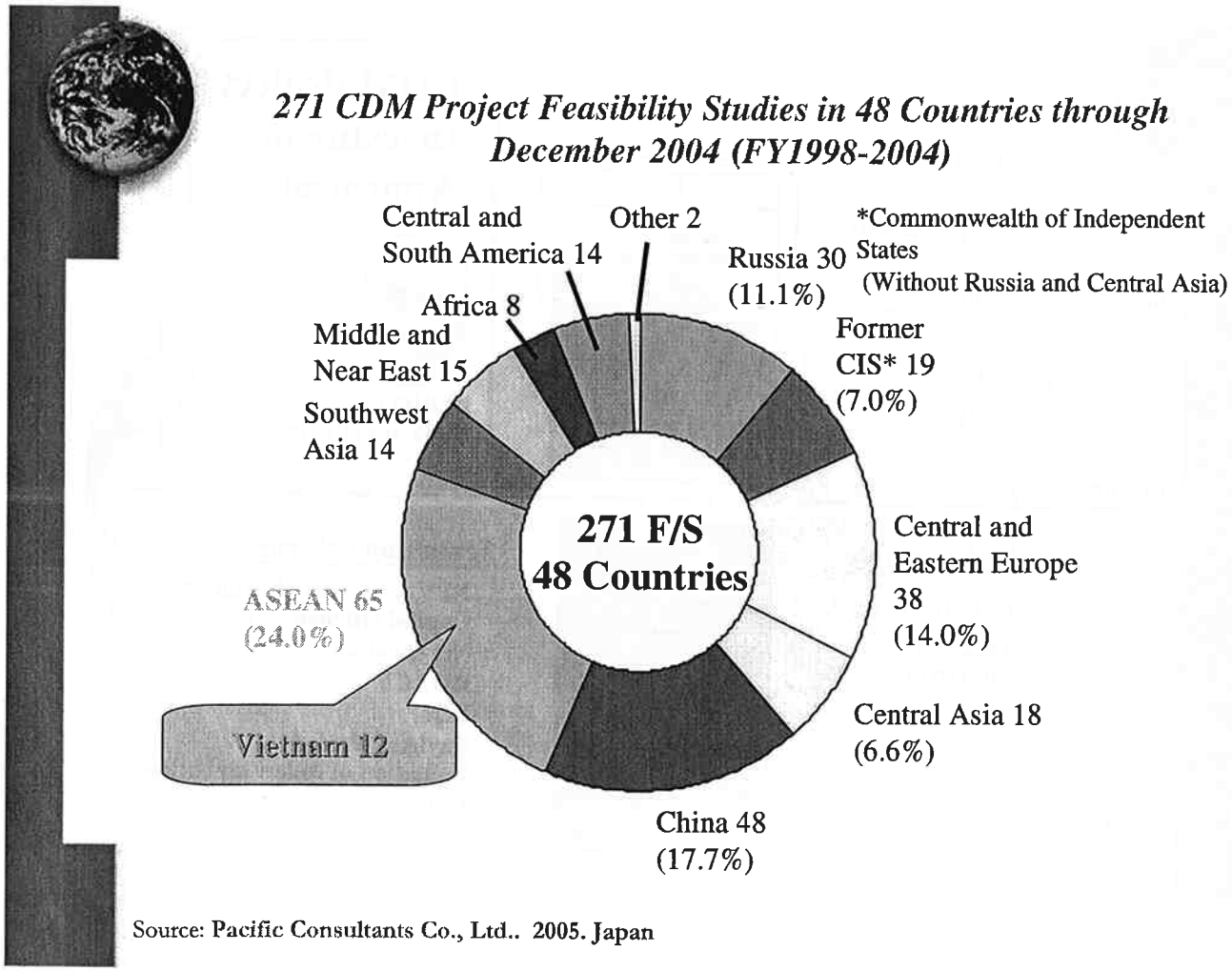
Risk Management

Investment/Asset Recovery (IR, etc.)

Costs & Revenues (EA/ECA, LCA, ABC, etc.)







Source: Pacific Consultants Co., Ltd.. 2005. Japan

Key Criteria at Screening of CDM

Project Description and Project Participants

- ***Fulfillment of Kyoto Rules:***

  Methodology (Baseline Study & Monitoring Plan)

  Validation (Methodology Applicability, Data, Quality Control, etc.)

  Possibility of Authorization & Approval by Host Country

  Stakeholders' Comments

- ***Additionality*** *(Investment Analysis/Barrier Analysis and Common Practice Analysis, etc.)*
- ***Environmental & Social Safeguard Requirements:*** *Compliance with Laws & Regulations, etc.*

Key Criteria at Screening of CDM

Project Feasibility:

Construction Plan, Business Plan and Fund-raising Plan

Project-related Contracts

Concession/License & Permits

Creditworthiness and Competence of Project Sponsors

Experiences of Management and/or Project Operator

Commercially Viable Proven Technology

Financial Viability (Cash Flow Projection, Sensitivity Analysis, etc.)

- ***Contribution to Sustainable Development of Host Country*** *(Environmental, Social & Economic Impacts, Technology Transfer Effects, etc.)*
- ***Portfolio Guideline and Purchase Conditions***

Structural Barriers to CDM Project Implementation Project Participants' Viewpoint:

1. Cumbersome Procedures to Obtain CDM Approval

- Project participants must receive CDM project approvals from host country, investing country, independent organization and international authority.

