Operational Improvement Initiatives for Sustainable Business Operations of Yokohama's Sewerage Works

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INTRODUCTION

Up until now, sewerage works established by City of Yokohama comprise sewers of approximately 11,800 km, 11 wastewater treatment plants, two sludge treatment plants, 26 pumping stations, and its coverage ratio has reached 99.9 percent (as of the end of fiscal 2015). The environment surrounding sewerage works has been transforming in great ways such as through the localization, concentration, and intensification of rainfall, the acceleration of global warming mitigation measures through the SDGs and the enactment of the Paris Agreement, as well as the decrease of usage fee revenue caused by population decline, etc. Taking these into consideration, enhancing the management base through flood controls, cutting CO2 emissions through effective resource utilization, optimizing operations, etc., in addition to restructuring facilities will be increasingly important.
In order to continue sewerage services, meet the demands of residents, and promote sustainable operations, it is necessary to understand the current conditions of the sewerage industry, design plans, compile budgets, and set long-term plans, etc., based on the conditions for the purpose of creating a structure to conduct operations in a unified matter through the asset management (hereinafter AM) method and undertake operational improvements.

METHODS

Self-Checked Topic Management and Drafting Operational Improvement Categories

【Method 1】Process benchmarking (Asset Management Customer Value)
In order to objectively evaluate operations up until now, Yokohama Waterworks Bureau participated in the process benchmarking (hereinafter PB) of the 2016 Asset Management Customer Value (AMCV) Project (2016) developed by the Water Services Association of Australia (WSAA) with the International Water Association (IWA).
As a result, four categories were suggested as categories which could expect significant improvement.
①Enhancing the financial basis through financial simulations and implementing civil partnerships
②Formulating a facility reconstruction plan balancing cost, risk, and facility functions
③Establishing processes for the transmission of technologies, personnel development, and decision-making
④Designing a strategic AM plan

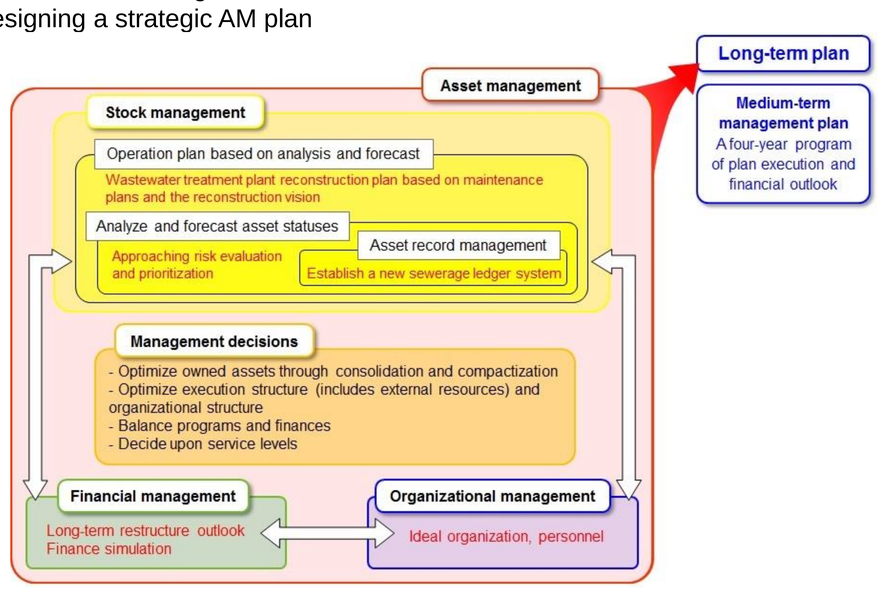

Figure 1 – Operations and Asset Management

【Method 2】Hearings and workshops (hereinafter WS) with all departments involved
・Extracted the current issues in operations through internal hearings with all departments involved.
・Taking the assessment results of the PB, the categories to be preferentially tackled for operational improvements and the details of these activities were discussed at WS, and a written plan was compiled.
・Plans were made for operational improvement through mutual coordination and relationship, and an executional and promotional organization was provided to facilitate communication between administration and employees.

