CDM Typology(1)

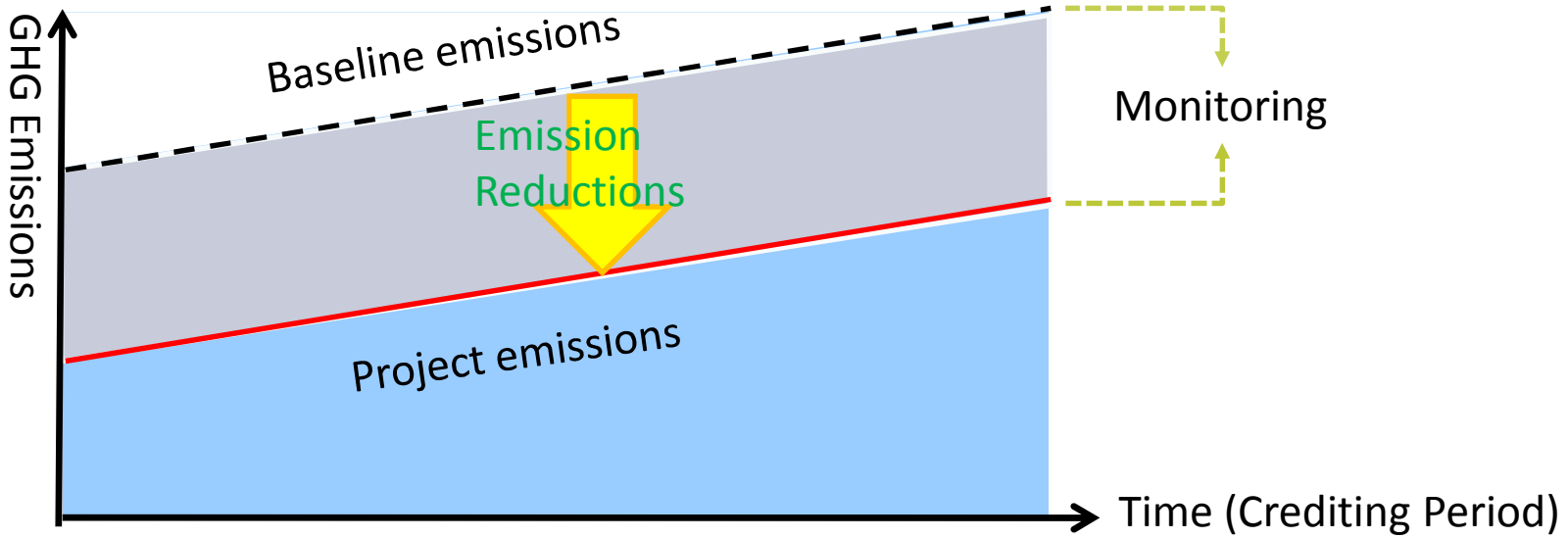
02 JUL 2010, Ai Kawamura JICA Expert Team

CONTENTS

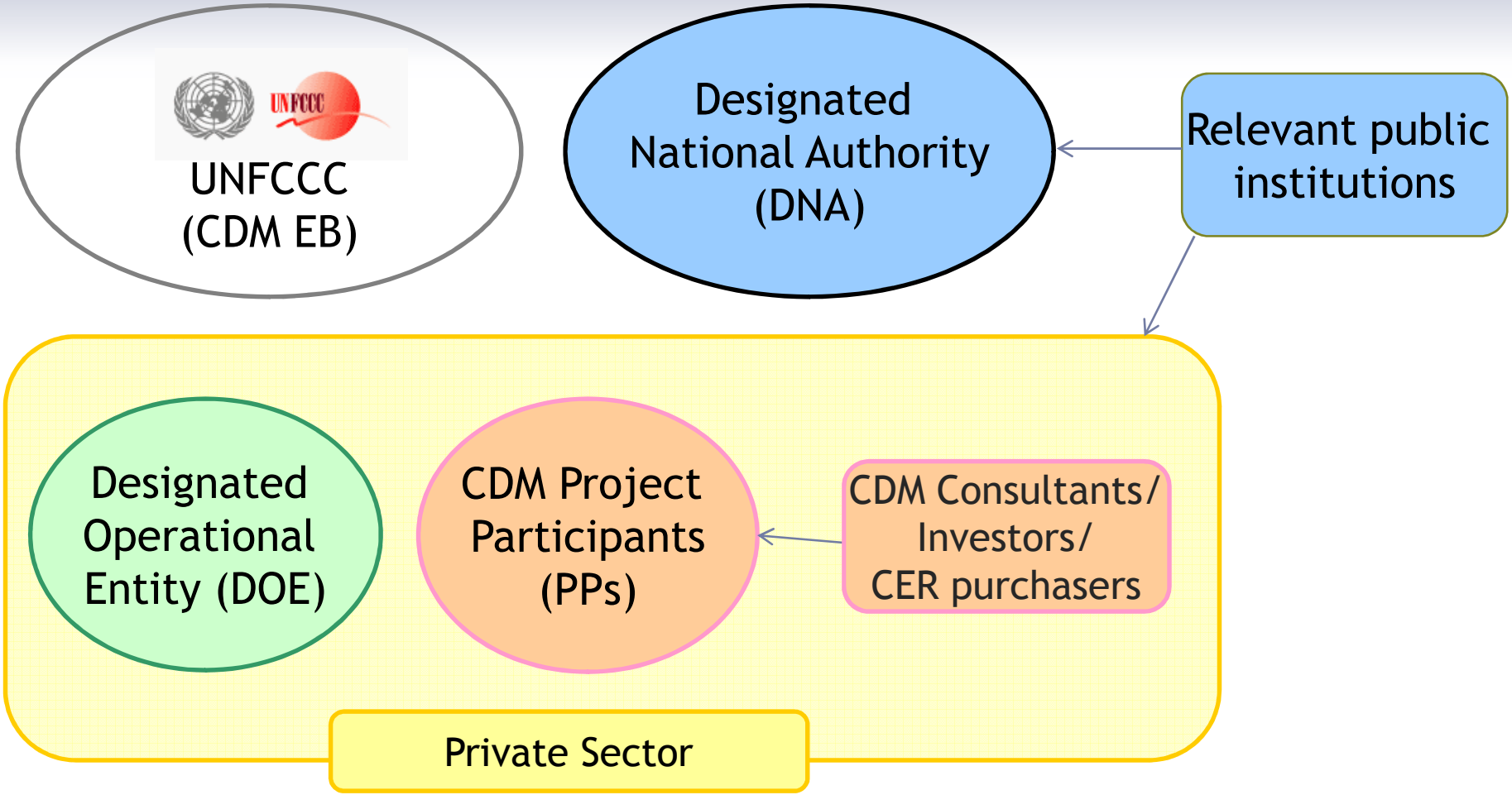
0. Key Points of Functional Background of CDM