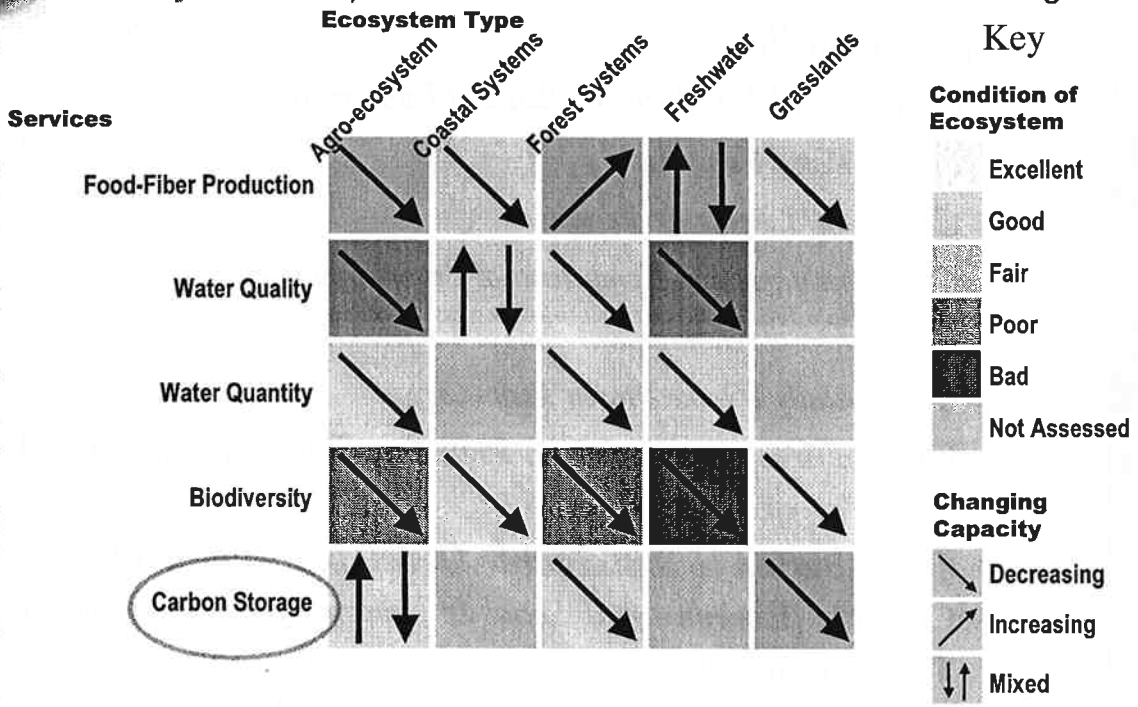
➡ **Much More Time Consuming than Traditional Projects**

2. Contradiction Between Profitability and Financial Additionality

- Financial Additionality: Would project have taken place without CDM credits?
- If project participants claim financial additionality, the only way to make a profit is through the sale of CO_2 credits in their project profitability plan.
- However, it is possible that the **verified** CO_2 credit amount will be less than the **validated** amount determined after monitoring.
- Therefore, project participants will have to develop profitability plans to avoid this risk, but this makes it harder for project participants to prove financial additionality.

➡ **Difficult to Design a Profitable CDM Project Plan**

ISSUE: *A recent study* shows that the capacity of many ecosystems to provide certain services has been declining…*

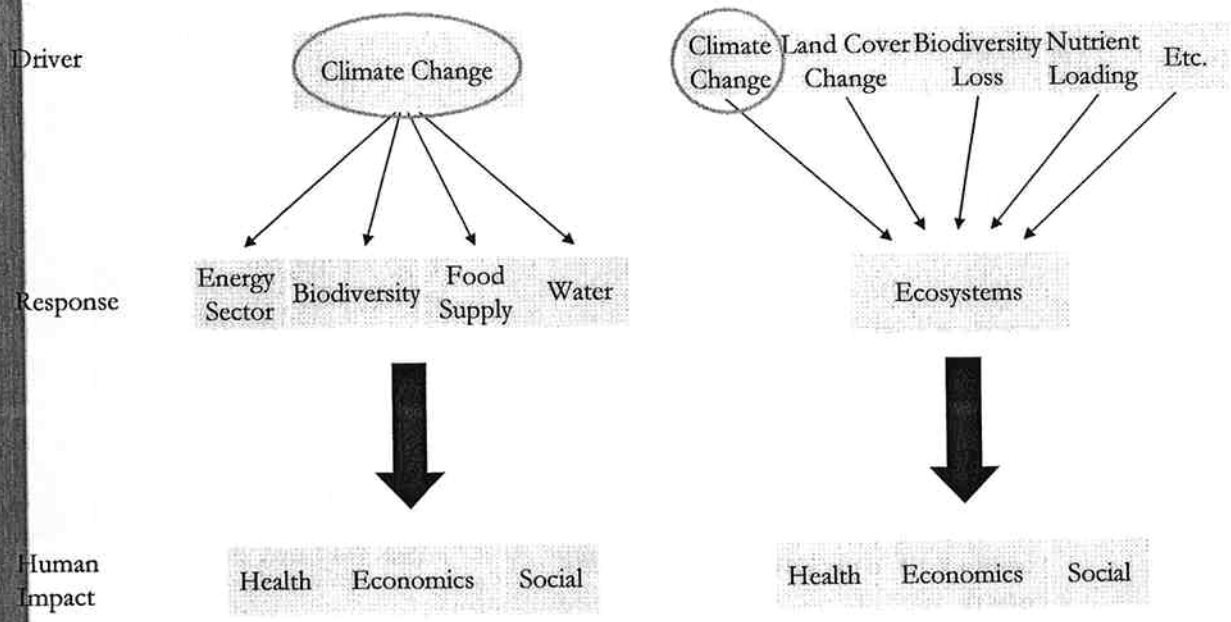


*Source: Pilot Assessment of Global Ecosystems. 2000. WRI, IFPRI

The MA is an Integrated Assessment

IPCC looks at impacts of one driver (climate change) on different systems;

