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1)

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2)

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1)

2)

, SS, COD, T-N, T-P

3)

BOD, COD, SS, T-N, T-P

4)

40 ~ 70 %, (IG(%))

3.4 ~

7.1 %

T-N

0.53 ~ 2.04 g/kg, T-P

1.53 ~ 3.46 g/kg

26.4%

~ 41.8%,

2.8 ~ 7.2 %

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5)

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# SUMMARY

## I. Title

“Research on the change of pollution loading due to alternative use of land surrounding the Shin-gal lake valley and management plans for reducing pollution.”

## II. The purpose and necessity of this research.

Generally, it was known that the change of quality of waters in lake and streams can be analyzed inside the category of natural material circulation. But recently, 'exterior' pollutants that flow into lakes and streams, which have quantities enough to overpower the natural purification capability of an ecosystem are regarded as the main cause for the bad quality of water. From these results we can analogize that management plans that exclude the critical 'non point pollution sources' which contribute greatly to the water pollution and regard only 'Point pollution sources' are no use to improve the quality of waters. The Singal lake which is known as the main source of agriculture and industrial waters that are consumed all over Yongin city and Osan city in the Gyeonggi province is now known to be extremely polluted that its waters can no longer be used. To make matters worse, planless development of the lands surrounding the lake are contributing more and more to the increased pollution loadings to the lake. So at this situation it is demanded that investigation and research should take place throughout the whole area for planning practicable management methods to reduce pollutants. So at this point, this research will contribute to the improvement of water quality of Shin-gal lake and in-flow streams, security of high quality water resources and to the preservation of the ecosystem of the area which can help forming an environmentally friendly hydrosphere.

## III. The contents and category of this research.

Investigation on changes in the lake's hydrosphere following alternative and various use of land surrounding the area, estimation of pollution loadings ratios and suggestions of practicable plans to improve the situation are the main part of this research.

1) Investigation of the status of Shn-gal lake.

Investigation took place by field and bibliograph studies. The purpose was to discover the change of pollution sources following alternative use of lands throughout the area.

2) Estimation of pollution loadings in Shin-gal lake and in-flow streams.

The purpose was to estimate pollution loadings in Shin-gal lake and in-flow streams and suggest linked management plans that can both improve water quality and preserve the hydrosphere of Shin-gal lake.

#### IV. Results

1) The investigation of Shin-gal lake valley status

The development plans in this area that are in progress are also applied in residential areas which are main sources of municipal waste water. It is clear that these plans was directly or indirectly affect the water quality of Shin-gal lake.

2) Estimation of pollution loadings in Shin-gal lake and in-flow streams.

The results of the water quality status investigation on individual points of the lake and in-flow streams are represented by the following :

Most of items such as SS, COD, T-N, T-P are represented ~ degrees in accordance with lake water quality control law

3) The investigation of Non-point sauce

The results of the non-point sauce status investigation on individual points of in-flow streams are represented by the following :

Most of items such as SS, COD, T-N, T-P are represented variable values by outflow characteristics

4) The investigation of Sediment in Shin-gal lake

Range of the percent of water content showed 40~70% and the inflow section of Shin-gal lake showed 26.4~41.8%. Range of the ignition loss showed 3.4~7.1 % and the inflow section of Shin-gal lake showed 2.8 ~ 7.2%.

5) Compliment plan for water quality preservation

There are 3 ways for water quality, first of all

VI. Application plan of the study results

Presentation applicable water quality purification techniques

Understanding the problems of Shin-gal lake's sediments

Understanding the present problem by increase of total contaminants

Application for riparian loading inspection in Gi-Heung lake park formation

Provide information for long term environmental improvement on account of Shin-gal lake development

Document of technical schemt regarding natural purification in implemeutation of lake maintenance

Application by the basis materials for practical use of reverse cycle system of sewage treatment

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