

Awareness workshop for the academic staff of the Open University of Sri Lanka

Potentials and Opportunities of Climate Change Mitigation in CDM and New Mechanism

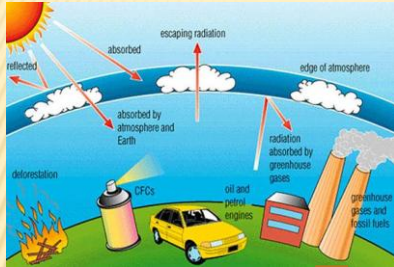
14 February 2011
Auditorium of Open University of Sri Lanka

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Project for Capacity Building of CDM Promotion in Sri Lanka

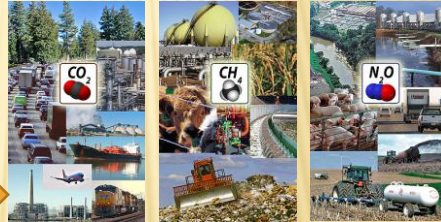
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1. What is climate change mitigation?
2. Potential Areas of climate change mitigation
3. What is CDM?
4. Advantages and Limitations of CDM projects (carbon credit as a new financial source)
5. New financial mechanism after 2013 for climate change mitigation

1. What is climate change mitigation?



Reduction of Greenhouse Gases emissions



Enhancing carbon sink



2. Potential Areas of Climate Change Mitigation

(1) Energy (Fuel Switch)



Fuel Type	Default Emission Factor (kgCO ₂ /TJ)
Anthracite	98,300
Coking Coal	94,600
Lignite	101,000
Crude Oil	73,300
Motor Gasoline	69,300
Kerosene	71,500
Residual Fuel Oil	77,400
LPG	63,100
Natural Gas Liquids (NGL)	64,200
Natural Gas	56,100

CO₂ Emission intensity: Coal>Oil>Natural Gas

2. Potential Areas of Climate Change Mitigation

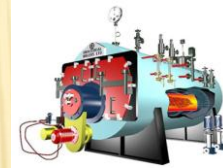
(1) Energy (Fuel Switch): Examples



Coal-fired boilers



Oil-fired boilers



Natural gas fired boilers



Automobile with gasoline



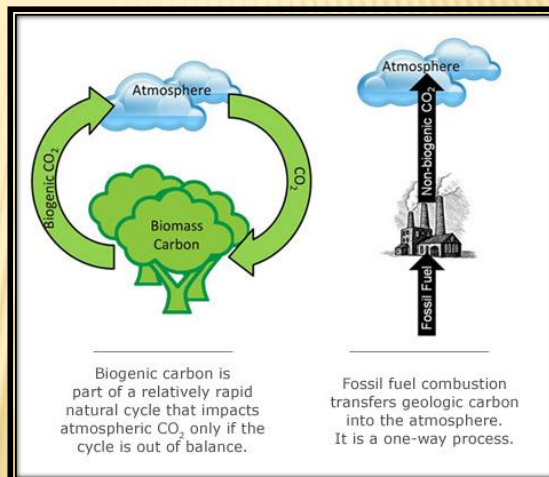
Natural Gas Vehicles

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2. Potential Areas of Climate Change Mitigation

(1) Energy (Biomass)

- Biomass is regarded as carbon neutral.
- Conversion from fossil fuels to biomass is recognized as a method of net reduction of anthropogenic GHGs emission.



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2. Potential Areas of Climate Change Mitigation

(1) Energy (Biomass): Examples

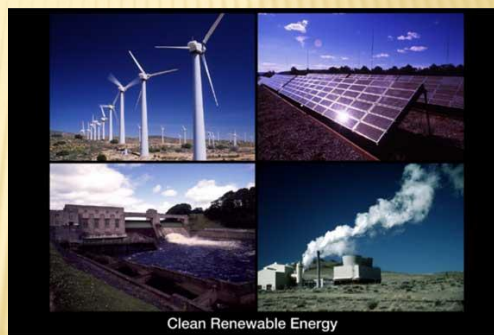
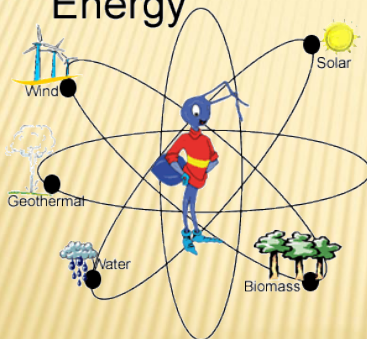