MA will integrate the effects of multiple drivers on all ecosystems

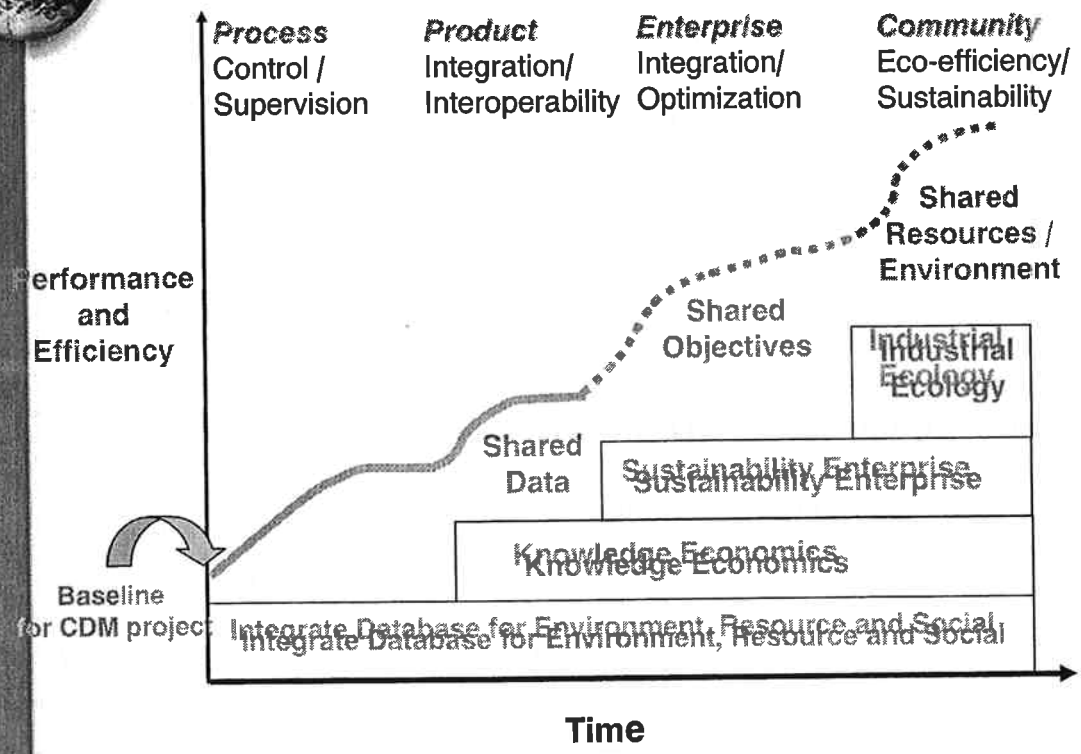


IPCC

Millennium Assessment

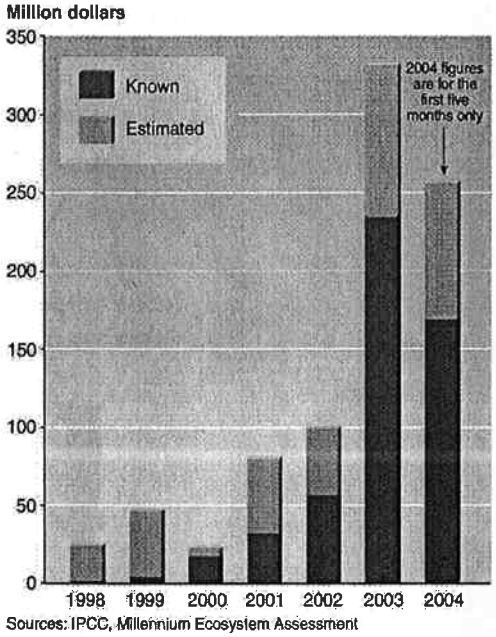
*Source: Pilot Assessment of Global Ecosystems. 2000. WRI, IFPRI

Potential Benefits for CDM



Ecosystem Responses: Economics

- Market-based approaches
  - Creation of markets, including through cap-and-trade systems
    - One of the most rapidly growing markets related to ecosystem services is the carbon market. The value of carbon trades in 2003 was approximately $300 million. About one quarter of the trades involved investment in ecosystem services (hydropower or biomass)
    - It is speculated that this market may grow to some $44 billion by 2010



Total Carbon Market Value per Year

Vietnam's present and future on CDM Project Financial Mechnism

Risk, Barrier and Possible Solutions

Nguyen Chi Quang Ph.D.
Senior Expert and Advisor
CDM Project and Climate Change
Viet Nam

