

Waste Control in Japan

-The question: Which Technologies Will Survive the Struggle?

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Introduction

In April of 1997, Package Recycling Act was enacted in Japan in order to reduce waste generation, augmenting the first Recycling Act of 1991. It covers the packaging materials, which comprise 60% in volume of the total municipal solid waste (MSW). In addition, Appliance Recycling Act is scheduled to become effective in September 1998, mandating recycling of TV sets, washing machines, refrigerators and room air-conditioners, the four appliances that constitute major non-combustibles household waste. This trend necessitates the quick systematization of material recycling.

Due to the shortage of landfill sites, up to 74% of waste have been incinerated. Since dioxin became a social issue, existing incinerators are required to reduce their dioxin generation within the five-year implementation period. As for new facilities, official guideline has been issued to encourage building of RDF conversion plants instead, centralizing incineration by plants 100 T/D or larger, facilitating dioxin control.

Steps are also taken to control pollution of rivers and streams by stricter restrictions of effluent water from landfills. In addition, environmental hormone has emerged as an issue, and dioxins in the effluent have become the culprit besides other suspected chemicals. Another guideline has been issued to mandate retrofitting existing incinerators with ash melting units. The purpose is to turn ash into molten slag, thermally destroying dioxin in the process. It also prevents leaching of heavy metals from the ash, and the reuse of slag itself is being explored.

With this recent trend, a next-generation waste-control system capable of both material and energy recycling has been taken up by more than twenty firms. They include old names and new entrants, with their own research and development. This technology involves removing aluminum and ferrous metals during pyrolysis, melts residues by burning the generated gas, and recovers heat by boiler for power generation. It is called Pyrolysis Gas Melting System. It is necessary to treat incineration residue thermally in order to detoxify and reduce wastes in a limited land space, and this new system seems to fit the bill perfectly.

In the meantime, budget-stricken municipalities are considering PFI (Private Finance Initiative) which introduces private resources into construction and operation of waste treatment facility, a traditionally municipal effort. Many firms see a steady growth in environment-related businesses, and have begun to allocate funds into this area. The sudden demise, however, of bubbling fluidized bed project due to the high rate of dioxin generation, was a good example of the uncertainty as to what will be the mainline technology of the waste disposal in future.