(1) Baseline Scenario & Project Scenario

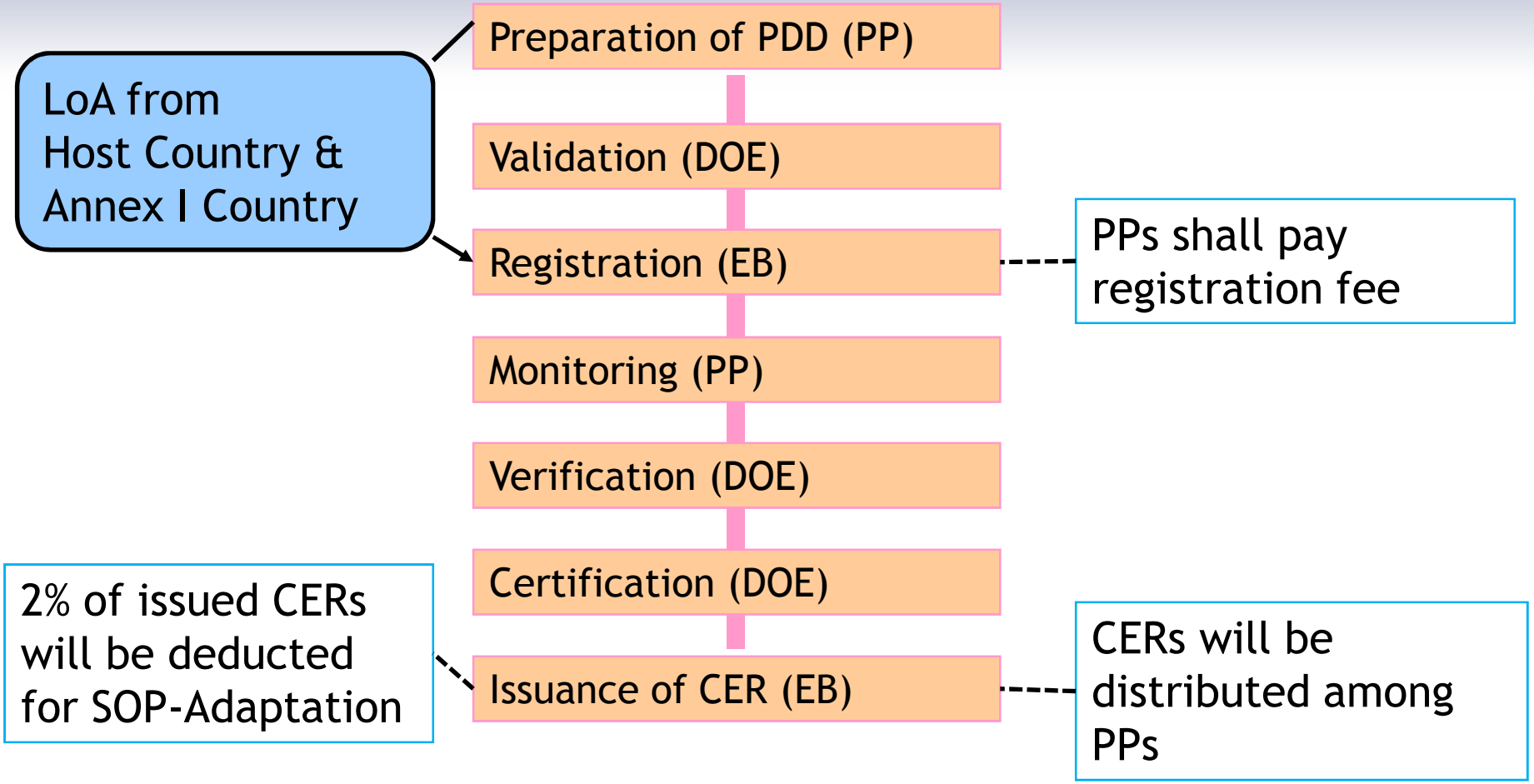
- Baseline Scenario: the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed project activity (3/CMP.1, Annex, para 44).
- Project Scenario: A proposed CDM project.