Ministry of Natural Resources and Environment

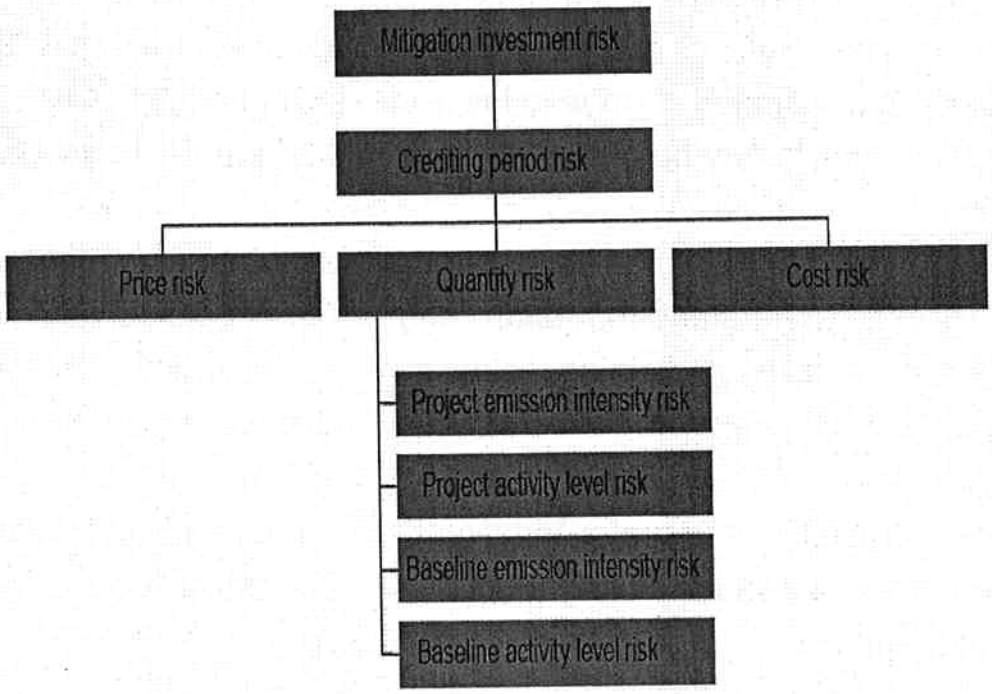
Main CDM Project Risks

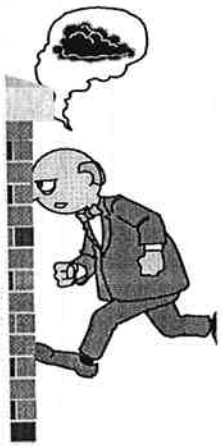
Type of risk	Description
1. Conventional project risks	Risks that are common to all projects in developing and industrialised countries, e.g.: ■ **exceeding costs:** e.g. the employed technology needs costly repairs or the construction of the project is delayed ■ **market risks:** e.g. relevant fuel prices increase and the project is no longer economically efficient ■ **counterparty credit risk:** e.g. risk that the technology provider becomes insolvent ■ **underperformance:** e.g. non-achievement of design standard efficiency ■ **currency risk:** e.g. high inflation levels ■ **force majeur:** an event beyond the control of the involved parties, e.g. earthquake, terrorism attack
2. Host country political risks	From a financial sector perspective, projects in developing countries are usually regarded with a higher level of risk than projects in the industrialised world because of the often less developed legal and political infrastructure, e.g.: ■ risk of **confiscation, expropriation and nationalisation** of the CDM projects ■ **(civil) war risk:** e.g. risk of riot, strike and civil commotion within the CDM host country ■ **contract repudiation/frustration:** risk that a contract is rendered invalid e.g. by a parliament introducing new legislation ■ **credit risk:** in particular risk of host country insolvency ■ **further administrative barriers:** e.g. host country requires various administrative procedures that delay the project
3. CDM process risks	Risks that are specific to the generation and sale of CERs, e.g.: ■ **CDM Executive Board non-approval:** e.g. no registration of the project by the Executive Board or an already approved methodology is withdrawn by the Executive Board ■ **CDM risk:** there is no CDM beyond 2012 ■ **monitoring/verification risk:** e.g. inaccurate monitoring by the Designated Operational Entity ■ **public consultation risk:** non-acceptance of the project by NGOs or local communities ■ **institutional barriers:** e.g. the host country's Designated National Authority is not fully established and not working cooperatively with the investor ■ **CER legal ownership:** unclear about who is the legal owner of the CERs

Source: 3C Ltd.

Keys barriers and Risk for CDM project

Risks of investments in climate change mitigation





General Difficulties and Barries

- The awareness and knowledge of CDM among managers, policy makers, environment experts, enterprises, private sector, general public are still limited
- CDM issues are not integrated into development strategy, policy, master plan of Ministries, Branches, Agencies, Localities.
- Lack of an appropriate institutional framework for promoting CDM activities.
- Lack of experiences on CDM
- National budget is limited

Viet Nam Political and Sovereign Risk

1. Potential investors and project developers will carefully assessthe perceived level of sovereign and political risk in a Viet Nam before becoming involved in a CDM Project.
2. Viet Nam decisions or events can impact adversely upon a CDM Project (for example, change in law,excessive administrative burdens) which may be out of the control of all parties to a CDM Project
3. The Viet Nam Government (e.g. the DNA) could assist potential investors to understand the nature and extent of political and sovereign risks by explaining issues such as the policy in relation to the CDM and relevant legal frameworks which will impact the project.
4. Investors are likely to prefer Viet Nam with an established legal and political system which clearly recognise and support CDM investment.

