

COMPLETION REPORT

A Comparative Study of Municipal Solid Waste Management in Chiang Rai Province, Thailand and Uonuma-Niigata, Japan

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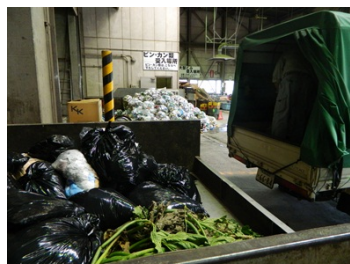
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This research project aims to find out why existing solid waste management methods are less effective in Chiang Rai province, northern Thailand, as well as compare the key factors in terms of waste composition, waste management (sorting, waste storage and handling, waste collection, waste transportation and waste treatment and disposal,) policy and regulation, people knowledge, attitude and practice, technique and technology that are responsible for effective solid waste management between Thailand and Japan in order to define the best way to apply Japanese solid waste management technique to be the appropriate technology in Chiang Rai and being a guideline for Thai solid waste management in agriculture.

In this study, there were not significant differences between villagers of Uonuma and Mae Chan for knowledge, attitude and practice on solid waste management. While, it found the clear differences on the waste management namely; (1) waste categories and sorting (2) waste treatment and disposal and (3) policy and regulation.

(1) Waste categories and sorting

Solid waste in Uonuma is categorized into 5 types, combustible, non-combustible, recyclable, hazardous waste and bulky waste. While, waste in Mae Chan is categorized into 4 types; general waste, compostable waste, recycle waste and hazardous waste. The waste sorting in each category of Uonuma and Mae Chan is very different especially in general and compostable waste sorting of Mae Chan. As mentioned, garden waste and food waste can be combustible waste in Uonuma while they are compostable waste in Mae Chan, also plastic bags and packaging are the type of general waste in Mae Chan but they are also combustible waste in Uonuma. Waste categories and sorting are according to used treatment technology in each country.



(2) Waste treatment and disposal

From the study, it have no the process of waste treatment in Mae Chan due to dumping the collected waste to landfill while the combustible waste have been treated by incinerator to reduce volume before leaving only ash to landfill. As for disposal, landfill operation is not effectively according to no daily cover and liner therefore, it become open dumping. Landfill in Mae Chan needs to reduce amount of waste by open burning because the daily overloaded of waste whereas, the sanitary landfill is operating in Unomuma.



Uonuma



Mae Chan

(3) Policy and regulation

Since 2014, Mae Chan Municipality had established a policy for waste separation, recycle waste, plastic bottle, paper and glass has separated in order to sell to waste market. As for general waste; plastic bags and piece of plastic and paper were collected and transport to Mae Sai Material Recovery Facility for RDF production. However, the collected waste in large amount still have transported to landfill. Furthermore, there are 2 government sections; Municipality and Sub-district Administrative Organization (SAO) which take responsibility on solid waste management by own areas without cooperation but operating with the same landfill.

As for Uonuma, Eco-plant is only operating for waste management that brings out the effective waste management. Importantly, the policy of fee of waste management, 3Rs (Reduce, Reuse and Recycle) and fine and penalties for waste dumping and burning are established and enforce in the area. Moreover, waste management instruction is provided to villagers with clear details and easy to understand.

On the other hand, agricultural waste; rice straw is not define as “waste” in Uonuma. It is utilized as fertilizer and vegetable gardens. Contrastingly, open burning is the method of farmer in Mae Chan to eliminate the rice straw without considering of its usefulness.



Rice straw utilization in Uonuma

Guideline of waste management for Mae Chan district learning from Uonuma

1.3Rs concept promotion

Waste to landfill needs to be reduce by 3Rs concept promotion especially plastic bag, piece of plastic or paper and packaging should go on by “Reduce” and rice straw can be “recycle”.



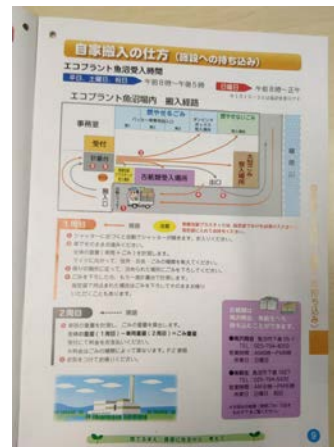
2. Fee and Fine of waste management

Government section should convince the local people to pay fee for waste management service including fine and penalties in case of doing the appropriate household waste management.



3. Instruction of waste management

Make and provide the effective instruction of waste management which consist of waste categories and sorting, waste collection schedule, fee, fine and penalties, campaign and promotion etc.



Publication of the Results of Research Project:

Verbal Presentation (Date, Venue, Name of Conference, Title of Presentation, Presenter, etc.)

Thesis (Name of Journal and its Date, Title and Author of Thesis, etc.)

The results of this research will be submitted to the Journal;

1. Applied Environmental Research (TCI) (to be submitted by July,2017)

“Solid waste management practices in Mae Chan-Chiang Rai, Thailand and Uonuma-Niigata, Japan”

2. EnviornmentAsia (Elsevier BV, Thomson Reuters) (to be submitted by August, 2017)

“A comparative study of municipal solid waste management in Mae Chan-Chiang Rai, Thailand and Uonuma-Niigata, Japan”

Book (Publisher and Date of the Book, Title and Author of the Book, etc.)