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2. Potential Areas of Climate Change Mitigation

(1) Energy (Renewable energy)

Renewable Energy



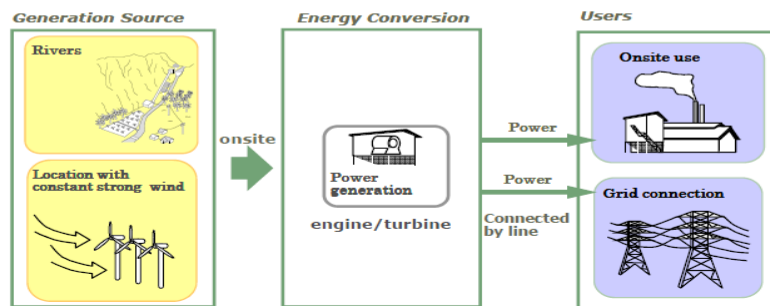
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2. Potential Areas of Climate Change Mitigation

(1) Energy (Renewable energy): Examples

RENEWABLE ENERGY

- Renewable Energy CDM projects reduce GHG emissions by reducing the use of fossil fuel.
- If the renewable energy is supplied to the grid, it would reduce the "emission factor" of the grid.
- Includes wind, hydro, solar, biomass, geothermal, tidal power projects, and etc.



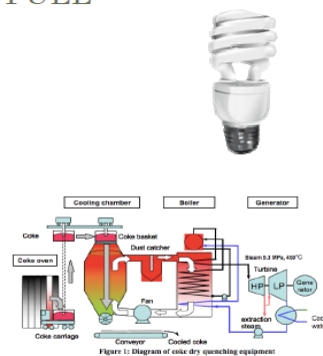
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2. Potential Areas of Climate Change Mitigation

(1) Energy (Energy Saving)

EFFICIENT USE OF FOSSIL FUEL

- Energy Efficiency:
 - If less fuel is required to travel the same distance, energy efficiency is achieved.
 - If less electricity is used to light the room (with same brightness), energy efficiency is achieved.
 - If heat is recovered to generate electricity, energy efficiency is achieved.
- Example of energy efficiency projects include: cogeneration projects, Compact Fluorescent Lamps (CFL) installation projects, combined cycle power plant projects, steel mill waste heat recovery projects, and etc.



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2. Potential Areas of Climate Change Mitigation

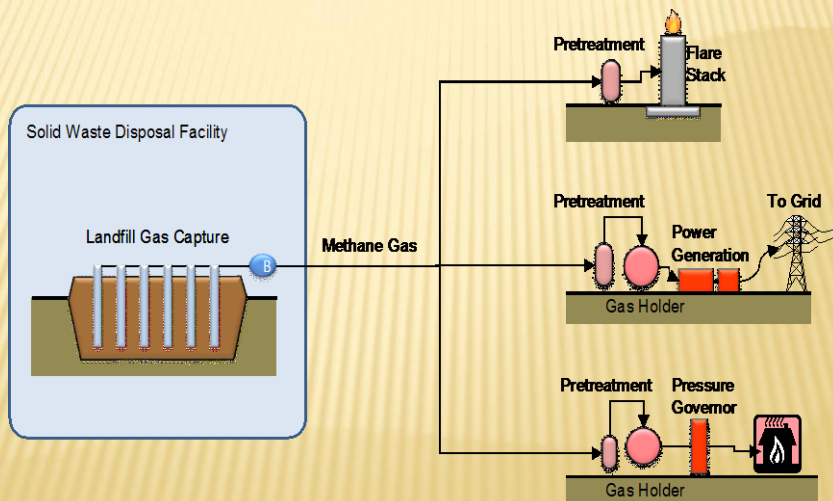
(2) Methane Capture, Utilization, and Avoidance

Greenhouse Gas GWP	
Carbon dioxide (CO ₂)	1
Methane (CH ₄)	21
Nitrous oxide (N ₂ O)	310
Hydro-fluorocarbons (HFCs)	150–11,700
Perfluorocarbons (PFCs)	6,500–9,200
Sulphur hexafluoride (SF ₆)	23,900

