

Surveillance study on Kitakyushu City combined sewer system improvement plan decision

Whole term

2002.10 ~ 2003.3

(Purpose)

The percentage of sewerage population of Kitakyushu City reached 98% at the end of FY2001. The city has five sewerage treatment districts; Kogasaki, Hiagari, Shinmachi, Kitaminato and Sone (individual public sewerage systems). The area planned to be served with sewerage is 23,735 ha, and the area served with sewerage is 15,050 ha. The four treatment districts excluding Sone treatment district are partially served with combined sewerage (3,422 ha, 100% served).

In the combined sewerage areas of the city, the untreated sewage in excess of the intercepted sewage amount (3Qs) is discharged from 140 storm outlets (including 13 pumping stations) into public waters, and the influence of pollution, etc. by untreated sewage poses a problem in the waters at which effluents are discharged.

In the situation as described above, the city aims to improve the water environment of enjoyable rivers and water fronts as precious urban water spaces, and formulates a combined sewerage improvement plan. This fiscal year, Hiagari and Shinmachi districts will be covered.

(Result)

(1) Identification of problems

- Separate sewerage districts are located upstream of combined sewerage districts, and the sewage of separate sewerage districts is connected to combined sewers, being combined with storm sewage. Around the Itahitsu River, intercepting sewers function again as combined sewers for collecting storm sewage, and the sewage flows into storm overflow chambers (intercepted sewage is combined with storm sewage).
- Inhabitants complain of untreated sewage (impurities).
- The coliform group number in the waters at which untreated sewage is discharged in wet weather increases to tens of times to thousands of times as many as that in dry weather, and any sanitary measure is required.
- The waters at which untreated sewage is discharged are used as fishing areas or for mooring boats.

(2) Improvement targets

- a. Reduction of pollutant load amounts (to be reduced to less than about the pollutant load amounts discharged from separate sewerage)
- b. Security of safety in terms of public health (the discharge frequency of untreated sewage discharged from all sewer outlets should be halved)
- c. Removal of impurities (the outflow of impurities from all sewer outlets should be reduced as far as possible)

(3) Combined Sewerage Improvement Plan

Table 1 Outline of Planned Improvement Measures (Hiagari Treatment District)

Measures			Urgent improvement measure	Medium-term improvement measure	Long-term improvement measure
Item	Region	Facilities			
1. Integration and disuse of storm outlets	a. Drainage basin of Tobata Pumping Station	· Number of storm outlets (from 9 to 4) (1 new pumping station and disuse of 3 pumping stations)	◎	—	
	b. Around the Sakai River	· Number of storm outlets (11 remaining unchanged)	—	—	
	c. Around the Itahitsu River	· Number of storm outlets (from 50 to 8)	◎	—	
	d. Drainage basin of Ohtemachi Pumping Station	· Number of storm outlets (from 3 to 2)	—	◎	
	e. Drainage basin of Asanocho Pumping Station	· Number of storm outlets (3 remaining unchanged)	—	—	
	f. Drainage basin of Minatomachi Pumping Station	· Number of storm outlets (from 2 to 1)	—	◎	
	Total	Number of storm outlets (from 78 to 29)	(from 78 to 31)	(from 78 to 29)	
2. Employment of separate sewerage	a. Drainage basin of Tobata Pumping Station	· Employment of separate sewerage for (28 ha)	◎	—	
	b. Around the Sakai River	—	—	—	
	c. Around the Itahitsu River	· Employment of separate sewerage for (263 ha)	◎	—	
	d. Drainage basin of Ohtemachi Pumping Station	· Employment of separate sewerage for (106 ha)	—	◎	
	e. Drainage basin of Asanocho Pumping Station	—	—	—	
	f. Drainage basin of Minatomachi Pumping Station	· Employment of separate sewerage for (75 ha)	—	◎	
	Total	Employment of separate sewerage for (472 ha)	Employment of separate sewerage for (291 ha)	Employment of separate sewerage for (472 ha)	
3. Storm water retention reservoirs and storages	a. Drainage basin of Tobata Pumping Station	· Tobata Pumping Station (4,340 m ³)	◎	—	
	b. Around the Sakai River	· Storage (7,390 m ³)	—	◎	
	c. Around the Itahitsu River	—	—	—	
	d. Drainage basin of Ohtemachi Pumping Station	· Ohtemachi Pumping Station (13,000 m ³)	◎	—	
	e. Drainage basin of Asanocho Pumping Station	· Kamigoku Pumping Station (4,600 m ³) · Asanocho Pumping Station (3,320 m ³)	◎ —	— ◎	
	f. Drainage basin of Minatomachi Pumping Station	· Minatomachi Pumping Station (1,240 m ³)	—	◎	
	Total	Storage volume (33,890 m ³)	(4,340 m ³)	(33,890 m ³)	
4. Installation of screens			◎		
5. Disinfection				◎	
6. Employment of dry process for pumping stations				◎	
7. Employment of smaller screen mesh size for pumping stations				◎	
8. Employment of rainfall infiltration and storage facilities					◎
9. Full employment of separate sewerage					◎

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Keywords

Combined sewer system improvement plan

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