Basic study on renovation of water recycle system (2)		
Whole term	1996. 4～1997. 3	

(Purpose)

By the end of FY 1995 the coverage of sewage system in Japan reached 54 %, and the system has been spreading step by step. Also the amount of treated wastewater exceeded around eleven billion m^3 per year, and the proportion of reclaimed water in the water recycle system was increasing year by year. On the other hand, concerns among urban people for better environment are increasing. Consequently, many new model projects aimed at renovation of water recycle system, for example, 'development of waterfront' or management of amenities, which are quite different from the previous projects, were launched.

While these new projects were undertaken in response to the increasing demands, the form of the sewage works itself is been reconsidered in the manner that the issue; 'the quality improvement of sewage system' was handled in Central City Planning Council Report titled ‘the desirable form of the future sewage system'. Therefore, restructuring and the expansion of the role of the sewage work in the human-water environment interaction are required as the important parts of the total governance system in order to realize the project as the urban development in the 21st century or the renovation of water recycle system. In the river council report; ‘the Future River Environment’, desirable renovation of water recycle in the river management was also required. According to this concept, the Sewage and Wastewater Management Department, and the River Bureau of the Ministry of Construction, decided to formulate 'the manual for developing scheme of renovation of urban water recycle system' and has been investigating since FY1995.

With this background, 'the committee for investigation on renovation of water recycle system' was established in order to formulate the governing scheme for undertaking attempts to renovate existing water recycle system. The commission conducted case studies in four cities, namely, Tokyo, Yokohama, Nagoya, and Fukuoka. The studies were carried out in the following sequence: problem analysis, goal setting, assessment of achievement for each goal, and evaluation of the effect. Furthermore, ‘the guideline for the urban waterfront formation’ was made. This guideline explicitly explains the ways to develop the urban waterfront that was not dealt with in previous sewage projects.

(Results)

The committee comprising the Sewage and Wastewater Management Department of the Ministry of Construction, Japan Sewage Works Agency, Housing and Urban Development Corporation and, the cities of Tokyo, Yokohama, Nagoya, and Fukuoka, discussed in 6 consecutive meetings and put forward the following:

1. Study on renovation of water recycle system The commission investigated the following issues in order to put this scheme into force.

1) Problem analysis: The commission sorted the items to be investigated into categories, namely, water environment, urban environment, higher level planning, and extraction of citizen's opinion. Water environment related problems were further classified into water quantity, water quality, and spatial issues.

2) Goal Setting: In order to ascertain the extent of achievement, the commission proposed indices to denote improvements in particular sectors, namely, water quantity, water quality, and spatial issues as well as to indicate overall improvement taking into account all the three issues.

3) Evaluation of effect: The commission proposed methods to evaluate monetary cost-benefit features as well the intangible benefits (cultural aspects, extent of satisfaction etc.) derived from implementation of sound water environment.

2. Case Study of projects aimed at renovation of water recycle system: The commission analyzed the problems in the light of the case studies of the projects dealing with renovation of water recycle system. The following measures were set forth as means to realize a sound water environment by conservation of natural as well as artificial water sources.

1) Separating uncontaminated groundwater leaches out into underground structure, and returning it to rivers.

2) conservation of water resources by adopting water recycling

3) Recharging of groundwater by rainwater infiltration

4) Creating network between water and green environment

3. Formulation of the guideline for realization of sound urban water environment A guideline outlining the ways to achieve sound urban water environment was proposed to maintain streams and recreational environment with water, which is a part of measures taken for renovation of water recycle system

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