Replication in Thailand

Kitakyushu City and IGES are also promoting waste reduction projects in Thailand, which is also a replication of successful solid waste management models based on the promotion of composting practices in Surabaya, Indonesia. The key partner in Thailand is Bangkok Metropolitan Authority (BMA) which has a long environmental co-operation relationship with Kitakyushu City and is also a core member of Kitakyushu Initiative Network.

The official population in Bangkok is around six million, but it is said that it exceeds ten million, including unregistered inhabitants. Bangkok has a large amount of waste generation (about 9,000 tonnes a day), which is caused by its large population and rapid urbanisation. Solid waste management costs including waste collection, transportation and final disposal, which is about THB1,000 (USD30) a tonne, or THB9 million (USD270,000) a day, are also high as the landfill sites are located 100 kilometres away from the downtown area. Reflecting these facts, the demand for waste reduction is also high in Bangkok.

BMA has targeted the reduction of waste generation by 15% by 2012. To achieve this target, it is inevitable that BMA will have to reduce the amount of organic waste, which makes up about half of the total amount of waste. In that sense, the promotion of composting practices at households and establishing composting centres to deal with organic waste from vegetable markets complement the demand and policy of BMA.

Model composting practices initiated in some areas of Bangkok have gradually spread to other parts of the city, as well as to other cities through workshops and trainings organised by BMA, Kitakyushu City and IGES. Technical co-operation has started at a composting centre in Sankamphaeng and replications are expected at Chiang Mai and Chonburi, where Kitakyushu City has city-to-city environmental co-operation relationships.

**Activities by Bangkok Metropolitan Authority (BMA)**

- A BMA officer explaining the use of a compost basket to District officers and residents
- BMA officers in the Environmental Bureau have developed and distributed samples of household compost baskets and composting manuals to most of the Districts of BMA to promote composting practices at the household level. BMA officers have also organised a series of seminars for District officers and residents to explain how to use the compost baskets. There are several model communities where household compost baskets are being used and such practices are gradually spreading to other areas.

Establishing Model Composting Centres

A model composting centre was established in Din Daeng District in November 2008 owing to the full support by the District, which processes about 500 kilograms of organic waste a day. The scale is expected to gradually increase to around two to three tonnes a day as the facility has a large floor area, the performance of the electric shredder is good, and there is an ample supply of organic waste from many markets in the District, which is located in the city centre.

Previously, there was another composting centre in Don Muang District, but it was closed in 2009 as the parking area it belonged to was returned to a private owner. Kitakyushu City and IGES have requested to resume the operation of a composting centre in another area as the District has a well-trained composting expert.

There is another small composting centre in Nongjok District which is located about 30 kilometres east from the city centre and processes about 200 kilograms of organic waste a day. The procurement of a shredding machine and expansion of the floor space is expected to increase the capacity of the facility, as currently all of the waste is shredded manually in a small place.

As seen above, there are currently only two operational composting centres in Bangkok, and Kitakyushu City and IGES are proposing that BMA increase their capacity and replicate them in other Districts.
Organising Workshops and Seminars

A workshop was organised in Bangkok in November 2008 for BMA and District officers to promote composting practices for waste reduction. District officers and residents from 36 Districts participated in the workshop. Another workshop and composting training session was organised in March 2009 for officers in other cities. Twenty-two cities in Thailand and nine cities from overseas participated in the workshop. In this way, Kitakyushu City and IGES are promoting the replication of composting practices not only by showing actual model cases, but also by presenting their economic as well as environmental and social impacts and promoting the political support necessary to implement these practices.

Proposal for BMA

BMA has expressed a target to reduce the total amount of waste by 15% by 2012, which literally means more than 1,000 tonnes of waste reduction a day from the current 9,000 tonnes to less than 8,000 tonnes. This target is five times larger than what Surabaya City has achieved in three years, which was 200 tonnes of waste reduction a day. Theoretically, BMA has to input five times of what Surabaya has done to achieve the target, but that is too large to begin with, so two times the amount of Surabaya’s input is recommended.

In particular, processing 80 tonnes of organic waste a day at composting centres is recommended for BMA compared to 40 tonnes in Surabaya. Furthermore, the distribution of 30,000 units of household compost baskets is recommended compared to the 16,000 units in Surabaya.

For example, if BMA starts the operation of a composting centre applying the Takakura Method at a large underutilised building in On Nut Waste Transport Station which has a floor area of about 5,000m², and half of that floor space is utilised, more than 40 tonnes of organic waste can be processed a day. In addition, if a model composting centre in Din Daeng District was replicated in 20-30 more Districts, the city can process another 30-50 tonnes a day. In that way, processing 80 tonnes a day is not an unrealistic target.

If 10,000 household compost baskets were distributed every year for three years, the total cost would be around THB20 million (USD600,000), assuming the unit cost is THB350 (USD10) and the distribution cost is also the same, which is only 1% of what BMA spends for waste collection and transportation annually (BHT1.8 billion (USD54 million)). The waste reduction effect of that would be around 30 tonnes a day assuming each household processes one kilogram of organic waste a day. However, that could bring about a higher reduction by encouraging waste segregation at source as seen in Surabaya. The 30 tonnes a day of waste reduction is equivalent to about 11,000 tonnes a year, which could be considered as the reduction in solid waste management cost by THB11 million (USD330,000) a year. Thereby, the initial investment can be paid back in two years.

There are several other measures recommended to BMA to support composting practices such as organising a network of community environmental leaders, as was done in Surabaya, who distributes the baskets, motivates and monitors the performance in co-operation with community groups and NGOs, organising a Green & Clean Campaign to encourage communities to compete with each other, and creating a market for compost products by utilising compost at city parks.

Achievements in Surabaya, Indonesia and Proposals for BMA

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<thead>
<tr>
<th>Item</th>
<th>Achievements in Surabaya, Indonesia (Population: 3 million)</th>
<th>Proposals for BMA (Population: 6 million)</th>
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<td>Waste generation</td>
<td>1,500/day → 1,300/day (200/day reduction)</td>
<td>9,000/day → 8,000/day (1,000/day reduction)</td>
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<tr>
<td>Composting centre</td>
<td>Processing 40/day at 13 locations</td>
<td>Processing 80/day Establishing a centralised system with 40/day capacity at On Nut Waste Transfer Station Replicating Din Daeng Composting Centre in 20-30 Districts → 40-50/day capacity</td>
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<td>Household compost baskets</td>
<td>Distribution of 16,000 units for free (Distribution cost: USD320,000)</td>
<td>Distribution of 30,000 units for free (Distribution cost: USD600,000)</td>
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<td>Community environmental leaders</td>
<td>Organised by PKK (women’s group) and NGOs</td>
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<td>Community clean-up campaign</td>
<td>Organising Green &amp; Clean Campaign with 20% of communities participating</td>
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<td>Marketing of compost</td>
<td>Use at city parks; purchasing from households</td>
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