Keys barriers and Risk for CDM project

• Governments consider R&D funding problematic • Private firms cannot appropriate full benefits of their R&D investments	• Governments consider allocating funds for demonstration projects difficult • Difficult for private sector to capture benefits • Technological risks • High capital costs	• Financing for incremental cost reduction (which can be substantial) • Uncertainties relating to potential for cost reduction • Environmental and other social costs not fully internalised	• Weaknesses in investment, savings, and legal institutions and processes • Subsidies to conventional technologies and lack of competition • Prices for competing technologies exclude externalities • Weaknesses in retail supply, financing, and service • Lack of information for consumers and inertia • Environmental and other social costs not fully internalised

Further barriers to CDM project implementation and financing

Firstly, the CDM process is rather long and often perceived to be inefficient. The CDM registration process is bureaucratic with numerous layers of outside intervention, protracted decision making, review, and options to appeal.

Secondly, the heavy and steadily increasing workload of the CDM Executive Board is obviously problematic.

Thirdly, there is a lack of institutional capacity both in host and buyer countries.

.

Fourthly, the project's additionality is often a problematic issue. Clearly, additionality is central to the environmental integrity of the CDM and there has been intense debate about how additionality (according to Article 12 of the Kyoto Protocol) should be tested.

ANALYTICAL BARRIERS FOR CDM FINANCING

The dearth of quantitative or semi-quantitative analyses demonstrating the relationship between climate change, carbon regulations and value creation/erosion

Low understanding of the financial benefits of ancillary sustainability activities

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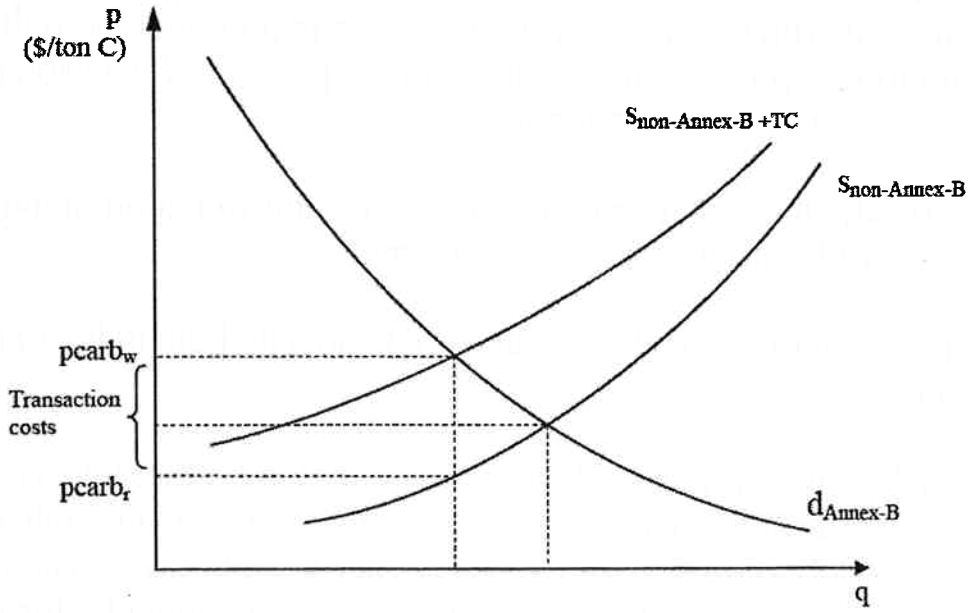
Low awareness of climate change and carbon finance issues among key finance and insurance sector advisors

Insufficient inclusion of carbon finance analyses into conventional investment banking activities

Poor data availability among industrial company

Inclusion of transaction costs



Transaction Costs As Barriers to CDM Market Development

- Small projects involving clean technologies such as small wind, biomass, micro-hydro often
  1. – have higher unit costs due to small size
  2. – displace lower carbon intensity end-uses
  3. – operate in riskier environments (e.g. remote rural areas)
- To be competitive in CDM such projects need
  1. aggregation to reduce transaction costs
  2. streamlined/ simplified CDM procedures

Policy Options to Remove the Barriers and Facilitate to Financing for CDM project

• Formulating research priorities • Direct public funding • Tax incentives • Technology forcing standards • Stimulating networks and collaborative R&D partnerships	• Direct support for demonstration projects • Tax incentives • Low-cost or guaranteed loans • Temporary price guarantees for energy products of demonstration projects	• Temporary subsidies • Tax incentives • Government procurement • Voluntary agreements • Favourable pay-back tariffs • Competitive market transformation initiatives	• Phasing out subsidies to established energy technologies • Measures to promote competition • Full costing of externalities in energy prices • 'Green' labelling and marketing • Concessions and other market-aggregating mechanism • Innovative retail financing and consumer credit schemes • Clean Development Mechanism

How can the CDM project process be improved in Viet Nam?

