

**The Third National Workshop on
The Project Capacity Development for
The Clean Development Mechanism in Viet Nam
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**Main criteria for CDM project assessment and
preliminary result to create a CDM project pipeline**

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Outline

- 1.GHG inventories and mitigation options**
- 2.Determination of CDM project criteria : exclusive, priority criteria**
- 3.Primary CDM project portfolio in VietNam.**
- 4.Workplan to implement task 6 for 2004**

1. GHG inventory and mitigation options in Viet Nam:

- +Viet Nam has been carried out the GHG inventories for base year of 1990, 1993, 1994, 1998.
- +Methodology: IPCC Guidelines for National GHG Inventories (Revised 1996).
- +Sectors for GHG inventory: Energy, Industrial process, Agriculture, Land-use Change & Forestry and Waste

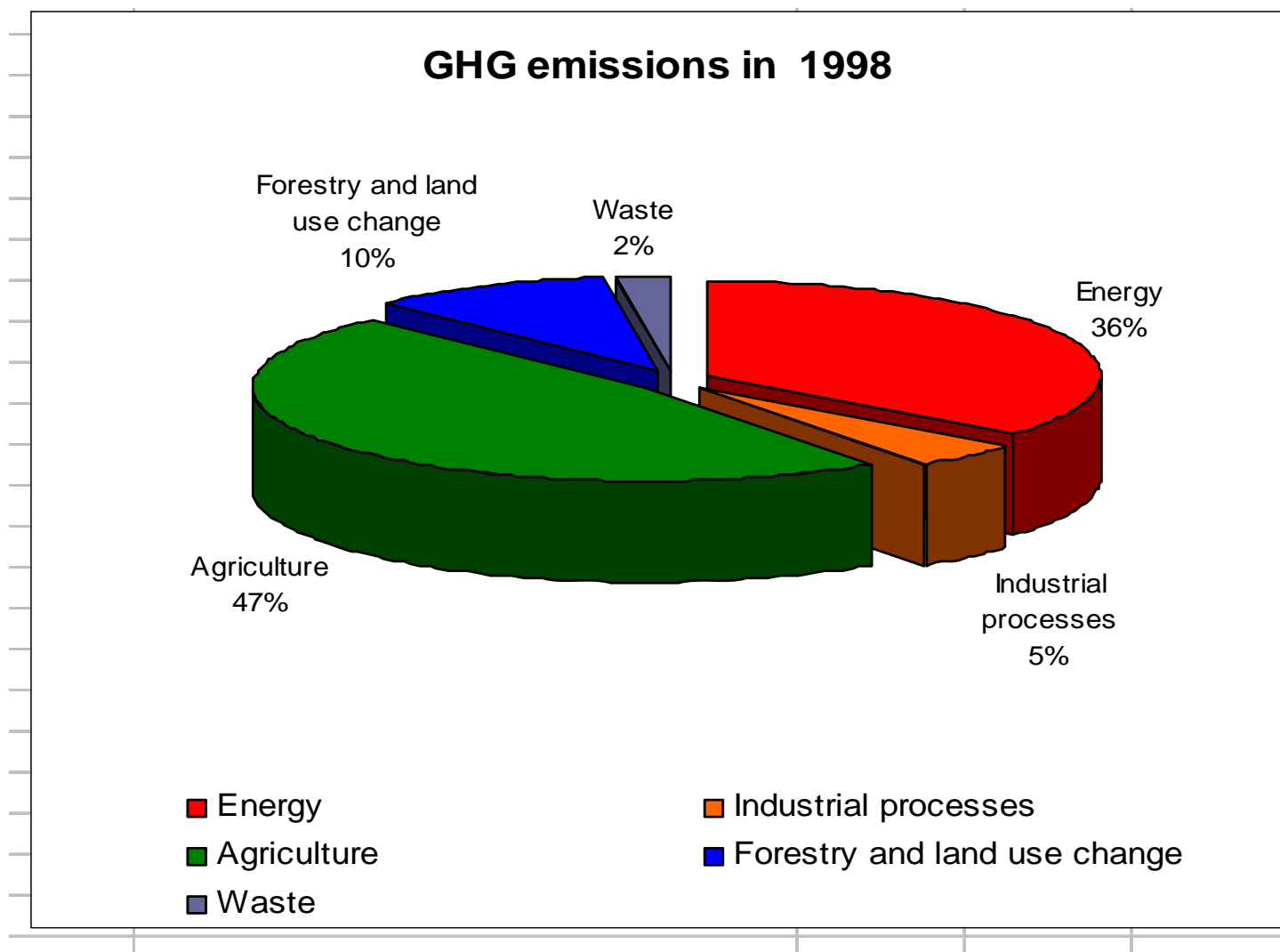
Results of GHG inventory in 1998

Emission sector	Emissions in CO2 equivalent (Million tons)
Energy	43.2
Industrial processes	5.6
Agriculture	57.3
Forestry and land use change	12.1
Waste	2.6

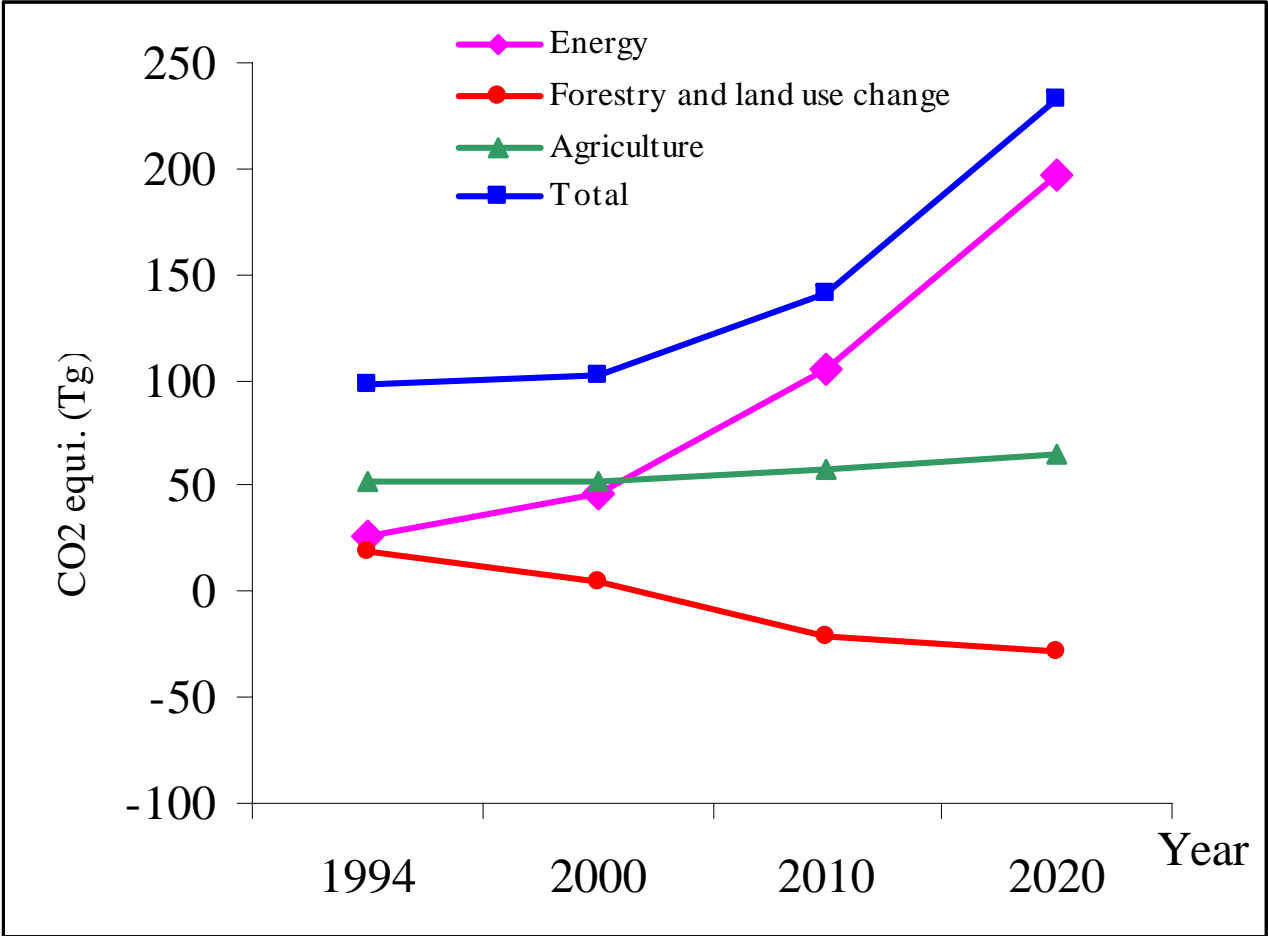
Results of GHG inventory in 1998 (con't)