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2. Potential Areas of Climate Change Mitigation

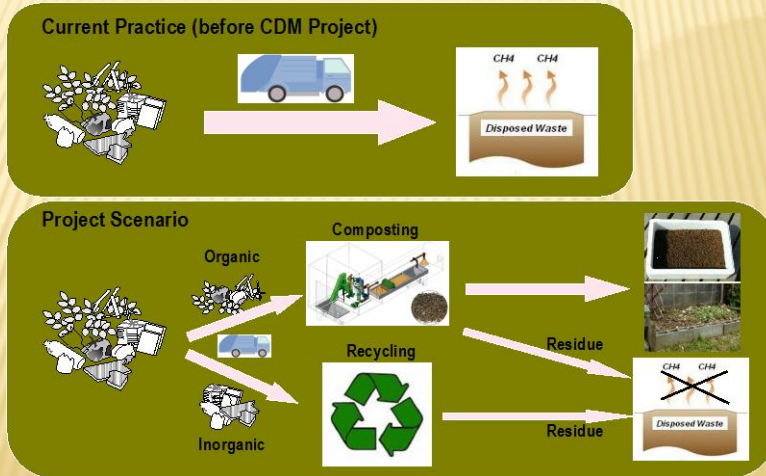
(2) Methane Capture, Utilization, and Avoidance



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2. Potential Areas of Climate Change Mitigation

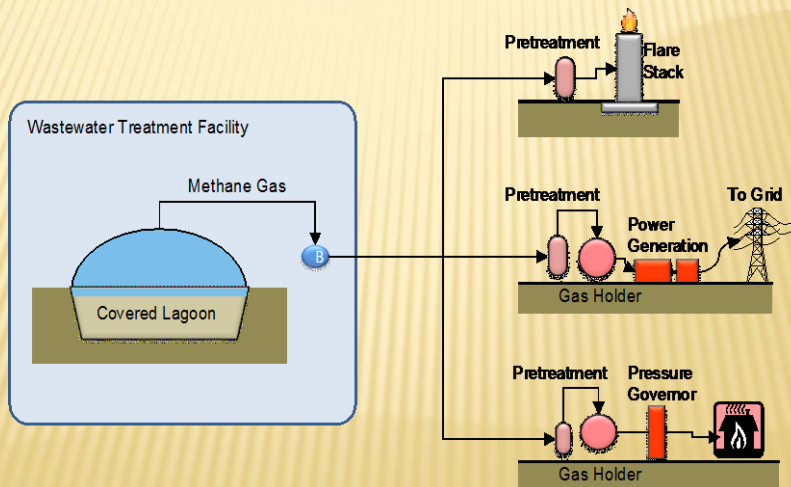
(2) Methane Capture, Utilization, and Avoidance



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2. Potential Areas of Climate Change Mitigation

(2) Methane Capture, Utilization, and Avoidance

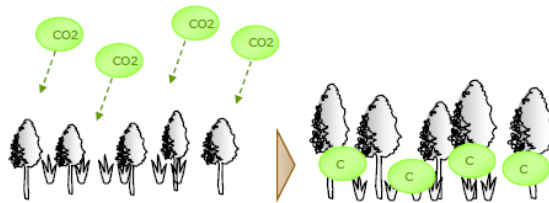


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2. Potential Areas of Climate Change Mitigation

(3) Carbon Sink

- CO₂ is absorbed by the trees
- Trees fix the carbon during its growth, thus prevent emission of CO₂ to the atmosphere.
- Once the tree is combusted, CO₂ is released to the atmosphere. (permanence issue)
- Sustainable long term management of the forest is necessary for the carbon sink project.