Figure 2 – Workshop by departments related to sewerage

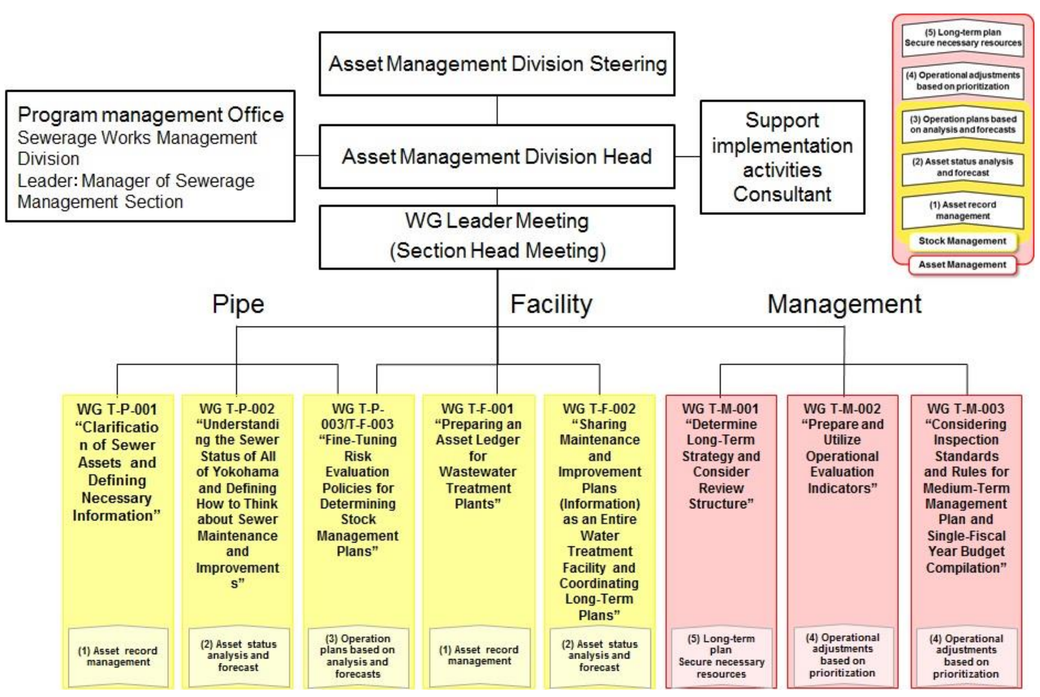

Figure 3 – Operational Improvement Initiatives Executional and Promotional Organization

INITIATIVES

【Initiative 1】Establish long-term plan for sewerage operations
・The policies of organizational management and the Working Group discussions were taken into consideration, and will also include policies and the service level that users requested through the public opinion collection procedures.

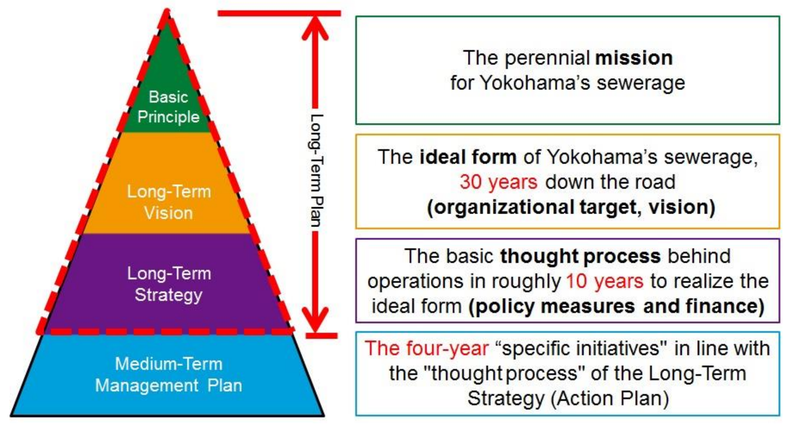

Figure 4 – Yokohama Sewerage System Long-Term Plan

【Initiative 2】Conducting long-term restructuring forecasts and long-term financial simulations