(2) Relevant Institutions



(3) Functions of Each Institution



LoA: Letter of Approval, PDD: Project Design Documents, SOP: Share of Proceeds

1. Outline of CDM Typology

p.11 of
CDM/JI Manual

1-1. CDM Typology Outline

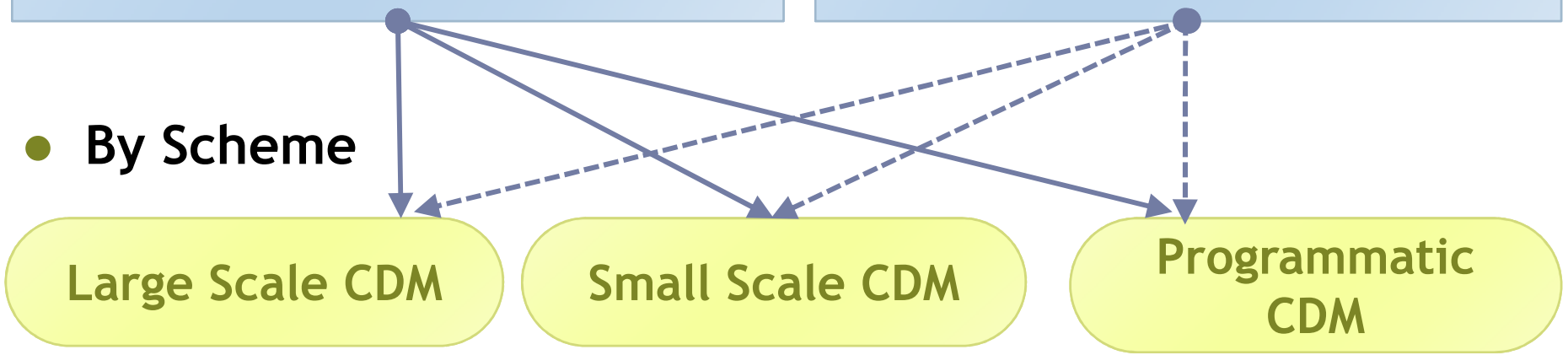
- By Project Type

Emission Reduction Project

- Renewable energy project
- Energy efficiency
- Biogas recovery
- Compost etc

Afforestation/Reforestation Project (sink/removal)

- By Scheme



1-2. METHODOLOGIES

- **Baseline and Monitoring Methodology:**

"Baseline methodology " :

- defines the method of identifying the baseline scenario (scenario without CDM),
- describes the calculation method of baseline emissions and project emissions.

"Monitoring methodology":

- is the means to gather the data required to calculate emission reductions from the proposed CDM project, &
- sets out how project proponents should develop and implement a monitoring plan.

	Emission Reduction CDM	A/R CDM
Large Scale	• Approved Large Scale Methodologies (70) • Approved Consolidated Methodologies (17)	• Approved Large Scale Methodologies (8)
Small Scale	• Small-scales Methodology Type I : Renewable energy project (6) Type II : Energy efficiency improvement project (11) Type III: Other project activities(36)	• Approved small scale A/R methodologies (6)

*Number of methodologies are as of 29 Jun. 2010

- **More than one methodologies can be combined for one project activity**

1-3.PDD FORMS

- **Project Design Document (PDD):**

  The document describing the following details of the proposed project:

  - Project participants
  - Crediting period of the project
  - Selected baseline and monitoring methodology
  - Emission reduction(removal) calculation
  - Additionality establishment
  - Monitoring plan
  - Environmental impacts of the project
  - Summary of stakeholder comments etc

PDD Forms of Conventional CDM

	Emission Reduction CDM	A/R CDM
Large	•CDM-PDD	• CDM-AR-PDD
Small	•CDM-SSC-PDD	• CDM-SSC-AR-PDD

PDD Forms of Programmatic CDM

	Emission Reduction CDM	A/R CDM
Large	• CDM-PoA-DD • CDM-CPA-DD	• CDM-PoA-DD-AR • CDM-CPA-DD-AR
Small	• CDM-SSC-PoA-DD • CDM-SSC-CPA-DD	• CDM-PoA-DD-SSC-AR • CDM-CPA-DD-SSC-AR

2. Small Scale(SSC) CDM

p.12~19 of

CDM/JI Manual

(p.116~134 for Methodologies)

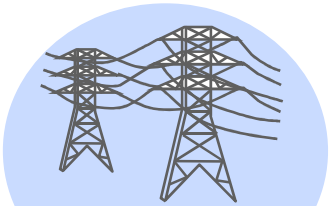
2-1. Definition of SSC Projects (Emission Reduction)(1)

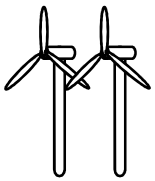
- **Type 1: Renewable energy project**

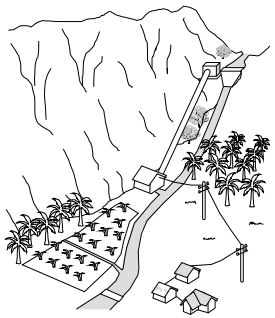
☐ Size limit:
Maximum output capacity of 15 MW for electricity, 45 MWth for thermal

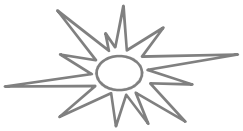
☐ Definition of maximum "output":
Installed/rated capacity indicated by the manufacturer of the equipment/plant (not the actual load factor of the plant)

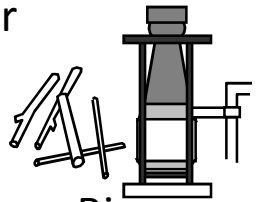
☐ Definition of "MW" (Mega watt):
MW is a unit of energy. CDM-EB defined "MW" as "MWe"(electric energy value) and agreed to use the calculation 1MWe=3MWth.

