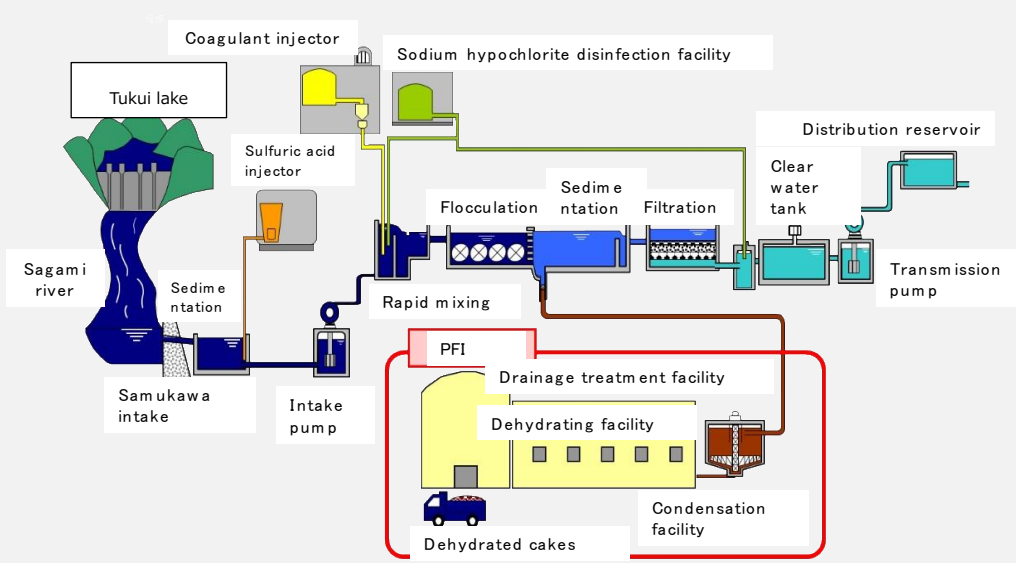


Case	Management of a drainage treatment facility through PFI		
Water utility	Kanagawa Prefectural Enterprise Agency		
General information of the utility (as of 2021)			
Operation type	Public (retail water supply)	Service area (km ²)	809 km ²
Population served	2,844,676	Distribution (m ³ /d)	878,137 m ³ /d
Service coverage (%)	99.8%	Pipe length (km)	9,406km
NRW (%)	8.4%	Number of staff	615
Number of water sources	Surface water (6), Groundwater (0), Others (6)		
Water rates (JPY)	966	(in case of 10m ³ of water per month for residential customers with 13mm diameter)	
Summary	After more than 30 years since its construction, the drainage treatment facility at the Samukawa Water Treatment Plant, the main water treatment plant of the Kanagawa Prefectural Enterprise Agency, had been due for renewal (Figure-1).		
	Therefore, the PFI method (BTO method) was introduced for the renewal of the facility, utilizing private-sector know-how to (1) promote more efficient and effective facility development and operation, and (2) stabilize the recycling of dehydrated cakes generated from the treatment of drinking water sludge over the long term.		
			
	Figure 1 Water treatment flow		

PFI is a method of public works in which private-sector funds, management capabilities, and technical expertise (know-how) are utilized to design, construct, renovate, and renew public facilities, and to maintain, manage, and operate them.

In the Samukawa Water Treatment Plant Drainage Treatment Project, the prefectural government maintains, manages, and operates the water treatment facilities, while the PFI-contracted company designs, constructs, maintains, manages, and operates the drainage treatment facility based on the contract. The company also procures funds for the construction of the facility by obtaining loans from financial institutions (Figure 2).

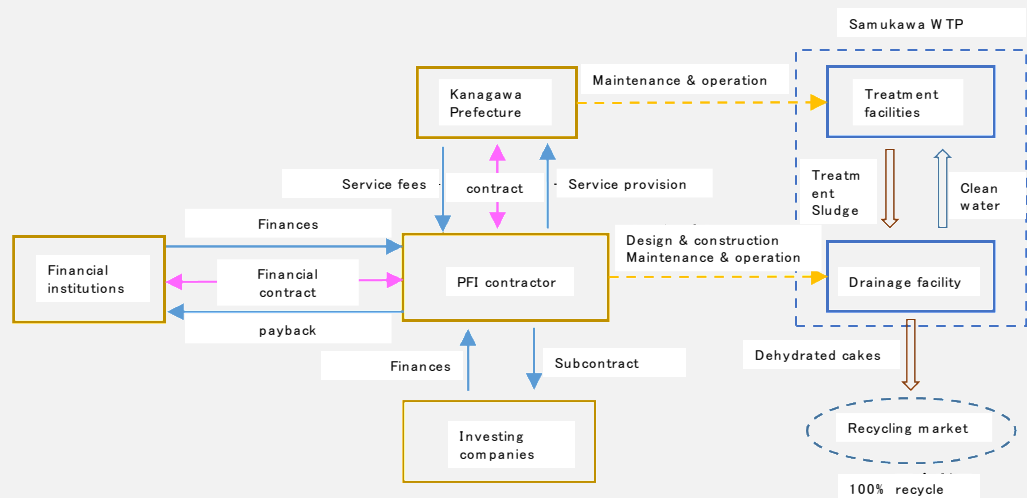


Figure 2 Business scheme

In introducing the PFI project, a basic concept was formulated in FY2001, and a feasibility study was conducted to confirm the project was compatible with the PFI method.