- 1. Total GHG emissions in 1998 : 120.8 million tons CO2 equi. And 1.54 tons CO2 equi. per capita**
- 2. The main sources of GHG emissions:**
 - Agriculture: 57.3 Tg CO2 equi. Occupied 47% of total.**
 - Energy: 43.2 Tg CO2 equi. Occupied 36% of total**
 - Land-user Change & Forestry: 12.1 Tg CO2 equi. Occupied 10% of total**

Results of GHG inventory in 1998



Projection GHG emission to 2020



Mitigation options in Viet Nam

GHGs mitigation options in Viet Nam concentration in 3 following sectors:

- + Energy: 15 options on energy demand and supply
- + Agriculture: 3 options
- + Land-user Change & Forestry: 3 options

Table: Mitigation options and Cost (2000 - 2010)

Options	CO2 emission reduction KtCO2	Addition investment mill.USD	Reduced cost USD/Tco2
E1: Efficiency industrial boiler (coal fired)	12,085	108	0.12
E2: Efficiency industrial boilers (oil fired)	1,491	82	28.86
E3: CFL Lamp	776	4.6	4.04
E4: Coal cooking stove improvement	529	1.4	-9.24
E5: Efficiency industrial motors	2,959	24	-3.51
E6: Technology change in cement production	4,267	259	41.98
E7: Fuel efficiency improvement in transportation	158	9	-37.82
E8: Geothermal power	12,219	600	15.18
E9: Solar power	210	35	154.16
E10: Wind power	8,553	210	7.77
E11: Upgrading coal fire power plants	1,568	129	42.01
E12: Fuel switching from oil to gas	6,474	8.7	-4.77
E13: Small hydropower	34,213	1,200	8.4
E14: Biomass power generation	2,613	60	1.81
E15: Biogas for electricity	1,195	28	2.15
Amount	89,311	2,760	

**Table: Mitigation options and Cost (2000 - 2010)
(Cont')**

Options	CO2 emission reduction KtCO2	Addition investment mill.USD	Reduced cost USD/Tco2
A1: Water management rice	16,632	12	8.24
A2: Animal food processing	1,617	9	6.42
A3: Biogas for cooking	3,927	6	1.75
Amount	22,176	27	
F1: Long term reforestation	33,440	6.2	0.22
F2: Shortterm reforestation	10,170	18.2	2.4
F3: Plantation of prevention forest	8,560	10.6	0.13
Amount	52,170	35.0	

2. Criteria for CDM projects

2.1 Exclusive criteria:

First criteria for screening, selecting possible CDM which can be developed, which includes: sustainability, additionality and feasibility.

a/ Sustainability:

- +To be suitable for national targets of SD.
- +To be suitable for development strategy targets of sectors and provinces.