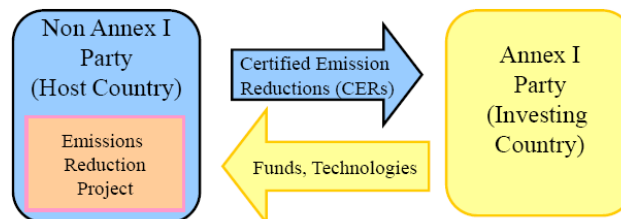


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3. What is CDM

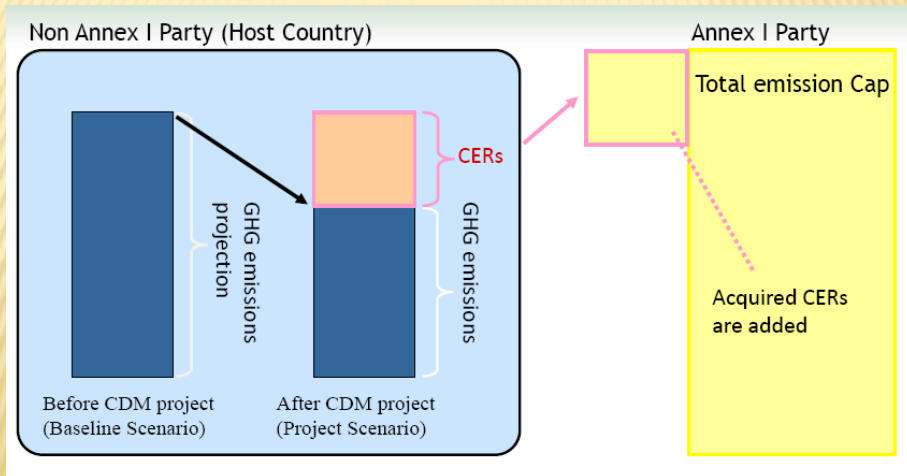
Purpose of the Mechanism:

- ◎ To assist Non-Annex I parties (developing countries)
 - in achieving sustainable development and
 - in contributing to the ultimate objective of the Convention
- ◎ To assist Annex I parties (developed & economies-in-transition countries)
 - in achieving compliance with their commitments.



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3. What is CDM (Mechanism of Carbon Credit)



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3. What is CDM (Eligibility Criteria for CDM)

- ⊙ A CDM project activity must contribute “Sustainable Development” of host countries.
- ⊙ To be registered as CDM, the project must comply with the following conditions < Para 5. Art. 12 of the KP >:

- The Project must be implemented on the basis of voluntary participation approved by each Party involved;
- The Project must have real, measurable, and long-term benefits related to the mitigation of climate change; and
- Emission reduction achieved by the Project must be additional to any that would occur in the absence of the certified project activity. (Additionality)

⇒ Basically activities mandated by the law are not applicable

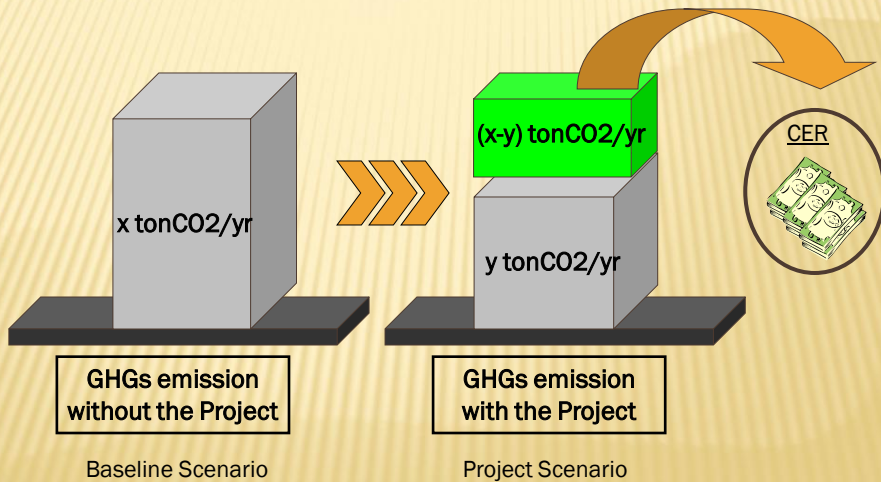
⇒ Monitoring work is required

⇒ Additionality establishment is required

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3. What is CDM (Baseline & Project Scenario)

(1) What are the baseline and project scenarios?



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3. What is CDM (Baseline & Project Scenario)

(2) What is “Baseline Scenario”

“the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the proposed project activity.”

(3) What is “Project Scenario”

“the scenario that represents the anthropogenic emissions by sources of greenhouse gases that would occur in the proposed project activity.”

