

Joint Study on Hamamatsu City Public Sewage Pilot Program (Optimization of wastewater treatment)

Year of research

2008 • 2009

(Purpose)

This study aimed to reorganize sewage master plan in multiple treatment zones in merged local government, including sewerage-like facilities for efficient maintenance and improvement, in consideration for population decrease in the future.

(Results)

(1) Study on the revised zoning under the master plan

Based on the economic evaluation compared with individual treatment and centralized treatment for undeveloped areas within the existing master plan area, it was assessed if advantages of centralized treatment exist in case percentage of flush toilet is below 100 %. Specifically, we conducted a sensibility analysis to learn what extent unit cost of sewer construction should be reduced in order to maintain economic advantages of centralized treatment when percentage of flush toilet falls at the level estimated from the result of the resident questionnaire (around 80 to 95% for each zone).

As a result, 52 blocks would be remained the economic advantages for centralized treatment for out of total 90 blocks, if unit cost of sewer construction for zone development was reduced from the standard cost of 115,000 yen/m (actual average for Shizuoka Pref.) to 95,000 yen/m or by 17% with introduction of technologies using low cost sewage systems.

(2) Confirmation of excess capacity and identification of cases for reorganization of sewage treatment plant comparing between the revised wastewater flow and the capacity of existing master plan

After revising the population, unit cost and zoning in the master plan, it was estimated that planned wastewater flow of all of the treatment zones would decrease although further adjustments might be necessary with its upper plan of “Basin-wide Comprehensive Sewerage Master Plan”.

In the largest treatment zone, its daily maximum wastewater flow would decrease from 400,000 cbm/ day under the old master plan to 320,000 cbm/ day, or by 20%.

Also, in order to utilize excess capacity of the planned facilities associated with the reduced wastewater in large treatment zones, we identified/ defined cases for integration of surrounding small treatment zones.

(3) Study on coordination with other works

As part of system integration, we first studied on the integration/ abolition of rural sewerage system and community plants system for the connection of public sewerage and the discharge to sewer from night soil treatment. As a result, it is evaluated that the integration with all facilities except one night soil treatment plant can be implemented under the current planned capacity without expansion/ enhancement of the public sewage treatment plants.

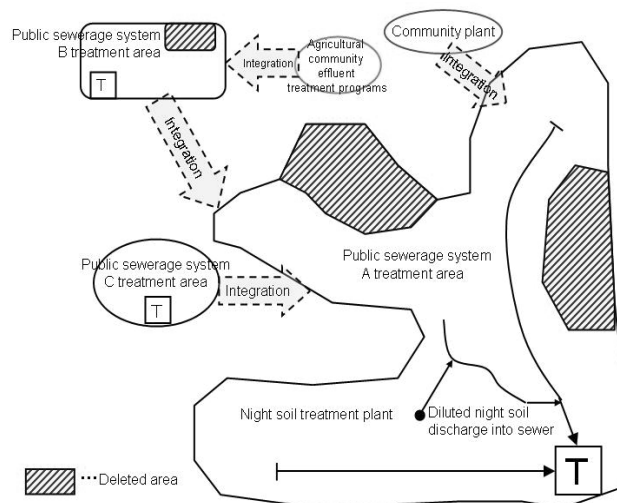


Fig.-1 Coordination with other works

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Key words

Master Plan, Reorganization of Treatment Zones, Coordination with Other Works