

Study on improving environment of closed water bodies in urban area

Study period

FY 2009

(Objectives)

Channels and brooks in urban areas have been covered with culvert and flow volume has been decreasing because of the rapid urbanization since high economic growth period.

These changes of urban water environment have caused the loss of amenity, with the heat-island effect or the reduction of humidity.

Especially moats around the castles in urban area are familiar with community residents as recreation areas, though being faced with some water quality problems such as foul smell or blue-green algae with their closing water circulation, which may affect the landscapes or living environment.

With backgrounds above, this study aimed to consider the methods to conserve the waterfront environments in urban areas.

Also, the concepts of target setting, the method of environmental assessments and water environment improvement are considered, by some anecdotal surveys of water bodies where the improvement measures associated with other projects such as town development seems to be available.

The study includes the following parts.

1. Analyzing the actual situation of closed water bodies (moat, pond, etc) in urban area.
2. Analyzing the impacts of CSO to small-scale closed water bodies.
3. Examining the problems to the utilization of rainwater or reclaimed water and consideration of the solution.
4. Considering the environmental impact assessment in using rainwater or reclaimed water.
5. Considering the concept of target setting in environmental improvement of closed water bodies.
6. Anecdotal surveys of environmental improvement associated with other projects.

(Outcome)

The outcomes of the study are as follows.

- (1) Surveyed small-scale closed water bodies and investigated current measures, water quality surveys and community activities by residents based on a questionnaire result.
- (2) Studied the environmental impacts of CSO to small-scale closed water bodies.
- (3) Organized issues and case examples of utilization of reclaimed water or rainwater for small-scale closed water bodies in urban areas.
- (4) Organized methods and case examples of assessing the environmental impacts of water quality, volume and disinfectants in utilizing reclaimed water or rainwater for small-scale closed water bodies in urban areas.
- (5) Based on the current situation, investigated the way to set the targets of environmental improvement of small-scale closed water bodies.
- (6) Organized case examples of efforts to improve environment of small-scale closed water bodies associated with other projects such as town development.

(Future issues)

- Considering the availabilities of measures of environmental improvement in closed water bodies to the other regions.
- Considering effective countermeasures against CSO in small-scale closed water bodies.

Research funded by Sewerage and Wastewater Management Department, City and Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism

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Key words

closed water body, combined sewer system, reclaimed wastewater, rainwater