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3. What is CDM (Baseline & Project Scenario)

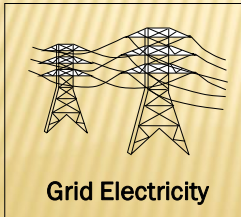
(Example)

If you are going to develop renewable electricity generation and supply through (mini-hydro, wind, solar, etc.)



(Baseline Scenario)

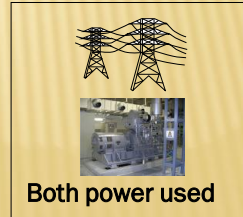
You have to identify how electricity would be supplied to the place where you plan to develop and supply renewable power if your plan is not implemented.



or



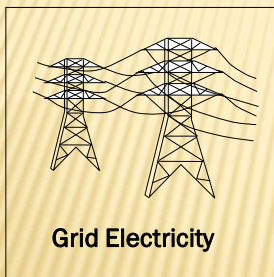
or



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3. What is CDM (Baseline & Project Scenario)

If the electricity would be supplied from the National Grid Electricity to the place where you plan to develop and supply renewable power.....



Baseline GHGs emission will be.....

Power Consumption (MWh/yr)

x


GHGs emission factor
(tonCO₂/MWh)

GHGs emission (tonCO₂/yr)

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3. What is CDM (Baseline & Project Scenario)

If the electricity would be supplied from the Diesel Generator to the place where you plan to develop and supply renewable power.....



Diesel Generator

→

Baseline GHGs emission will be.....


	Amount of Fuel Used (kl/yr)
×	GHGs emission factor (tonCO2/kl)
GHGs emission (tonCO2/yr)	

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3. What is CDM (Baseline & Project Scenario)


(Example)

If you are going to develop renewable electricity generation and supply through (mini-hydro, wind, solar, etc.)



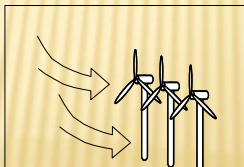
(Project Scenario)

You have to identify all the sources of GHGs emission in your planned project activity and estimate their total amount.




Hydropower

or



Wind Power

or



Biomass Power

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3. What is CDM (Demonstration of Additionality)

Question 1: What does the additionality mean?

In theory, additionality answers a very simple question:

Would the project have happened anyway regardless of whether there is CER under CDM or not?

If the answer is “yes”, the project is  **definitely not additional.**

If the answer is “no”, the project  **may be additional.**



We have to demonstrate and prove that the project would not have happened in the case without CER under CDM.

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3. What is CDM (Demonstration of Additionality)

Question 2: Which of the following project activities will be deemed additional ?

(Case 1)

Company A, a power producer in Japan, decides that instead of replacing its turbines, it would like to explore buying CER credits at lower cost. Company B in Sri Lanka, also a power producer, would like to replace its old turbines, provided the company can obtain financing and access to high efficiency turbine technology. Company A approaches Company B, offering to purchase CDM credits and transfer technology and expertise.

(Case 2)

Company B in Sri Lanka has already determined that it will upgrade its turbines, and has sufficient financing and access to suitable technology. Company A offers to partner with Company B and present this project as a CDM project, creating CDM credits corresponding to the activity they have planned.

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3. What is CDM (Demonstration of Additionality)

Question 3: How are we required to demonstrate and prove additionality ?

In principle, 4 types of additionality tests are required to completely demonstrate additionality of the project:

(1) Legal and Regulatory Addtionality Test

(2) Financial Test (Investment barrier analysis)

(3) Barrier Test (Technological, Social, Cultural, and others)

(4) Common Practice Test

There is almost no sure thing about additionality.

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3. What is CDM (Demonstration of Additionality)

(1) Legal and Regulatory Addtionality Test

*If the project is implemented to fulfill official policies, regulations, or industrial standards, it **may not be** considered additional since the project is regarded as an activity under "Business As Usual" scenario.*

On the other hand,

*If the project goes beyond compliance ("regulatory surplus"), it **may be** additional.*

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3. What is CDM (Demonstration of Additionality)

(2) Financial Test (Investment barrier analysis)

*If the revenue from CER is a decisive reason for its implementation, the project is **may be** regarded as additional .*

How to demonstrate....?

To compare the project feasibility between the project with and without CER income.