The following activities should be given priority to shift VietNam to SD - "VietNam Agenda 21" document -

Economy:

- 1. Maintain rapid and stable economic growth**
- 2. Change patterns of production and consumption towards environmentally directions**
- 3. Implement " Clean industrialization"**
- 4. Develop sustainable agriculture and rural areas**
- 5. Develop in a sustainable manner and establish SD practices in local communities**

Society

- 1. Further lower the population growth rate**
- 2. Hunger eradication and poverty reduction, creation of employment**
- 3. Direct the urbanization and migration process to ensure urban SD**
- 4. Improve the quality of education**
- 5. Improve working & living condition and healthcare services**

Environment

- 1.Fight against the degradation of land quality and sustainable use of land and underground minerals**
- 2.Protect water environment and use water resources sustainable, protect sea, coastal and island environments**
- 3.Protect and develop forests, preserve bio-diversity**
- 4.Reduce air pollution in urban areas and industrial parks, manage solid wastes**
- 5.Mitigation climate change and reducing CC impacts, prevent and control natural disasters**

b/ Additionality

- Additionality to environment impacts: Reductions in emissions must be additional to any that would occur in the absence of the certified project activity
- Additionality to finance: financial source should be additional to current obligation such as ODA, GEF...

c/ Feasibility

- + Ensure the government support
- + Monitoring methodology and verification shall be clearly described.

2.2 Priority criteria

a/ Based on the interrelation of sustainable development (SD) and commercial availability (CV) to ranking priority CDM project

CV	Low I	High II
	Low III	High IV
	SD	

b/ Commercial Viability (CV):

- The CV score consists of two criteria reflecting demand for and supply of the each project, respectively, namely:
 - +International demand; and
 - +Attractiveness to investors.

c/ Sustainability Development (SD)

- I. This study will follow an Multi-Criteria Analysis (MCA) manual published by UK Department of Environment, Transport and the Regions . The methodology is laid out in the following eight steps:**
 - 1. Establish the decision context**
 - 2. Identify the options.**
 - 3. Identify the objectives and criteria.**
 - 4. Assign weights**
 - 5. Score each option against the criteria.**
 - 6. Combine the weights and scores**
 - 7. Examine the results**
 - 8. Conduct a sensitivity analysis of the results to changes in scores or weights where necessary**

**II. Computed weight for each criteria from the stakeholders inputs
presented as belows**

Criteria -----Weight

1. Economic sustainability	0.349
1.1 National income generation	0.2544
1.2 Economic externalities	0.0946
2. Environment Sustainability	0.253
2.1 GHG effect	0.1176
2.2 Non- GHG air pollution	0.0261
2.3 Waste	0.0390
2.4 Ecosystem	0.0787
3. Social & Institutional Sustainability	0.398
3.1 Poverty eradication	0.1934
3.2 Quality of life	0.0796
3.3 Readiness of implement.agency	0.1249

