Initiatives by the Wastewater and Sludge Management Division to respond to global warming

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1. Controlling the production of greenhouse gas from treatment processes

The Wastewater and Sludge Management Division has striven to prevent the production of greenhouse gas (GHG) by performing statistical surveys to estimate the quantity of GHG produced at sewage treatment plants, surveys to clarify the state of and the restriction of the production of methane (below "CH_4") and nitrous oxide (below "N_2O") in sewage treatment processes etc., and surveys of the quantity of carbon dioxide gas produced through the consumption of resources and energy for wastewater treatment and reuse. From the results, the GHG production rate is generally clarified and countermeasures are almost fully established, excluding that for N_2O produced by biological treatment. Regarding another source of GHG from sewerage systems, it has been pointed out that CH_4 released in sewer pipes and N_2O emission in receiving waters are important.

2. Restricting production through the use of sewage resources

Various technology developments are advancing energy recovery from the heat and biomass resources in sewerage systems, and their spread as GHG reducing technology should be encouraged. So the Sewerage and Wastewater Management Department of the Ministry of Land, Infrastructure, Transport and Tourism started the Breakthrough by Dynamic Approach in Sewage High-technology Project in 2011, and Wastewater and Sludge Management Division is now proving multiple systems under a contract from the above department (see the example in the Fig.). This project will be continued with a call for the submission of new challenges in 2012. In addition to such demonstration studies, the Division is conducting research to enact a guideline to evaluating the feasibility of introducing technologies to sewage treatment plants considering the characteristics of regions, in order to promote the wide introduction of these technologies. And in cooperation with the Urban Facilities Division of the Urban Planning Department, the Division has evaluated energy saving partnership among public sectors in cities such as sewerage works, and the improvement of block level energy supply system, and has studied the impacts of regulatory and incentive policies based on city plans and of a domestic emission trading system.

3. Studying the warming adaptation strategies based on water reuse

As global warming advances, floods and droughts will occur more often, lowering usable water resources, and it is presumed that urbanization will advance warming trends, harming urban environments. Reusing water is presumed to be an effective way to adapt to such phenomena. The Division has been studying the evaluation of the environmental load and of the economics of a variety of adaptive strategies implemented using recycled water, and ways to increase the safety of recycled water to lower the health risk of its use. In the future, the Division will continue these endeavors to aim to propose a method of comprehensively evaluating reuse as an adaptive strategy.

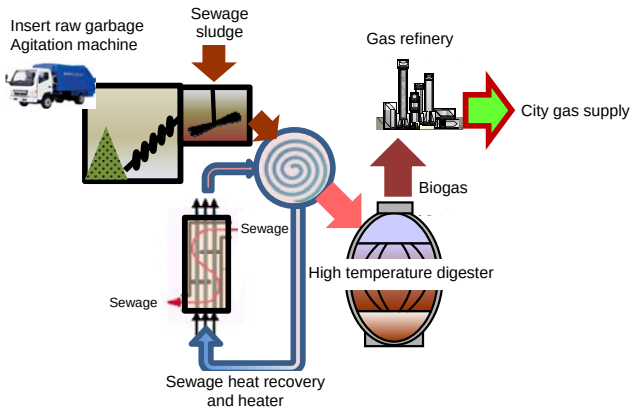

Figure Example of a Project to Verify Reformed Sewage System Technology