Study on the utilization of the dewatering facility with wastepaper as an additive		
Whole term	1997. 7 ~ 1999.3	

(Purpose)

The reason why sludge has become difficult in dehydration with time was investigated. The results showed that it occurs as a result of that the decomposition rate of fibers in sludge becomes low with the progress of time. Therefore, in Tokyo Metropolitan Government, it was found that waste papers can be injected as a supplement for dehydration. The performance of sludge dewatering was investigated by adopting a pilot plant with this method in Odai Treatment Plant.

This study of utilization has been progressed from 1997 to 1998 by a joint research between Tokyo Metropolitan Government and the Japan Institute of Wastewater Engineering Technology, as a model research for practical usage of the innovative technology. And an investigation was carried out in order to scale up this facility to be applied in the Kasai Treatment Plant, to establish a wastepaper collection system and to provide this technology.

(Results)

1985, research was conducted on: 1. Investigation of controlling targeted water content in Odai Treatment Plant; 2. Investigation in Kasai Treatment Plant prior to the import of the practical facility; 3. Investigation in Kasai treatment plant next to the import of the practical facility; 4. Proposal of a wastepaper supplying and adding system for medium and small sized plants.

1. Investigation of controlling targeted water content in Odai Treatment Plant

Controlling the constant rate of water content was verified by successive operations carried out for 24 hours by increasing the wastepaper additive ratio. It was controlled by the filter– cloth-velocity, and when it reached the upper limit, wastepaper was added. During the total of 13 investigations, it was controlled in approximately less than 1.5%.

2. Investigation in Kasai Treatment Plant prior to the import of the practical facility

(1) Water content was improved in 3.3%, by adding 10% of wastepaper according to an indoor dewatering test. Also, the improvement of the dewatering ability was verified in relation to time.

(2) According to the results of the heat balance for incineration, the targeted heat value of the dewatered cake by adding waste papers was 550 kcal/kg as per the data of the incinerator. Also, the quantity of wastepaper was as 4.94 t/day and the heat value was lack by 155.8 kcal/kg relative to the targeted value.

3. Investigation in Kasai treatment plant next to the import of the practical facility

(1) As per the results of the investigation of the operating conditions and dewatering properties, the water content improved in 2.0 % with the addition of 10 % of waste papers as compared with the control facility. When the filter- cloth- tension was increased to 0.1 Mpa, the rate of the water content improved in 1.1%, and when the filter cloth velocity was decreased to 0.2 m/min, it improved in only 0.3%.

(2) It was verified that there was a reduction of the supplemental fuel for incineration because 70 Nm^3/h of city gas decreased. Also the total heat value of both the cake and city gas was 530kcal/kg and it was almost the same as the targeted value.

4. Proposal of a wastepaper supplying and adding system for medium and small sized plants

(1) Waste paper recycling and supplying for medium and small sized systems

It is possible to utilize the papers wasted after being used as carpet papers of livestock industry and etc.

(2) Basic factors for the decision of the system facilities

100kg of waste papers per day could be used in small sized plants; 100 ~ 1,000kg could be

used for medium sized plants and over 1,000kg could be used for large scale plants. In small scale, crushed wastepaper could be used without any change. The basic scheme of an adding system was proposed for the papers wasted after being used as carpet papers of livestock industry.

Collaborators: Tokyo Metropolitan Government
Japan Institute of Wastewater Engineering Technology

Personnel in charge of the study: Yoshio Oshima, Takahiko Nishimura, Kenichi Tajima

Keywords	Dewatering system with added wastepaper, Portion of textile, Adding ratio of wastepaper, Aid for incineration