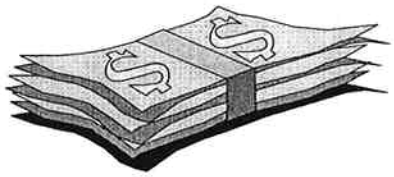
Firstly, Simplify, standardize and streamline the CDM project and process

Secondly, Provide prompt and clear guidance on the CDM regulations beyond 2010

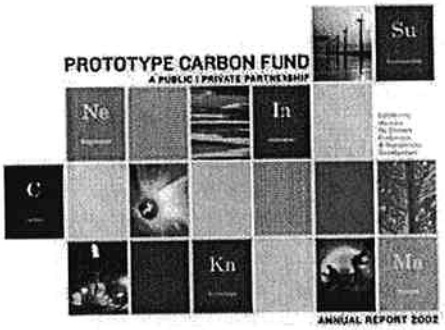
Thirdly, Foster the development of institutional CDM project capacities in Viet Nam

Fourthly, Rethink the interpretation of additionality

The CDM Fund in Viet Nam is Financial Sustainability



World Bank
Carbon Finance Products



Netherlands CDM Facility

Community Development Carbon Fund

BioCF

BioCarbon Fund

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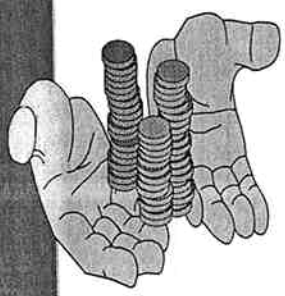
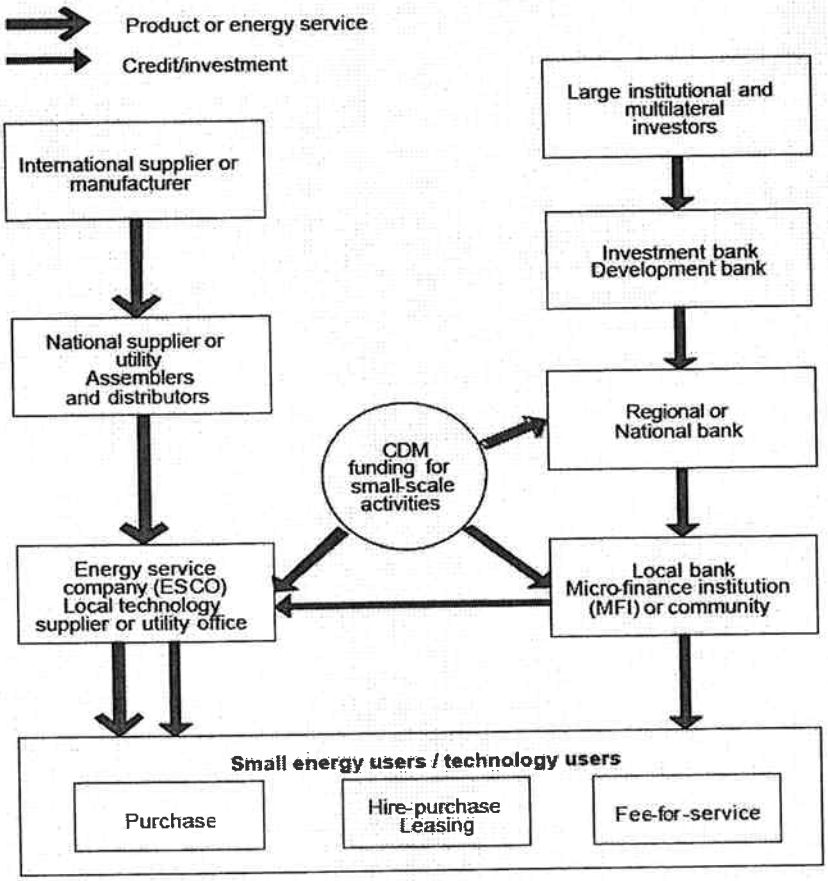
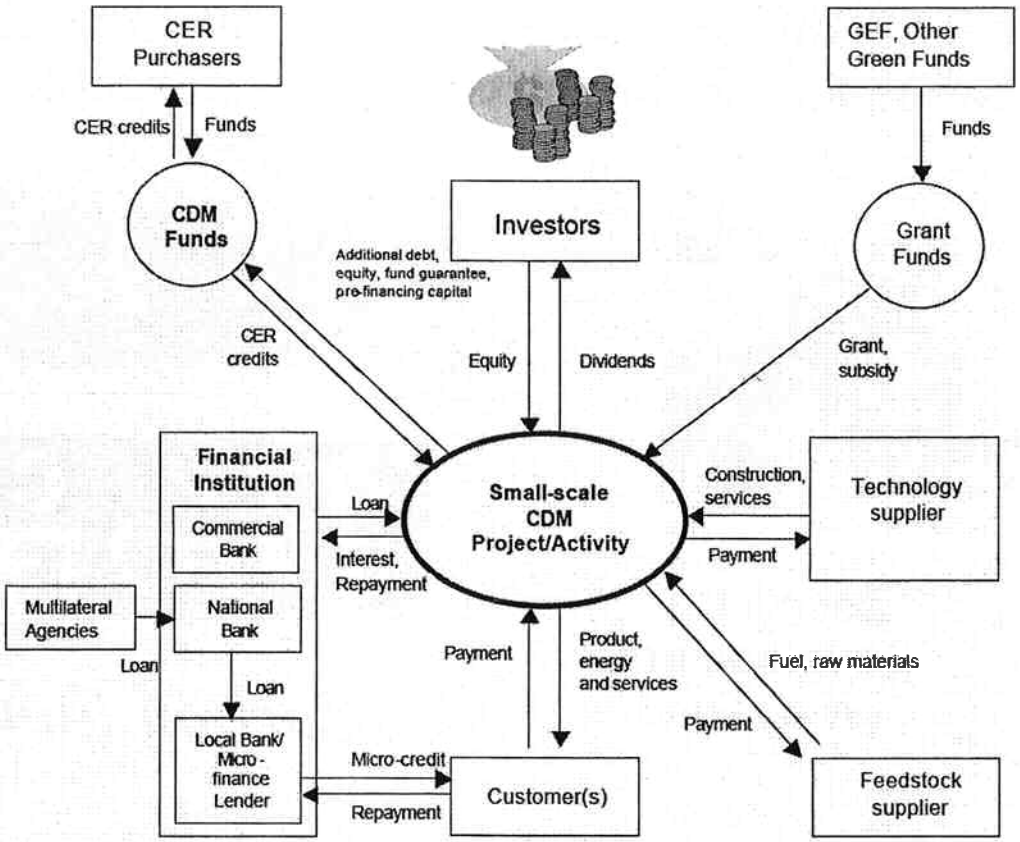
Role of CDM fund in financing CDM project

