

# Research Workshop on Trade Diversification in the Context of Global Challenges

(Diversification and Carbonization)

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# Outline

- 1. Industrial Development in Lao PDR**
- 2. Climate change in Lao PDR**
- 3. CDM activities**
- 4. Key strategic priority – Adaptation and Mitigation Option for Industry sector**

# Industrial Development

- The industrial sector in Lao PDR includes mining, quarrying, manufacturing, construction, electricity, gas and etc( Article 9 of Industry law)
- The manufacturing accounts for approximately 70% of the total industrial out put. Garment, food/ beverages, agro-processing, construction materials like cement and wood processed products are the leading manufacturing sub-sectors in terms of gross output.
- Industrial growth rate was 12% per year(2009).

## Industrial Development (Cont.)

- In 2000 number of factories were 21.558, almost are small size.
- In 2008 number of factories were increased to 22.979 factories, in this number:
  - Big size 832 factories,
  - Medium size 431 factories
  - Small size 21.716 factories

# Climate change

- Lao PDR completed first greenhouse gas( GHG) inventory and submitted to the UNFCCC in 2000 for 4 areas identified in the IPCC greenhouse gas inventory guideline namely agriculture, energy, land use change and forestry and waste. The inventory did not cover activities of industrial sector.

## Climate change( Cont.)

- The 1990 level inventory concluded that Lao PDR was a net sink of carbon dioxide(CO<sub>2</sub>) with the net CO<sub>2</sub> annual removal of 121.6 million tons compared to 24.18 million tons of CO<sub>2</sub> emitted in all over the country .
- The land use change and forestry was the largest emitter of CO<sub>2</sub> contributing some 17 million tons mainly from the onsite burning of forests for slash and burn cultivation

# Greenhouse Gas Inventories (1990)

| Sector                       | CO <sub>2</sub>  | CH <sub>4</sub> | N <sub>2</sub> O | CO <sub>2eq</sub> |
|------------------------------|------------------|-----------------|------------------|-------------------|
| Energy                       | 414,90           | 22,70           | 0,12             | 928,80            |
| Agriculture                  | 0                | 271,27          | 0                | 5.696,67          |
| Land use change and forestry | 16.628,67        | 29,50           | 0,20             | 17.310,17         |
| Waste                        | 0                | 11,43           | 0                | 240,03            |
| <b>Total</b>                 | <b>17.043,57</b> | <b>334,90</b>   | <b>0,32</b>      | <b>24.175,67</b>  |

Remark: 1) Unit=1.000 t; 2) CO<sub>2eq</sub>=CO<sub>2</sub> equivalent; 3) Conversion 1 ton of CH<sub>4</sub>=21 tons equivalent CO<sub>2</sub>; 1 t of N<sub>2</sub>O equivalent CO<sub>2</sub> 310 t

# CDM Activities

- CDM was started in Lao PDR in 2005,
- Lao Designated National Authority (DNA) Board of Directors and the Executive Secretary has established in 2006.
- The objective of the Lao DNA board is to determine measurement and procedures for operation of the CDM framework
- Draft CDM decree



# CDM projects

- Summary of CDM project (as of 1 June 2010)

| Type of project               | Total |
|-------------------------------|-------|
| Afforestation & reforestation | 2     |
| Biomass                       | 1     |
| Energy efficiency             | 1     |
| Hydro power                   | 5     |
| Total                         | 9     |

# CDM project information (as of 1 June 2010)

| Name of CDM project  | Project Proponent            | Project Developer                | Submit PIN (DD/MM/YY) | Issue Letter of Non-Objection (DD/MM/YY) | Submit PDD (DD/MM/YY) | Issue Letter of Approval (DD/MM/YY) | Registered to UNFCCC (DD/MM/YY) |
|--|------------------------------|----------------------------------|-----------------------|--|-----------------------|-------------------------------------|---------------------------------|
| <b>Energy Efficiency Improvement Project at a Beer Brewery</b>                   | <b>Lao Brewery Co.,Ltd</b>   | <b>Proact International Inc.</b> |                       |  | <b>22/05/06</b>       | <b>18/01/07</b>                     | <b>08/08/08</b>                 |
| <b>Xeset II Hydropower Project</b>   | <b>EDL</b>                   | <b>Earth systems lao</b>         |                       |  | <b>21/08/08</b>       | <b>01/07/09</b>                     |                                 |
| Nam ngone Hydropower Project   | Nam Nhone HPC Ltd.           | Earth systems lao                | 01/03/07              | June 2007                                |                       |                                     |                                 |
| Rubber Base Agro-forest system for sustainable Development and Poverty Reduction | Lao Thai Hua Rubber Co., Ltd | Lao Thai Hua Rubber Co., Ltd     | 26/08/08              | 30/09/08                                 | 18/09/09              | 18/05/10                            |                                 |
| Nam Sim Hydropower Project   | ECI                          | Nor Power as                     | 18/03/09              | 13/05/09                                 |                       |                                     |                                 |
| Tad Salen HydroPower Project   | Tad Salen Power Co., Ltd     | Tad Salen Power Co., Ltd         | 08/05/09              | 26/06/09                                 |                       |                                     |                                 |

# CDM project information (as of 1 June 2010) (cont)

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|---|-----------------------------|-----------------------------|-----------------------|--|-----------------------|-------------------------------------|---------------------------------|
| Nam theun I Hydropower Project  | GAMUDA BERHAD               | GAMUDA BERHAD               | 15/01/09              | 03/03/09                                 |                       |                                     |                                 |
| Jatropha Base Agro-forest System and Biodiesel Production for Sustainable Development and Poverty Reduction | Lao Agro-Promotion Co., Ltd | Lao Agro-Promotion Co., Ltd | 25/06/09              | 12/07/09                                 |                       |                                     |                                 |
| Restoring degraded lands through afforestation  | Lao Agro Promotion Co., Ltd | Lao Agro Promotion Co., Ltd | 04/09/09              | 10/09/09                                 |                       |                                     |                                 |
| Total   |                             |                             | 7                     | 7  | 3                     | 3                                   | 1                               |

# Emission reduction of CO<sub>2</sub> at Lao Beer Brewery

- 01 April 2009 to 30 September 2010
- CO<sub>2</sub> reduction = 3.119 tons
- CO<sub>2</sub> credit sale = 31.190 US\$
- One ton of CO<sub>2</sub> = 10 US\$

# **Key strategic priority – Adaptation and Mitigation Option for Industry sector**

## **Adaptation Option:**

- Access to clean energy technology and clean production technology with emphasis on SME

# **Key strategic priority – Adaptation and Mitigation Option for Industry sector**

## **Mitigation Option:**

- Improving energy efficiency during the production process
- Reduction wood waste through the enhancement of furniture manufacturing skills
- Promoting the use of waste biomass or agricultural residues to produce renewable energy or thermal energy for drying and heating products through combustion, gasification .

## Constrain:

- Lack of experience and knowledge on CDM
- No systematic models for training
- Limited budget allocation

**Thank you**