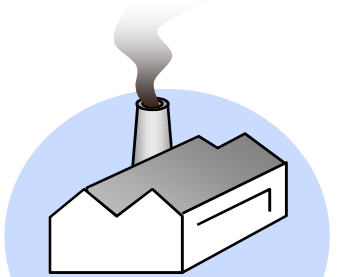

Renewable electricity


Wind


Mini-hydro


Solar


Biomass


Renewable Thermal energy

2-1. Definition of SSC Projects (Emission Reduction)(2)

- **Type 2: Improvements in energy efficiency**

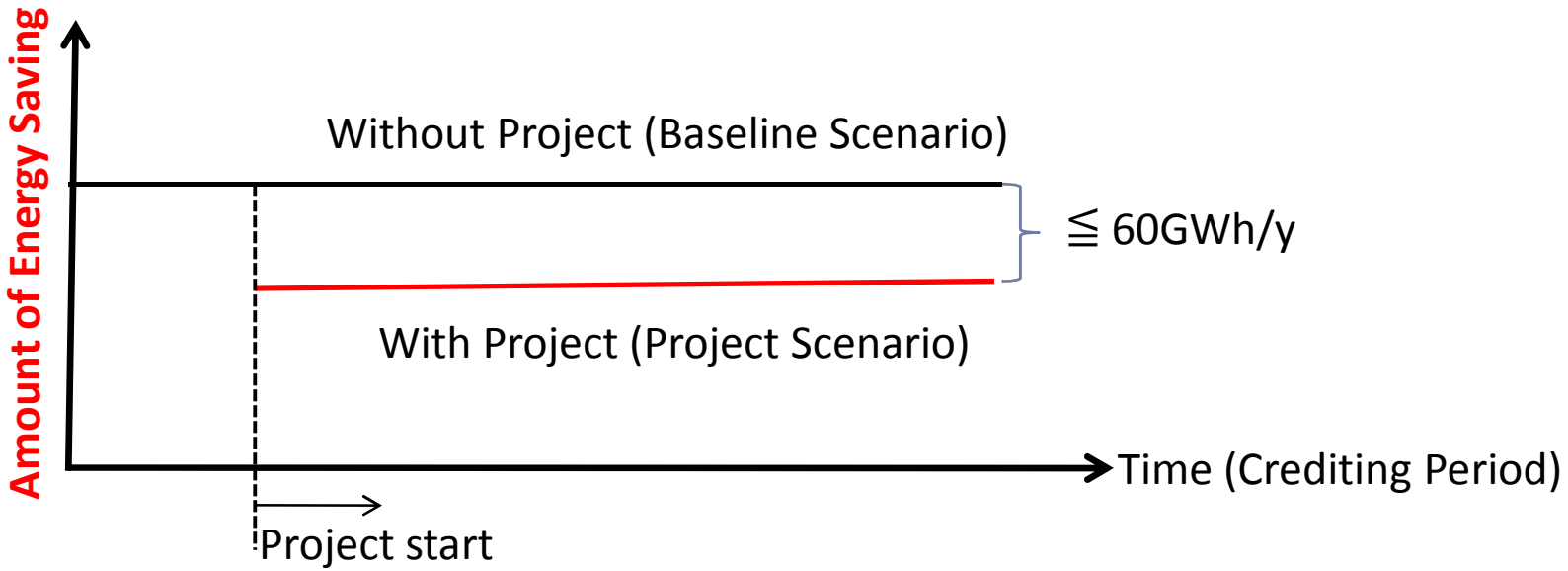
☐ Size limit:

A maximum improvement of 60 GWh /year (or an appropriate equivalent)

(Example) 15MW*4,000 hour operation /year =60,000MWh (= 60GWh)

MWh = Capacity of the plant(MW) x Number of operation hours(h) , 1GWh=1,000MWh

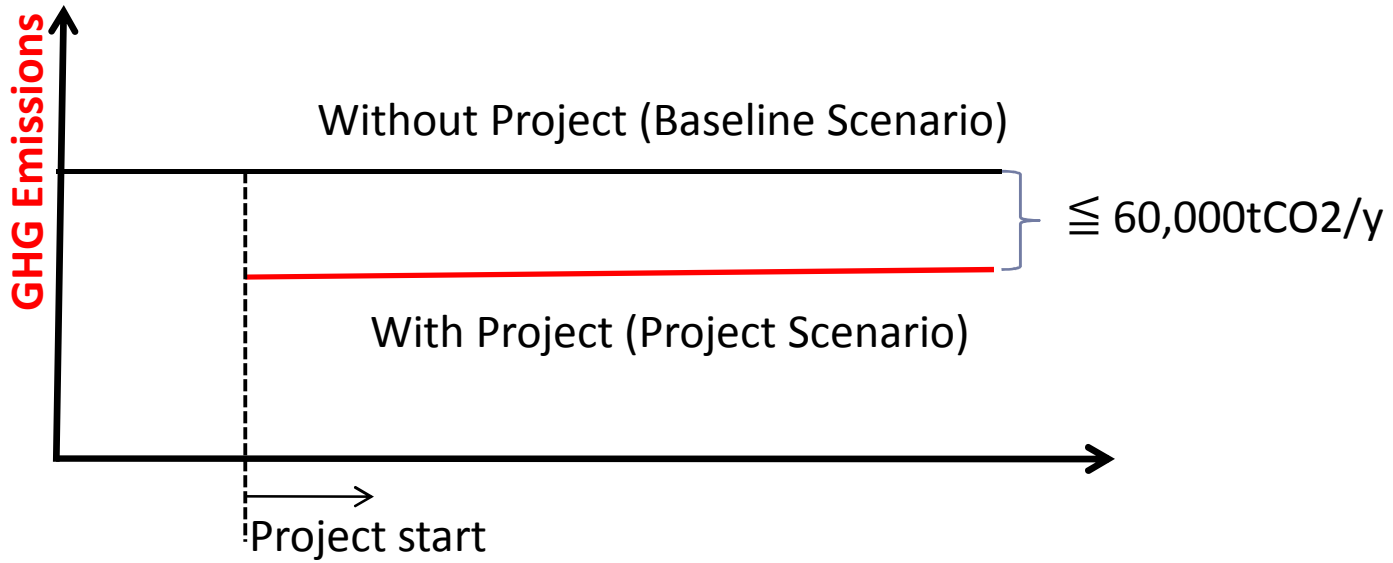
☐ Site emission reduction to be in place: Demand side and/or supply side