Investment (financial feasibility) benchmark

Case A	<div style="display: inline-block; width: 100%; height: 10px; background: linear-gradient(to right, orange 50%, green 50%);"></div>	Not feasible
Case B	<div style="display: inline-block; width: 100%; height: 10px; background: linear-gradient(to right, orange 80%, green 20%);"></div>	Feasible, but not additional
Case C	<div style="display: inline-block; width: 100%; height: 10px; background: linear-gradient(to right, orange 30%, green 70%);"></div>	Feasible and additional

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3. What is CDM (Demonstration of Additionality)

(3) Barrier Test (Technological, Social, Cultural, and others)

*If the project can succeed in overcoming significant non-financial barriers only by obtaining the CER under CDM, it **may be** regarded as additional.*

(Non-financial barriers)

- Technological barriers
- Social/cultural barriers
- Institutional barriers
- Other local barriers

(4) Common Practice Test

If the project employs technologies that are very commonly used/applied, it might not be additional because it is likely that CER do not play a decisive role in its implementation.

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4. Advantages and Limitations of CDM Projects

(a) Additional Revenue from CERs (carbon credit)

- Acquisition of CER under CDM will improve the cash flow of the project that contributes to GHGs emission reduction.

(b) Transfer of Technology

- CDM will promote introduction and transfer of the state-of-art technologies that can contribute for GHG emission reduction to the participants

(c) Mitigation of Various Environmental Pollution

- Application of GHGs emission reduction technologies through CDM will also contribute to mitigation of various environment pollution issues, e.g. air pollution, water pollution, waste management, and so forth.

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4. Advantages and Limitations of CDM Projects

(d) Promotion of Renewable Energy

- CDM will contribute to promote renewable energy production and utilization to replace imported fossil fuel.

(e) Increase of Productivity

- Some of GHGs emission reduction technologies may increase productivity through achievement of energy and raw materials saving.

(f) Expansion of New Business Opportunities

- CDM will increase the opportunities of business partnership with foreign companies that may trigger business market expansion for the private sector in host countries.

Contribution to Sustainable Development of Sri Lanka

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4. Advantages and Limitations of CDM Projects

According to the current commitment period, the current CDM framework is guaranteed until 2012.

⇒ Uncertainty in CER market (ref. VER)

Administration cost and time for formulating a CDM project (Has been difficult to formulate small to medium projects)

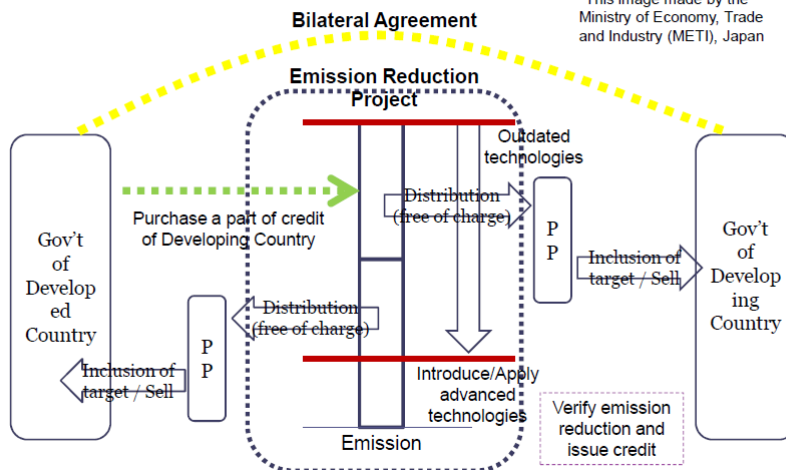
⇒ Small Scale bundling & Programmatic CDM

Ongoing discussions at UNFCCC how to support host countries less than 10 registered projects.
 - lower registration fee
 - Giving priority in completeness check of request for registration etc

5. New Financial Mechanism after 2013

Bilateral Crediting Mechanism (Draft image)

*This image made by the Ministry of Economy, Trade and Industry (METI), Japan



5. New Financial Mechanism after 2013

Bilateral Credit Mechanism (cont.)

- Japan started to negotiate this bilateral credit mechanism scheme with Asian countries (India*, Vietnam*, Philippines, Indonesia, Lao and Thailand)
*India and Vietnam agreed by summit-level
- Bilateral mechanism reduce cost and time of project development, expand scope of project, simplified procedure
- Verification method, credit approval / distribution and other issues are under discussion
- US gov't also consider to launch their bilateral credit mechanism