III. Priority ranking of GHG abatement options

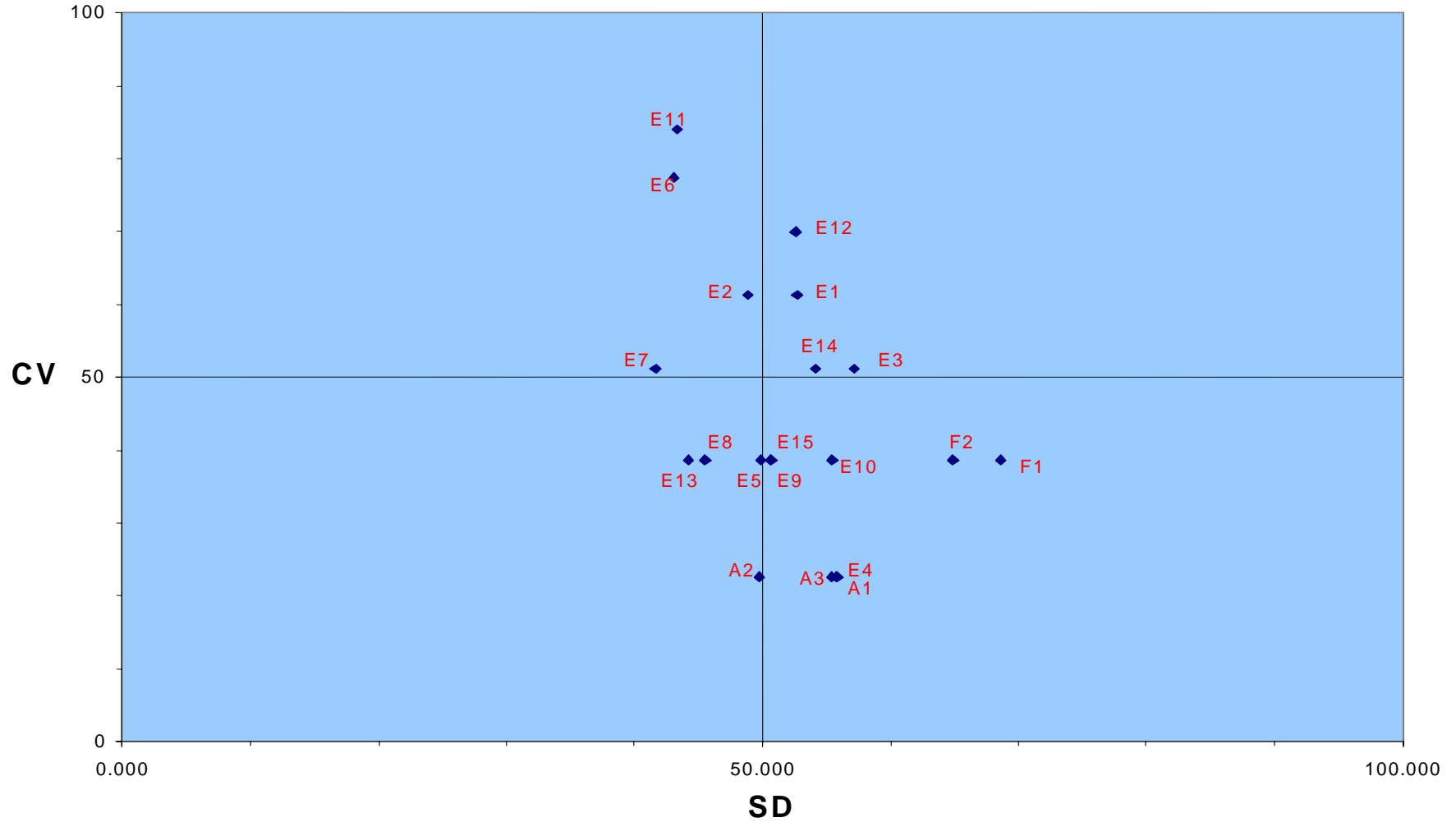


Figure :Analysis results of CDM measures in VN

IV. MCA analysis results of GHG abatement options in VN

CV high SD high	CV high SD low	CV low SD high	CV low SD low
<p>E1:Coal fired boiler upgrading</p> <p>E3:CFL</p> <p>E12: Switch oil to gas in power plants</p> <p>E14: Biomass power generation</p>	<p>E2:Oil fired boiler upgrading</p> <p>E6:Technology change in cement production</p> <p>E7:Clean engine in transport.</p> <p>E11: Coal fired power plants upgrading</p>	<p>E4:Coal cooking stove improvement</p> <p>E9:Solar power</p> <p>E10: Wind power</p> <p>E15: Biogas power</p> <p>F1:Short term reforestation</p> <p>F2:protective afforestation</p> <p>A1: water management of paddy field</p> <p>A3: Biogas</p>	<p>E5:industrial motor upgrading</p> <p>E8:Geothermal power</p> <p>E13: Small hydro</p> <p>A2:Feedstock improvement</p>