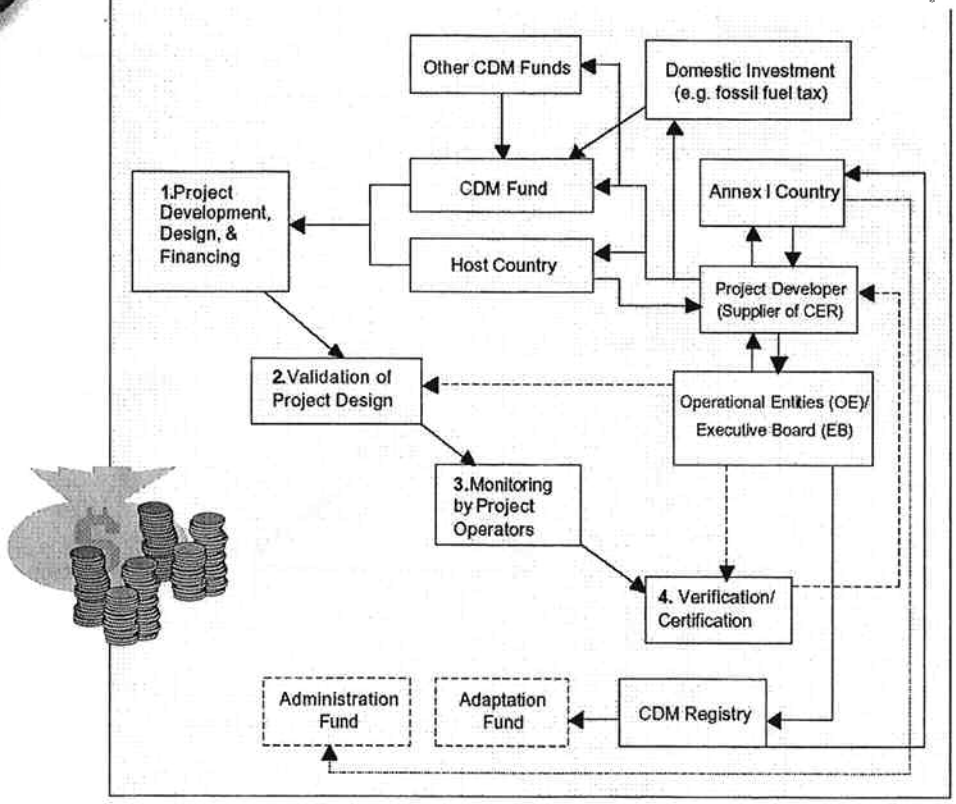




Business model of CDM Fund for a CDM project



Relationships between CDM/CP Fund and stakeholders and institutions in a CDM project



What is the principle purpose of the CDM Fund?

The CDM Fund seeks to deliver carbon finance to Viet Nam that otherwise have few opportunities to benefit from the Kyoto mechanisms

Who will participate in the CDM Fund?

The CDM Fund brings together governments, the private sector and project sponsors of many different types.

What return will the Contributors earn?

The Contributors will earn a return in terms of emission reductions and strategic insights

How will the CDM Fund be managed?

The Goverment will act as the Trust of the CDM Fund and will use the services of the Fund Management Unit (FMU) to manage, maintain and operate the Fund

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How will baselines be established by the CDM Fund?

Baselines will be determined according to the rules agreed in the Marrakesh Accords and subsequent decisions and guided by decisions of the Executive Board

How will the CDM Fund deliver environmental and livelihood benefits?

CDM Fund projects will adhere to the Goverment strict environmental and social safeguards and also include inherent improvements to the local environment and community livelihoods.

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Lesson Learning

1. The CDM Fund has the potential to become a powerful tool in financing mechanizm for CDM projects in Viet Nam.
2. The CDM is currently a mechanism with high transaction costs and relatively low overall efficiency.
3. The main risks of CDM project in combination with the institutional barriers to CDM project implementation and financing are deterring many financial institutions from getting involved in CDM projects.
4. The key challenges for the Viet Nam in the near future are to streamline and standardise the approval process and to register successful CDM projects.
5. The CDM was designed to engage the private sector in climate change adaptation and mitigation in the Viet Nam. The CDM process must become clearer, more efficient and financially attractive.
6. The success of the financing CDM project may be compromised, and, potentially, the entire Kyoto process may suffer.