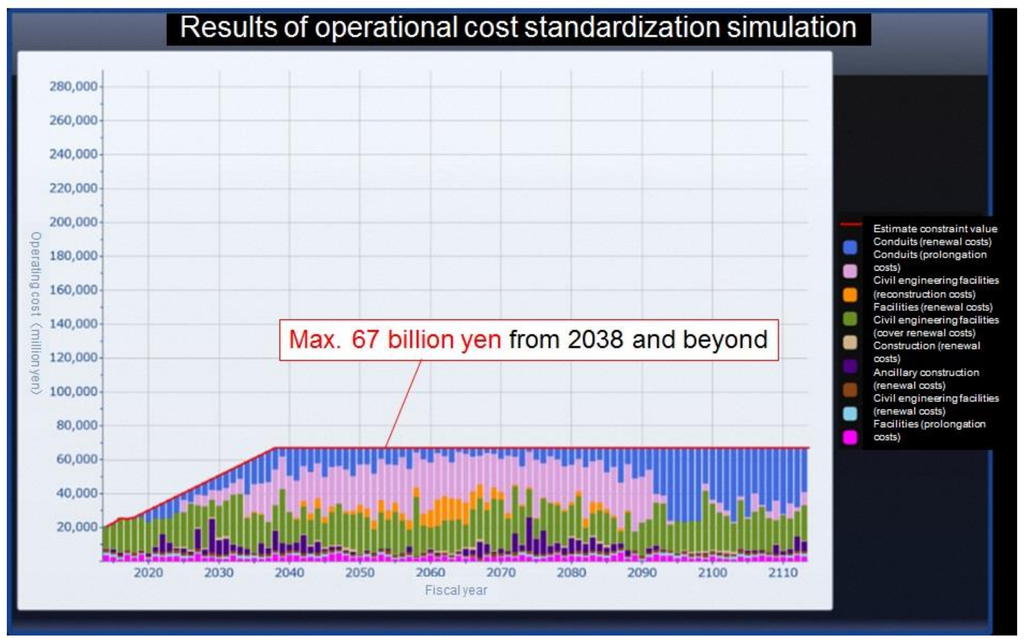

Figure 5 – Results of Long-Term Restructuring Forecast Results

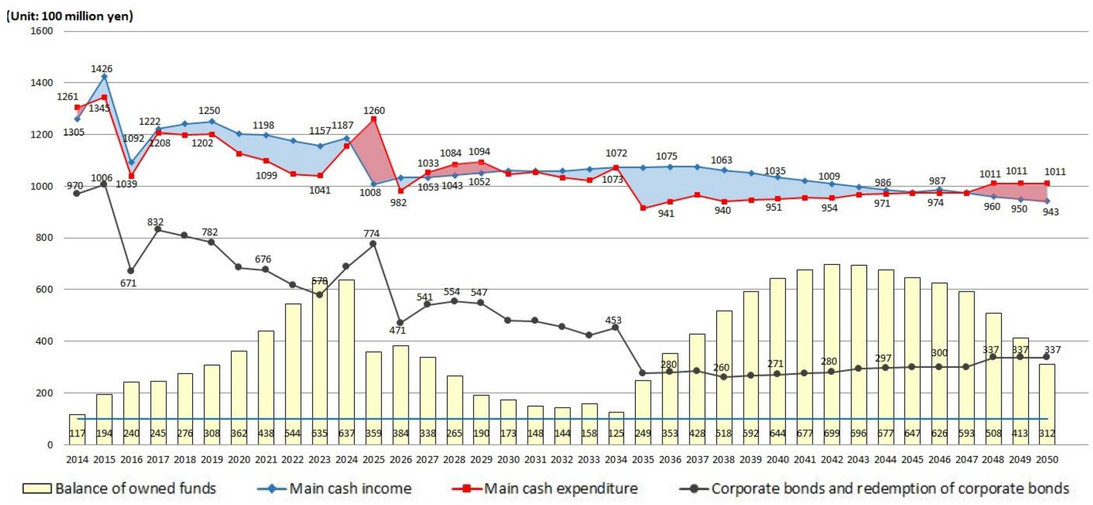

Figure 6 – Results of Long-Term Financial Simulation Results

*The above results are calculations based on certain assumptions in facility durability years, equipment cost, maintenance fees, charge income, corporate bonds, etc., and there is the possibility that the results could change based on the set conditions.

EFFECTS

【Initiative 1】Establish long-term plan for sewerage operations
・The long-term plan for sewerage operations, long-term operations will become possible as long-term thinking with respect facility obsolescence, flood controls, seismic countermeasures, etc. will be reflected within each of the plans.

【Initiative 2】Conducting long-term restructuring forecasts and long-term financial simulations
・It will become possible to develop financially-backed programs by visualizing the financial situation.
・In the future, it will be sought to reflect long-term plans within things such as personnel development which is the most valuable management resource, securing responsible persons, the ideal organization structure, etc.