# THE POTENTIAL FOR COOPERATION BETWEEN WASTEWATER TREATMENT PLANTS AND MUNICIPAL SOLID WASTE INCINERATORS

Ryo Matsuo

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## 1. Background and Objectives

Wastewater treatment plants (WWTPs) and municipal solid waste incinerators (MSWIs) have important roles in reducing environmental loads in terms of material and energy recycling. Given the concern about degreasing population of Japan, the co-operation system between WWTPs and MSWIs is one of the promising strategy to realize further efficient treatment of wastewater and solid waste. However, in Japan, these facilities have been operated separately by different sectors of local governments and only a few cases of cooperation between WWTPs and MSWIs have been reported. Thus, in this study, to clarify the potential of cooperation system, first, this study investigated the number of assumable combinations among the facilities in Japan with. Second, running-costs and amount of greenhouse gases (GHG) reduction for each combination are calculated.

## 2. Methods

In this study, the cooperation possibility of two scenarios were investigated mentioning co-operation of a WWTP vs. a MSWI and a MSWI vs. multi WWTPs. The scenario 1 is co-combustion flow of transporting dewatered sewage sludge generated by WWTP to MSWI, and the scenario 2 is co-combustion flow of transporting anaerobic digested sludge (that is the mixture of high moisture content waste collected from MSWI and sewage sludge generated by WWTP) to MSWI.

In the first part of this study, location, capacity and processes of 2,193 WWTPs and 1,247 MSWIs were investigated and imported to Google maps. Next, after applying some settings to Google maps required for distance calculation of co-operating facilities and extracting co-operatable facility combination using screening, the number of WWTPs those are possible for combination is investigated.

## 3. Results and Discussion

2,734,671 combinations of all WWWPs and MSWIs were assumable. As the result of screening with some conditions, it was shown that 184 MSWIs can cooperate with 367 WWWPs in scenario 1 and 8 MSWIs can cooperate with 20 WWWPs in scenario 2. Especially, using Scenario, 1, 342,662t-DS/year of sewage sludge can be co-combusted. This amount remarks 15.3 % of sludge generated in Japan.