2-1. Definition of SSC Projects (Emission Reduction)(3)

- **Type3: Other activities**

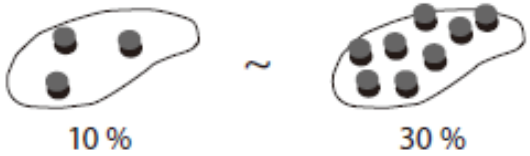
- Size limit:
  Resulting in emission reductions ≦ 60,000 tCO2/y
- Example of projects:
  Biogas collection(solid waste, wastewater), composting, transport etc



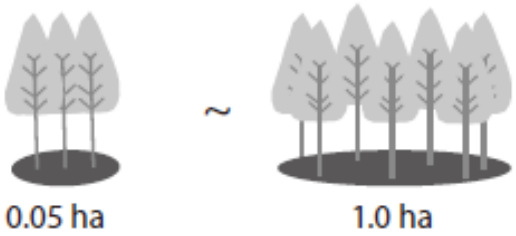
2-1. Definition of SSC Projects (A/R: Forestry Sector)

- Size limit:
  Resulting in net GHG removals by sinks < 16,000 tCO2/y
- Other applicability SSC A/R project:
  Developed or implemented by low-income communities and individuals as determined by the host Party
- Participation Requirement for A/R CDM project
  DNA needs to determine threshold of forest definition within the following range of each indicator.

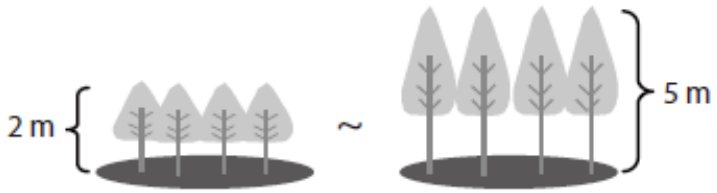
(a) Tree crown cover: 10 - 30 %



(b) Land area value: 0.05 - 1ha



(c) Tree height: 2 - 5 m



2-2. Benefits of SSC Projects (1)

- **"Simplified Modalities and Procedures for Small-scale CDM Project Activities"**

(1) Simplified documents and procedures:

Simplified PDD format	Simplified Baseline Methodologies	Simplified Monitoring Plans

(2) Additionality can be established by proving one of the following barriers (There are cases, where only one barrier is not considered strong enough):

Investment barrier:	Other barriers: Institutional barriers, Limited information, Managerial resources, Organizational capacity, Financial resources, Capacity to absorb new technologies
Technological barrier:	
Barrier due to prevailing practice:	

2-2. BENEFITS OF SSC PROJECTS (2)

- "Simplified Modalities and Procedures for Small-scale CDM Project Activities"(continued)

  (3) Project activities may be bundled at each step in the project cycle (PDD, validation, registration, monitoring, verification and certification)

  (4) The same DOE can undertake validation, verification and certification. (For Large scale CDM, one DOE cannot conduct)

- Other benefits

  Shortening of the period after the date of receipt of the request for registration (8weeks→4weeks), unless there is a request for review for the proposed CDM project activity. etc

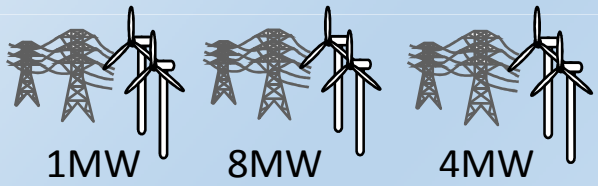
"Time" and "Cost" are saved compared to Large-scale CDM Project

2-3. BUNDLING OF SSC PROJECTS(1)

- **The total size of the SSC CDM projects not exceeding the maximum size for the SSC CDM project, more than one SSC CDM projects can be bundled.**

Type 1: Renewable Energy (Max 15MW)

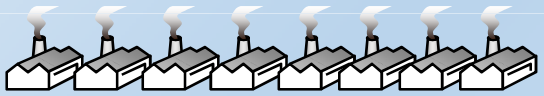
Bundled as one SSC CDM project



Total 13MW
<15MW

Type 2: Energy Efficiency (Max 60GWh/y)

Bundled as one SSC CDM project

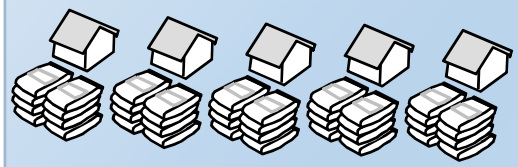


Energy saving 5GWh/y* 10 factories

Total
50GWh
<60GWh

Type 3: Other projects (Max 60,000tCO2/y)

Bundled as one SSC CDM project



Total 15,000tCO2
< 60,000tCO2/y

Compost: emission reduction of 3,000tCO2/y * 5 projects

2-3. BUNDLING OF SSC PROJECTS(2)