After the announcement of its implementation policy, the statutory procedures were made such as VFM (Value for Money) evaluation and selection of the project undertaker through general competitive bidding. Subsequently, the project contract was concluded with a special purpose company (SPC), Samukawa Water Service Corporation, from December 2003 to the end of March 2026.

After the contract was signed, it took about two years to complete the construction of the dewatering machine and other facilities, and the PFI operator began operating the facility on April 1, 2006.

Currently, 20 years have passed since the contract was signed, and the project has achieved the above-mentioned objectives (1) and (2).

Current Status & Challenges

1. Current status (achievement level of PFI objectives)

In the effectiveness verification conducted in FY 2012 for the PFI contract, its economic efficiency was proven through VFM evaluation (Table-1), and its effectiveness has been confirmed for efficient facility development and stable operation.

(1) VFM evaluation

Table 1 Comparison of Project Costs, VFM, etc.

		When directly managed (PSC)	When implemented by PFI (PFI-LCC)
(1) Preparation for construction		-	JPY174,229,000 (advisor fees, etc.)
(2) Construction phase		JPY9,583,301,000 (design, construction, equipment, etc.)	JPY7,723,593,000 (design, construction, equipment, etc.)
(3) Interest paid		JPY2,469,361,000	JPY3,410,490,000 (total installment interest for 20 years)
(4) Installment payments		-	JPY11,117,759,000 (construction costs in (2) + (3))
(5) Maintenance costs		JPY8,032,598,000	JPY8,303,188,000
Total	Simple sum of revenues and expenses	JPY20,085,260,000 ((2)+(3)+(5))	JPY19,611,500,000 ((1)+(2)+(3)+(5))
	Present Value	JPY14,008,895,000---A	JPY13,080,342,000---B
VFM (present value)		-	JPY928,553,000 (A-B)

(2) Efficient facility maintenance

- The use of a short-time dehydrator has leveled out the sludge receiving load.
- The introduction of a filtration/concentrator has enabled the facility to cope with fluctuations in sludge concentration.
- The facility is equipped with a space for future use to improve the convenience of equipment renewal.

(3) Stable operation

Before the introduction of PFI, dewatered cakes used to be reused only as a raw material for cement, but after the introduction of PFI, they have been reused as gardening soil and ground soil in addition to cement raw material, thus securing multiple uses and sales channels (Figure 3).

The PFI contractor is contributing to the stable operation of the water treatment plant by responding to market fluctuations in the reuse of dehydration cakes.

They also have not defaulted on its services or reduced the service purchase fee by applying penalty clauses such as the control of the turbidity of returned water, which is stipulated in the contract.

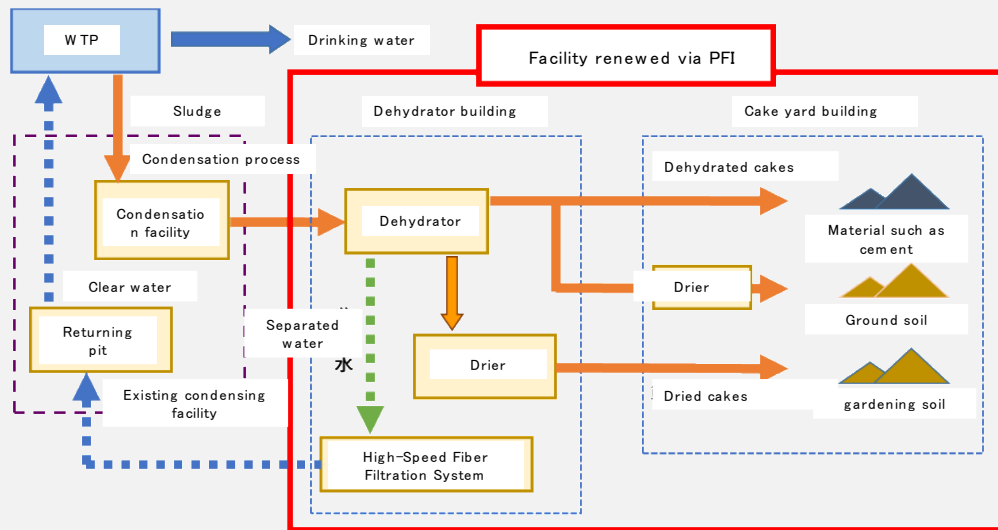


Figure 3 Drainage treatment flow

2. Issues

Measures toward the end of the PFI project

With the expiration of the PFI contract, the existing facilities will be taken over to a new management format while still operating, and the operational know-how must be appropriately transferred between the old and new management formats.

Measures & Solutions

Actions Toward the Termination of PFI Projects

In preparation for the termination of the PFI project at the end of FY2025, the Agency established a study group within the Agency in FY2022. Through a review and evaluation of the project, the study group will sort out the issues that have been raised so far, and properly evaluate the project in reference to the "Basic Ideas on Post-evaluation of PFI Projects" published by national government in FY2023 for PFI promotion.

Based on the results of the evaluation, the Agency will also proceed with a study to establish the next management format, taking into account the issues that have arisen in operating the current project.

Future Plans

Based on the results of the ex-post evaluation, to be conducted in FY2023, the Agency will study the most appropriate management format to operate the Samukawa Water Treatment Plant from among various formats, including PFI, comprehensive outsourcing, individual outsourcing, and a designated manager system.

From FY2024, the Agency will start preparing publicly solicited materials for the next management method, and smoothly hand over to the next management format from FY2026 to continue the stable

	operation of the drainage facility.
References	Drainage Treatment Facility at the Samukawa Water Treatment Plant https://www.pref.kanagawa.jp/docs/gh8/management/samukawa.html