

Survey Study on Measures for Global Warming in Sewerage

Whole term

2003.10 - 2004.3

(Purpose)

In the 3rd session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3) which was held in December 1997, it was determined that Japan will reduce emission rate of greenhouse gases in 2010 (average of emission rates from 2008 to 2012) by 6% compared to 1990. In June 1998, the measures on global warming which should be urgently promoted by governments were summarized as the Outline for Promotion Effects to Prevent Global Warming. Moreover, the Law Concerning the Promotion of the Measures to Cope with Global Warming was issued in October 2000 and enforced on 8th August 2001. Furthermore, the Basic Policy on Global Warming was endorsed by the Cabinet on 9th August 2001.

Based on these basic policy, nation, prefectural and city governments, the communities have to develop action programs for their administrative works and enterprises to solve global warming problems and announce the operation situation of the measures based on the action programs (including total emission rate of greenhouse gases) every year. Sewerage enterprises are included in the objectives of this action program.

In sewage treatment plants, carbon dioxide is generated by consumption of fossil fuels and methane and dinitrogen monoxide are generated by sewage treatment process and sludge incineration process. Therefore, in the future, the control of emission of greenhouse gases along with enterprises by application of new technologies and implementation of measures for saving of resources and energy is required.

In Chiba City, the action program to solve global warming problems comes to formulate, thus the formulation of prevention measures in sewerage enterprises is required. As the measures in sewerage enterprises, the reduction of consumption rate of fossil fuels by saving of energy and the operation of facilities which controls emission rate of greenhouse gases are quoted.

In this survey, current emission rate of greenhouse gases from two major treatment plants and three pumping places in the city was analyzed, the measures such as saving of energy were discussed, the emission rate of greenhouse gases in the future was estimated and the measures against global warming in the sewerage facilities in Chiba Prefecture were formulated.

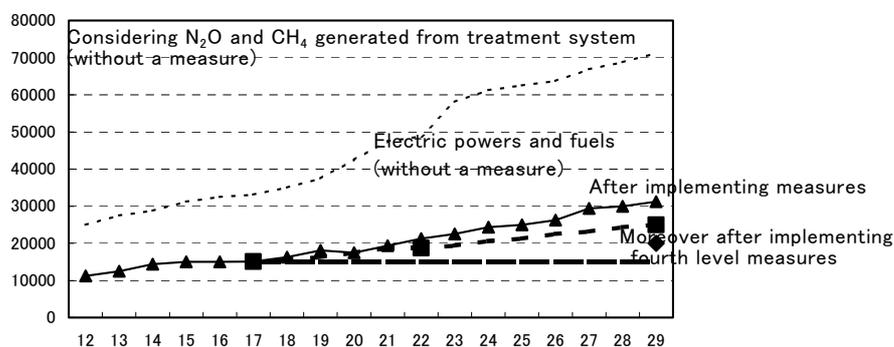


Fig.-1 Change in gross discharge of greenhouse gas

(Results)

1. By the consumption of electric power and fuel in the treatment plants, about 11,000 tones of carbon dioxide was exhausted in 2000. 85% was the consumption of electric power.
2. Seeing the breakdown of the consumption rate of electric power, the consumption rate by blowers made up to 29% of total consumption rate in the southern treatment plant and 59% in the central treatment plant.
3. Along with the increasing of effluent flow rate and the advancement of facilities by adoption of advanced treatment, it is expected that the emission rate of CO₂ by the consumption of electric power and fuel in 2017 will be 2.8 times more than in 2000.
4. By 2017, it is expected that the emission rate of CO₂ will be reduced about 6,200 tones / year by improvement of operation and renewal of facilities and about 5,700 tones / year by spread of solar photovoltaic generation. (Fig.-1)
5. Based on these results, the measures against global warming in the sewerage facilities in Chiba Prefecture were formulated.

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Key words

Global warming, Greenhouse gas, Heat-trapping gas, Amount of CO₂ exhaust