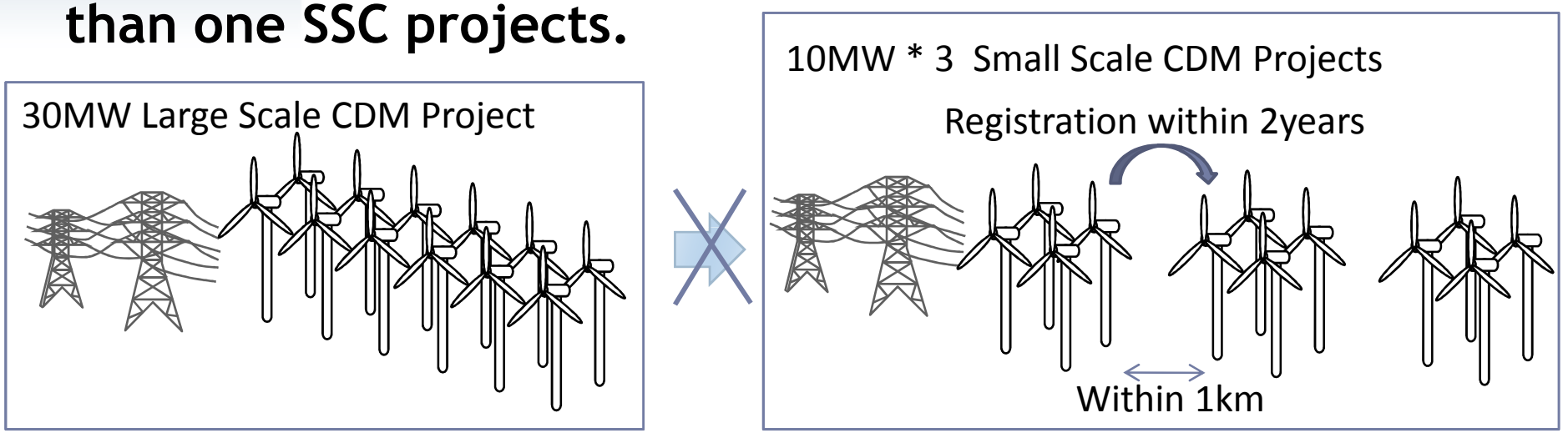
- **Advantage of bundling SSC CDM project**
  - **Validation, Registration procedures, Verification procedures can be done in a single submission to the CDM-EB**
  - **Pay only one registration fee depending on the expected amount of CER to be obtained.**

  Time & Cost Saving

  - **Better chances for small scale project to identify CER buyers**
- **Challenges of bundling SSC CDM project**
  - **Little flexibility after registration**
  - **Difficulty of project development timeframe adjustment (when project participants are different)**
  - **Failure of one project will affect all other bundled projects**

2-4. De-bundling of Large Scale Projects

- **A large scale CDM project cannot be de-bundled into more than one SSC projects.**



[Conditions of De-bundling] If the following conditions are all met, the project will be regarded as "de-bundling" of large scale project.

- With the same project participants;
- In the same project category and technology/measure;
- Registered within the previous 2 years; and
- Project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point.

3. Programmatic CDM

p.19~23 of
CDM/JI Manual

3-1. BACKGDOUND OF PROGRAMMATIC CDM(PCDM)

■ Background

Individual (conventional) CDM

- Project by project approach

site, PDD, validation, verification …
every step is single project base

- Huge administration cost and time for formulating a CDM project

Difficult to formulate small to medium projects

Bundle of small-scale projects

- Limit of the total size of the bundled projects:
(15MW for renewable power(45MW for thermal), 60Gwh for energy efficiency, 60,000tCER/yr for other projects)
- A very strict implementation schedule

- Limit of expansion
- Challenges in bundling the projects conducted by different owners
- Project cannot be added after registration (little flexibility)

Many potential projects remain undeveloped (especially small projects)

Great expectations for Programmatic CDM to expand the opportunities of CDM

3-2. Important Terms of pCDM

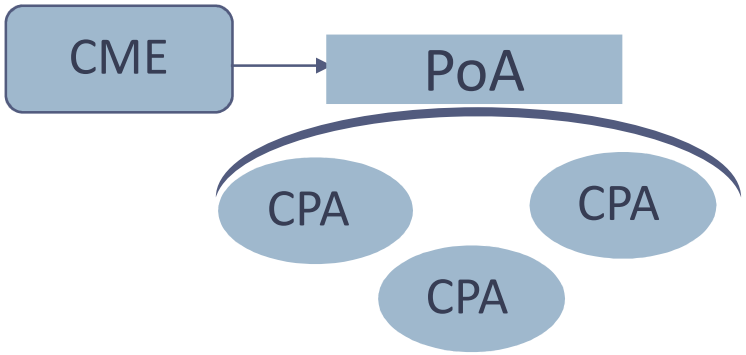
- **Programme of Activity (PoA) : [Framework level]**

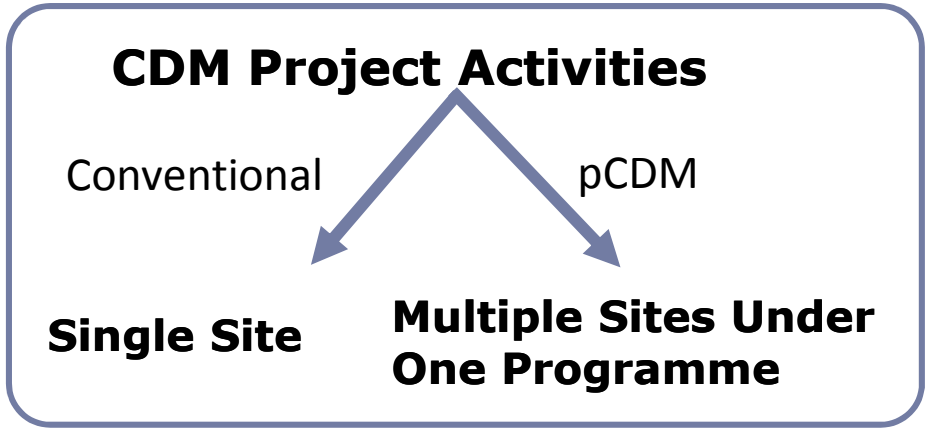
A framework to implement CDM project activities (CPA) under the PoA

