

## Environment Friendly Municipal Solid Waste Intermediate Treatment Facility Project in Malaysia

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### 1. Introduction

As Malaysia builds its economic foundations, the concern for the environment and sustainability is also firmly increased. A capital city, Kuala Lumpur (KL city), is now facing problems on increasing municipal solid waste (MSW). The lands for the treatment facilities such as final landfills become less and less available, and the treatment cost keeps growing. Effective measures to reduce solid waste volume are desperately needed.

### 2. Project Needs

Intermediate treatment system to reduce the volume of MSW by converting to usable resources is urgently required in Kuala Lumpur for three reasons. First, it is difficult to expand existing facilities or to constructing new ones. The second problem is increasing cost of solid waste treatment from collection to disposal at final landfills. Thirdly, there is the increasing awareness for the environment and concerns for the risks associated with environmental problems. Malaysia is taking a positive policy to join the circle of the developed nations and perception of waste as resources is gradually gaining.

In order to solve these problems, the Malaysia Government built a transfer station that compacted the solid waste collected from the northern area, while an incineration facility of 1,200 t/day was planned in Kg. Bohol in the southern area of Kuala Lumpur. However, construction of the incinerator in Kg. Bohol was canceled for some reasons, and it was relocated to Beroga in the Selangor State. The project is now under final environmental assessment review. Due to the relocation to the neighboring state, the original plan was changed to receive 300 t / day of municipal solid wastes from Selangor state. This means that the outstanding difference of 300 t / day needs to be treated by other intermediate treatment methods.

### 3. Technical feasibility Study

The policy of 3 Rs (Reduce, Reuse and Recycle) is practiced not only in Japan but also in the world. The Malaysia Government is also promoting this policy. Among these 3 Rs, Reduce relies on an effort by citizens who generate municipal solid waste and Reuse becomes feasible by constructing the social structure where the reuse system naturally works. Then, intermediate treatments mainly deal with recycle of material and recovery of thermal energy. Therefore, we studied an intermediate treatment facility to reduce municipal solid waste with recycle.

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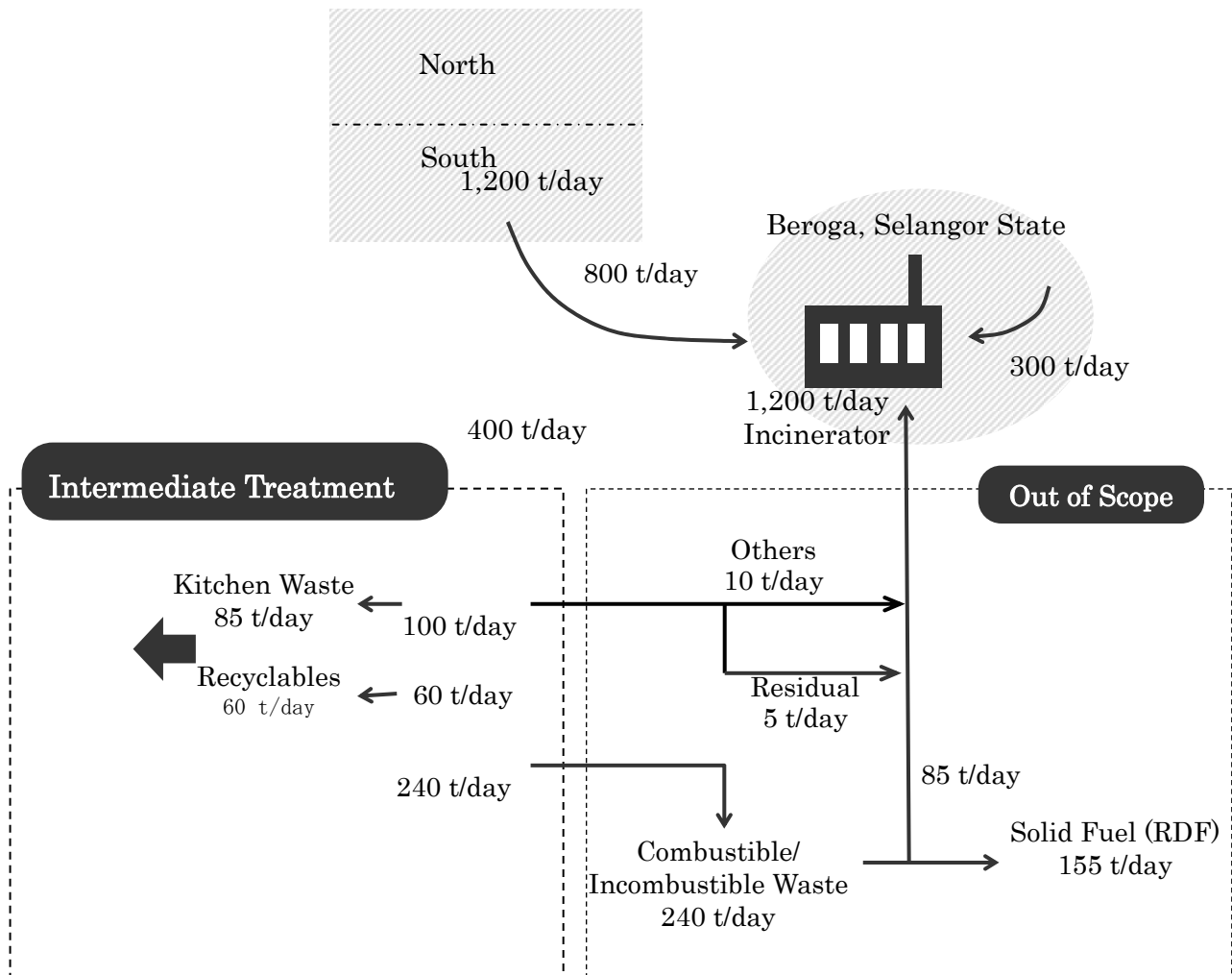
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According to the site survey, we could sell paper (including cardboard), plastic, steel and aluminum as recyclables. Since the site survey and the referring to documentary records showed that the recyclables stated above marked a high proportion of mixed solid waste, and the ratio of kitchen waste is also high, a system of recycling those two wastes are selected. As a result of the field experiment, kitchen wastes should be sorted by machine, and the other wastes should adopt a system of manual sorting. Though it was considered that compost or methane fermentation were suitable to recycling of kitchen waste, methane fermentation was chosen in view of securing a user. The outline of supposed facility is shown below.



#### 4. Acknowledgment

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