“Cooperation between Thai and Japanese public and private sectors to the development of Eco Conscious Industrial Estate model”

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Masahiko Nagao
Director General
Ministry of Economy, Trade and Industry, Kansai Bureau
To achieve sustainable economic growth in Asia, effective utilization of resources and proper waste disposal should be required simultaneously. Hence establishing basic recycling infrastructure to develop a recycling society in each Asian country by taking in the material recycling situation in Asia and creating an efficient 3R (Reduce, Reuse, Recycle) system is crucially important.

**Concerning Initiatives Regarding Asian Resource Recycling**

- **Initiatives aimed at the construction of an appropriate disposal and recycling system in each Asian country**

**Asia**

- **Rapid economic development**
  - Expansion of the quantity of resources consumed
  - Worsening of waste products problems

[JAPAN Accumulation of knowledge and know-how required for establishing infrastructure]
By utilizing Japanese experiences in the development of 26 Eco Towns, METI began research in the possibility of cooperation with local governments to promote 3R (Reduce, Reuse, Recycle) initiatives and to develop a resource recycling social system in Thailand in 2009.

In 2010, we conducted three feasibility studies for regional cooperation on recycling system projects with Thailand.
History of cooperation between Thailand and Japan-Kansai on Eco Town Development

Basic Research for the Development of Eco Town Cooperation
As a result of researching several industrial estate/areas, Amata Nakorn Industrial Estate was selected for the further Feasibility Study for the development of an Eco Conscious Industrial Estate.

1. Cooperation Agreement;
DIW, Amata Corporation and METI-Kansai conducted a cooperation agreement to facilitate the Feasibility Study for the development of the Eco Conscious Industrial Estate model at Amata Nakorn I.E., with the participation of the vice governor of IEAT, in September 2010.

2. Feasibility Study on the development of an Eco Conscious Industrial Estate model at Amata Nakorn I.E.
Based on (i) data analysis of industrial waste, (ii) result analysis of questionnaires of companies in the estate, (iii) survey of needs by relevant organizations, the following were identified:
   a) Various types waste going to a landfill can be utilized at cement factories, while the ratio of waste utilization at cement factories in Thailand is much lower than that in Japan.
   b) Public and private organizations in Thailand are trying to strengthen waste/energy management, enhancement of the 3Rs (reduce, reuse, recycle), and promote the more effective use of energy.
   c) Many tenant factories are concerned about their waste management and feel the necessity of receiving external advise.
The Joint Committee on the Feasibility Study consisting of related public and private parties both in Thailand and Japan-Kansai, chaired by the Director General of DIW, agreed on the following proposals:

- Developing a One Stop Service Facility
- Promoting the utilization of industrial waste as cement fuel and raw materials
Support for strengthening of appropriate waste management in each factory

- To advise on effective measures of safekeeping and management of waste in response to its type and characteristics
- To promote following the relevant rules in Thailand, e.g. the Factory Law
- To support selecting appropriate waste processors
- To improve efficiency of administrative work by promoting common practices

Promotion of effective utilization of waste in the Industrial Estate

- To provide advice on adding higher value to waste or recycling waste
- To reduce the cost of waste treatment through a scale of merit or competitiveness by intensive treatment, e.g. an intensive waste collection system
- To contribute to the promotion of zero landfill in the industrial estate through the effective recycling of waste

Purpose
- Zero waste discharge
- Co-existence with local society
Developing a One Stop Service to advise on appropriate waste management and effective recycling for each factory

Promoting the utilization of industrial waste as cement fuels and raw materials

Expert Dispatch Program
(April 17 - May 11, 2012)
- 6 Japanese experts in the field of waste treatment and recycling trained staff of Amata Facility Service etc. on waste management and effective utilization of waste through on-site training at 17 tenant factories in Amata Nakorn I.E. and 6 waste processors

Support

Training Program on Industrial Waste Recycling for Thailand
-Promoting the Utilization of Industrial Waste as Cement Fuels and Raw Materials- (ENRC)
(February 27 - March 6, 2012)
- 36 Thai participants from cement companies, recycling companies, industrial estate developers, MoNRE, DIW, etc. studied Japanese experiences and know-how on how to utilize waste in cement factories.

Japanese Government (METI, METI-Kansai)
Issues to be identified at tenant factories

Case 1- The person in charge of waste management accepted an illegal payoff from a criminal organization. Later troubles arose at the company caused by this person and the criminal organization.

Case 2- A recycler dealing with one company’s waste, kept waste on site for an extended period of time. Subsequently contamination caused by the waste was discovered around the recycler’s factory. As a result, the company name was disclosed as one of the waste generators in a newspaper and other media.

Case 3- Sub-standard products handed over to the waste processor were traded on the black market, so the brand image of the company was badly damaged.

Waste generator should be given more responsibility for waste management, which will help in protecting against risks relating to waste treatment

Waste Management Manual for Managers

Guidelines for selecting appropriate waste processors
As the result of classification of the waste generated from Amata Nakorn Industrial Estate, potential amount of waste which can be used effective in the cement plant is estimated 13,000 t/y or more.
A model of an Eco Conscious Industrial Estate at Amata Nakorn I.E.

- Contribution to local community
- Development of safe environment
- Zero Landfill
- Development of 3Rs society
Future necessary efforts in developing a One Stop Service / Eco-Conscious Industrial Estate

To establish a joint committee among Thai and Japanese governments and private parties in order to discuss how to develop One Stop Service.

This project will be a model for future industrial areas.