- **CDM Project Activities (CPA)**: **[Operational level]**

Individual CDM projects implemented under the PoA

- **Coordinating/Managing Entity (CME):** A private or public entity in charge of:
  - communication with CDM Executive Board
  - coordinating of the PoA framework
  - management of the monitored data
  - Ensuring no double counting



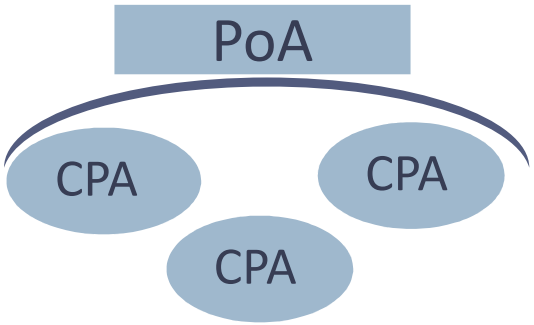


3-3. FEATURES & REQUIREMENT OF PCDM

■ Features of Programmatic CDM

- PoA can start with only one CPA
- Boundary can be beyond one country
- CPAs can be added:
  - at any time during PoA period
  - by anybody within the PoA boundary
  - with no limit in number
  - without project registration procedures (consistency/integrity)

- No limitation of the number of CPAs included in a PoA (28years)



■ Requirement for pCDM

A. PoA Level

- PoA is not applicable for "mandated policy/measure" unless the PoA leads to greater enforcement
- Determination of a coordinating entity

B. CPA Level

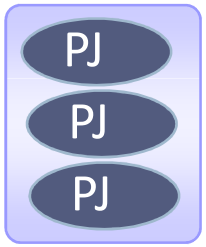
- Same Baseline Methodology
- Same Technology to reduce GHG emission

3-4. Comparison of Project Formulation Procedures

Conventional — Project by project

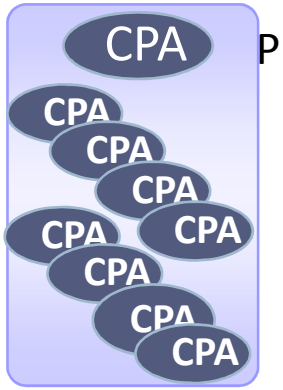
PDD → Validation → Registration → Implementation → Verification → CER

Bundling — By group



PDD → Validation → Registration → Implementation → Verification → CER

PoA — Framework for expansion



PDD → Validation → Registration → Implementation → Verification → CER

CPAs can be added:
at any time during PoA period
by anybody within the PoA boundary
with no limit in number
without project registration procedures

CDM development cost & registration risk for project participants is lowered

4. Case Study of Programmatic CDM

p.23~27 of
CDM/JI Manual

4-1. Potential Programmatic CDM by Type(1)

- 6 projects have been registered
- 82 projects are at validation stage (1 July 2010)

Title of Project	Country	Date of Registration	Project type	'000 CER/y
Methane capture and combustion from Animal Waste Management System (AWMS) of the 3S Program farms of the Sadia Institute	Brazil	29-Oct-09	Methane avoidance from Manure	
BRA/SC – 678228 S02 / 3SP – AWMS/SI	Brazil	29-Oct-09	Methane avoidance from Manure	0.1
CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – Smart Use of Energy Mexico	Mexico	31-Jul-09	Energy Efficiency at household (Lighting)	
CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico) – Puebla	Mexico	31-Jul-09	Energy Efficiency at household (Lighting)	24
CFL lighting scheme – "Bachat Lamp Yojana"	India	29-Apr-10	Energy Efficiency at household (Lighting)	
CPA 3223-0001 : CFL lighting scheme – "Bachat Lamp Yojana" in Ranga Reddy District, Ranga Reddy North Circle, Habsiguda Division, Central Power Distribution Company of Andhra Pradesh Limited, Andhra Pradesh, India Pradesh Limited, Andhra Pradesh	India	29-Apr-10	Energy Efficiency at household (Lighting)	34.9

4-1. Potential Programmatic CDM by Type(2)

- Potential Characteristics/Sectors of pCDM

Community/Plant Base(small - medium)