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Conclusions

- The implementation of CDM projects in Viet Nam plays an important role in the sustainable socio-economic development, hunger eradication and poverty reduction together with environmental protection
- Legal framework for CDM activities are being developed
- Viet Nam facilitates participation of foreign investors and welcomes them to Viet Nam.
- A CDM Fund supporting for in-country CDM activities need establishing
- Viet Nam has potential to joint CDM Market

Appendix

Day One: 27 June, 2005

Opening Remarks by Organizer

Mr.Sudariyono, Deputy for Environmental Conservation, Ministry of Environment, Indonesia

Dr. Tae Yong Jung, Project Leader, Climate Policy Project, IGES

Mr. Rae Kwon Chung, Director, Environment and Sustainable Development Division, UNESCAP

Dr. Myung-Kyoon Lee, Climate Coordinator, Senior Economist, UNEP RISØ Centre on Energy, Climate, and Sustainable Development (URC)

Yohei Ohmi, Senior Representative, Representative Office in Jakarta, Japan Bank for International Cooperation (JBIC)

SESSION I : Introduction of workshop
Chair: Dr. Tae Yong Jung, Project Leader, Climate Policy Project, IGES

Uni/CDM: Market Instrument - For Developing Country Participation to the Emission Reduction of GHGs
- Mr. Rae Kwon Chung, Director, Environment and Sustainable Development Division, UNESCAP

Overview and Lessons from URC CDM Capacity Building Initiatives
- Dr. Myung-Kyoon Lee, Climate Coordinator, Senior Economist, UNEP-RISØ Centree

Financing CDM Project Activities in Asia
- Mr. Tomonori Sudo, Senior Policy Researcher, Climate Policy Project, IGES and
- Ms. Yukimi Shimura, Country Officer, CDM Programme, IGES

SESSION II : Introduction of candidate/potential CDM projects
Chair: Dr. Myung-Kyoon Lee, Climate Coordinator, Senior Economist, UNEP-RISØ

Introduction of Candidate/Potential CDM Projects in Indonesia
- Mr. Tony Liwang, Vice President, SMART Research Institute and
- Mr. Jun Ichihara, Country Officer, CDM Programme, IGES

CDM Project Pipeline in Cambodia
- Mr. Ouk Navann, Staff of Climate Change Office, Ministry of Environment, Cambodia

Landfill Gas to Energy CDM Projects-Barriers & Solutions to Financing
- Mr. Pascual Beltran, Business Manager, Philippine Biosciences, Inc.

Potential CDM Projects in Viet nam

- Mr. Hoang Manh Hoa, Senior officer, International Cooperation Department, Ministry of Natural Resources and Environment of Vietnamm

Unilateral CDM Project - Project Developer's Perspective & Financial Structuring

- Mr. Chintan Shah, General Manager, SenergyGlobal, India

SESSION III : Donor's perspectives on Financing CDM
Chair: Mr. Rae Kwon Chung, Director, Environment and Sustainable Development Division, UNESCAP

ADB's Initiatives and Perspectives on Carbon Financing

- Mr. Toru Kubo, CDM Specialist, Asian Development Bank

CDM: A Financier's Perspective and JBIC Operations

- Mr. Toshiro Nishizawa, Deputy Director General, International Finance Department I, Japan Bank for International Cooperation (JBIC)

General Outlines of Japan Carbon Finance, Ltd.

- Mr. Yoichiro Matsushita, Deal Manager, Japan Carbon Finance Ltd.

Open Discussion for Day 1

Day 2: 28 June 2005

SESSION IV : Commercial Banks perspectives on Financing CDM
Chair: Mr. Tomonori Sudo, Senior Policy Researcher, Climate Policy Project, IGES

Mainstreaming CDM in Finance

- Mr. Rey Guarin, Senior Assistant Vice President, Climate Change Program & Special Projects, The Development Bank of Philippines

Challenges in Financing CDM Projects

- Mr. Masahiko Umezono, General Manager, Structured Finance Division, Bank of Tokyo-Mitsubishi, Tokyo, Japan

Financing Unilateral CDM Projects in India-The Next ChallengeB

- Mr. Mohanjit Singh, Vice President, Corporate Finance, Yes Bank, India

CDM Financing: Explored

- Mr. N Yuvaraj Dinesh Babu, Head, Climate Change, Asia Carbon International B.V.

SESSION V : Host countries' policy on CDM implementation

Chair: Mr. Shinichi Iioka, Programme Manager, CDM Programme, IGES

- **Indonesia**
- **The Philippines**
- **Cambodia**
- **Vietnam**

SESSION VI: Roundtable Discussion:

Chair: Prof. Akio Morishima, President, Chair of the Board of Directors, IGES

1. What are the three most important barriers for financing CDM projects in Asia? (Focus of the discussion preferably should be on CDM project financing rather than underlying finance)
   - Project Developer's perspective
   - Banking or financial institutions' perspective
   a. Host country financial institutions
   b. Annex I country financial institutions

2. What are the most effective countermeasures to overcome such barriers in current regime?
   - International Organizations
   - Regional bodies-ASEAN
   - National governments-Annex I and Non-Annex I governments
   - Local Governments
   - Role of intermediaries, development agencies, etc.

3. How can we restructure CDM in the Post-Kyoto regime? How can post-2012 regime be structured to reduce financial barriers for CDM?
   - Financial structure set-up
   - Legal framework-contractual agreements, etc.
   - Policy options for unilateral/bilateral CDM

Closing Remarks by Organizer