V. Priority sub-sector on energy and LULUCF for CDM

1. Energy

1.1 Supply

- +Efficiency improvement in power generation, transmission and distribution.Reduce fuel consumption rate and the loss in transmission and distribution**
- +Exploitation and development of clean energy resources such as hydro power, geothermal, wind, solar, biomass energy**
- +Exploitation and utilization of natural gas and associated gas, development of combined turbine generators and combined cycle power plants, produce of LPG.**
- +Development of co-gen. technology**

1.2 Demand side (Energy conservation and efficiency)

- + Applying the new technologies and equipments with high energy efficiency and cleaner; improving the existing technologies and equipments**
 - Improving and upgrading the burning combustion**
 - Replacement of old low efficiency boilers**
 - Substitution of old bulbs by CFL**
 - Substitution of old electrical motors by energy efficient ones**
 - Utilization of high efficiency of cooking stoves and developing the biogas for cooking fuel in rural areas.**
- + Waste heat recovery in industrial process**
- + Establishment of energy efficient standards and labeling the households electric equipment**

1.3 Transport sector

- **+ Improvement of EE of transportation system while improving the existing system of traffic, infrastructure of roads, ports, railway stations...**
- **+ Development of public traffic in urban areas**
- **+ Establishment the network of monitoring and supervising technical security and environment protection for vehicles.**
- **+ Modal shift and spread of low- pollution vehicles, clean energy automobiles**