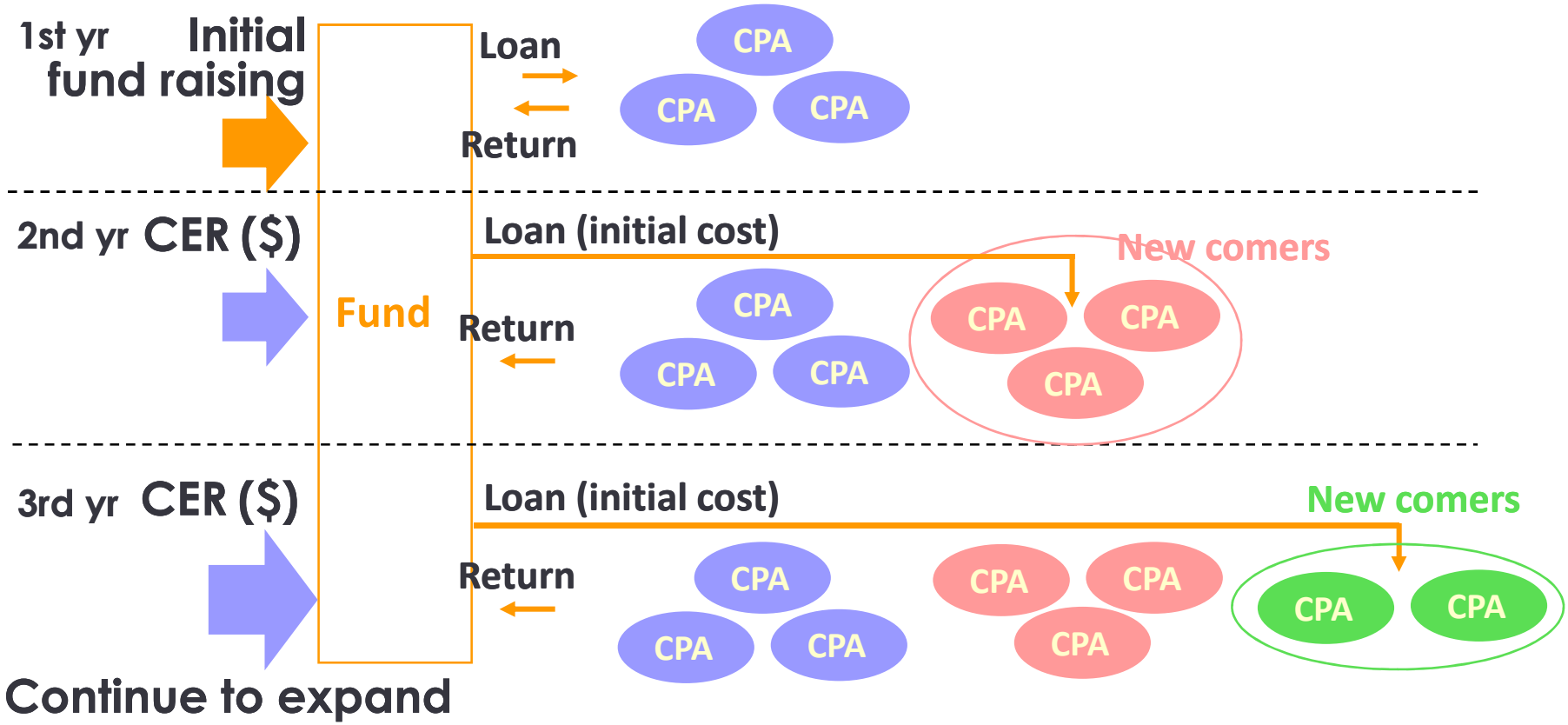
- Hydro power
- Biomass electricity/ heat generation
- Biogas collection from:
  - organic industrial waste water
  - animal waste
  - municipal waste (landfill)
- Community compost etc

Product Base (very small)

- Energy efficient lamp
- Solar energy etc

4-2. An Example of pCDM Utilizing "Fund Scheme"

Establishing the Fund (with initial investment) by CME to provide initial cost for the new CPAs with CER sales and return from each CPA, activities can be largely expanded.



4-3. An Example of pCDM In Pipeline (Gliricidia Fire Wood Thermal Fuel Switch pCDM)

Wood supply side

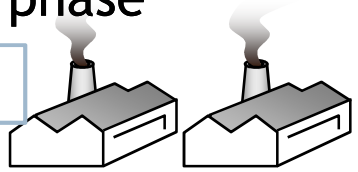
Currently available unused wood

For future expansion, newly develop plantation

User side

First phase

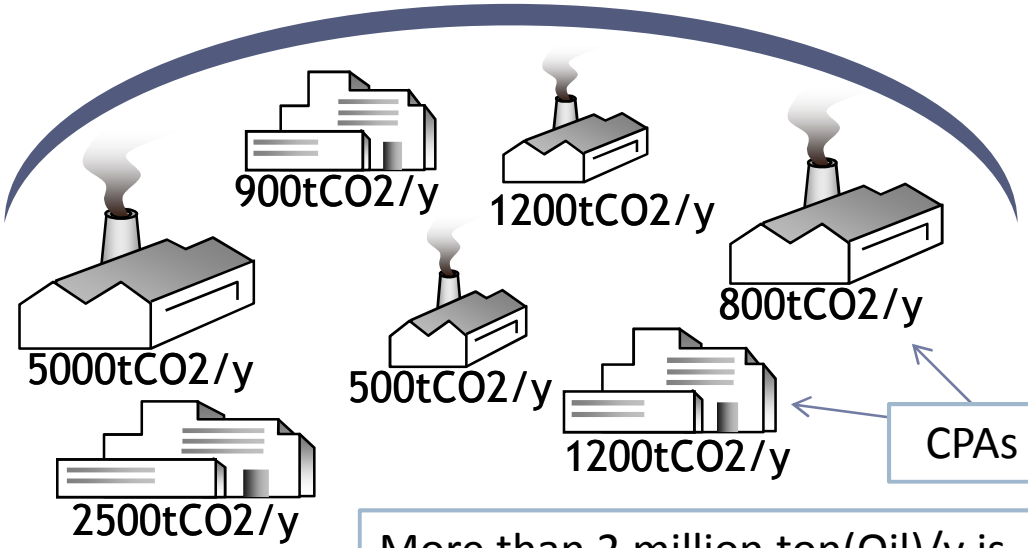
CPAs



Register the Program

CME: BEASL

Second phase



More than 2 million ton(Oil)/y is consumed by Industry in Sri Lanka

4-4. CHALLENGES OF PCDM

- High cost of project development (for registration)
- Longer time required to be registered compared to conventional CDM
- Structural formulation is very important:
  - Selection of CME
  - distribution method of CERs to CPAs etc
- Uncertainty regarding procedures such as validation, verification etc

Once the program is registered, it will benefit small scale projects in Sri Lanka very much.

Thank You