2. LULUCF

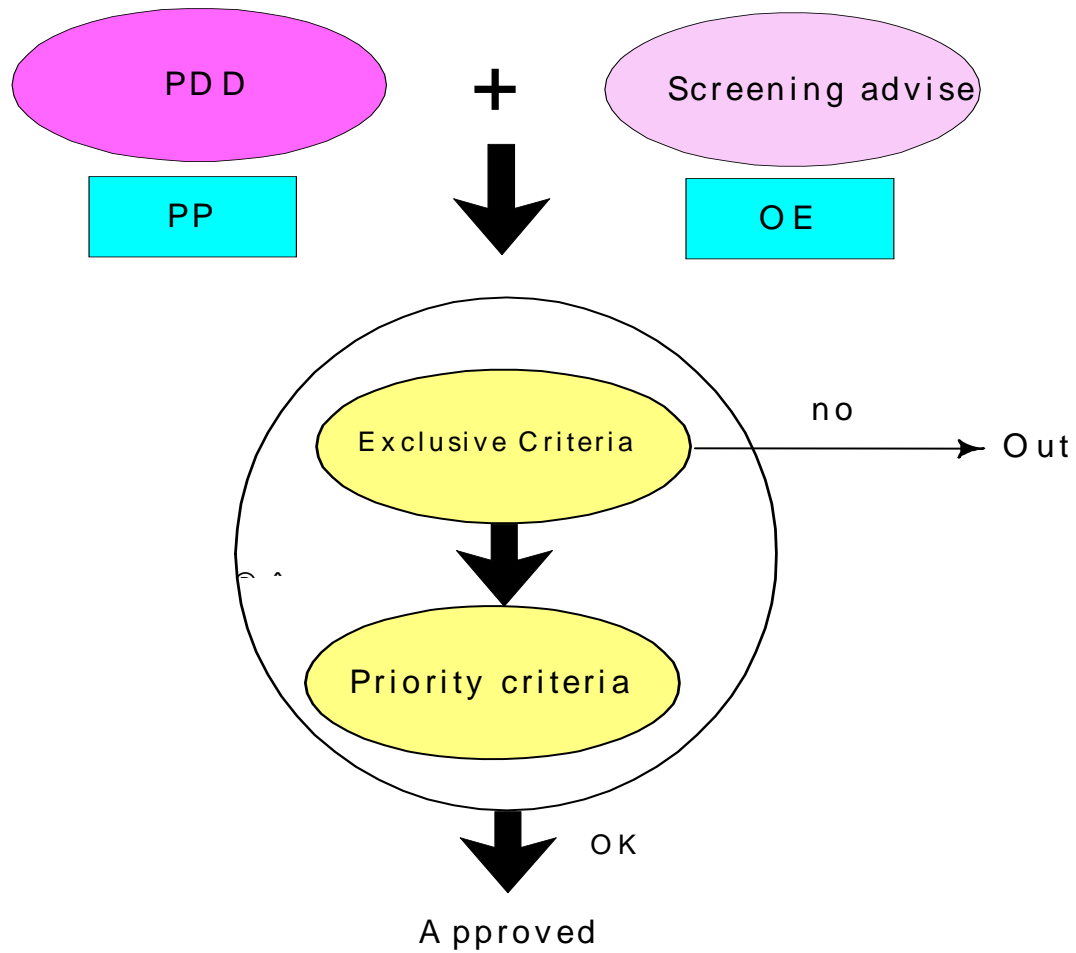
2.1 Protection of carbon sinks

- + Protection and conservation of existing 9Mha forest**
- + Sustainable forest management**
- + Development of planting forest**

2.2 Enhancing the carbon sinks

- + Reforestation of natural forest**
- + Scattered plantation for increasing fuel wood supplies for local people**
- + Prevention of forest fire and forest pest & disease**

VI. Proposed approval cycle for CDM projects in VN



3. PRIMARY CDM PROJECTS PORTFOLIO IN VIETNAM

N	Abatement options	Code	Priority	Description
1	E12: Switch oil to gas in power plants	E 12	SD high CV high	Project 1: Oil to gas in Thu Duc power plant
2	E14: Biomass power generation	E 14	SD high CV high	Project 9: Biomass power generation
3	E11: Coal fired power plants upgrading	E 11	SD low CV high	Project 2: Upgrading Pha Lai power plant
4	E2: Oil fired boiler upgrading	E2	SD low CV high	Project 11: Boiler improvement in Dong Nai pulp and paper fa.
5	E6: Technology change in construction material production	E 6	SD high CV low	Project 5: Advanced sedimentary brick kiln
6	E6: Technology change in cement production	E 6	SD high CV low	Project 10: Improvement energy efficiency in Song Da cement factory

7	E9:Solar power	E 9	SD high CV low	Project 7: Solar power plant
8	E10: Wind power	E 10	SD high CV low	Project 3: Wind farm in central part of VN (QuangTri Province)
9	E10: Wind power	E 10	SD high CV low	Project 4: Hybrid diesel_wind power plant in Phu Quy island, Binh Thuan Province
10	E15: Biogas for electricity generation	E 15	SD high CV low	Project 8: Biogas project (EVN)
11	E 3 : Compact Fluorescent Lamp	E3	SD high CV high	Project 12: High technology ballast
12	E 3 : Compact Fluorescent Lamp	E3	SD high CV high	Project 13: High efficient public lighting in Hanoi, HCM, Da Nang, Hai Phong
13	E8: Geothermal power plant	E 8	SD low CV low	Project 6: Geothermal power plant in Quang Ngai

List of potential CDM project under consideration

No	Name of project	Project site	Emission reduction potential (Gg CO2)
1	RangDong oil field associated gas recovery and utilization	Vung Tau City	6,740
2	Thu Duc power plant unit 3 fuel switch from oil to gas	HoChiMinh City	664
3	Thuong Ly landfill closure and gas recovery and utilization	Hai Phong City	64
4	Increasing the efficient use of energy in brewery	Thanhhoa City Beer factory	11
5	Wind+ Diesel hybrid electricity supply system	Phuquy Island, Binh Thuan City	106
6	HoChiMinh City Landfill gas for electricity generation	HoChiMinh City	3,100 (?)

4. Workplan for task 6 in 2004

4.1 Improving the criteria of selecting a CDM project in Vietnam and taking a survey of stakeholder views.

4.2 Establishing and developing the pipeline of CDM eligible projects

4.3 Conduct the workshop to introduce the methodology for preparing CDM project proposals

Thank You!

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