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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 a 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 Yong in city and Osan city in the Gyeonggi province is now known to be extremely polluted that it's 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

#### VI. Application plan

Throughout bibliograph and field studies, the future development plans throughout the area, and the general status and pollution status of Shin-gal lake in-flow streams were presented. According to the results, the pollution status is predicted to be even worse in the future. 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. So maintaining monitoring investigations and suggesting improvement methods will be necessary. Also, field studies on the lake during rainfall are demanded so estimation of pollution loadings caused by 'non point pollution sources' and contribution rates of these sources can be analyzed.

# CONTENTS

Summary (Korean) .....	
Summary (English) .....	
Contents (English) .....	
Contents (Korean) .....	
<b>Chapter 1. Introduction</b> .....	<b>1</b>
1. Importance of study .....	2
1. Objectives of study .....	4
<b>Chapter 2. Characters of Shin-gal lake valley</b> .....	<b>5</b>
1. Analysis of Shin-gal lake valley characters .....	6
1.1 Introduction of investigation area .....	6
1.2 Situation of rain fall .....	8
1.3 Situation of population .....	9
1.4 Situation of land use .....	10
1.4.1 Plan of development for Gong-seh region .....	10
1.4.2 Introduction of Shin-gal lake valley's wastewater treatment plant .....	13
<b>Chapter 3. Investigation of Shin-gal lake and inflow streams and applicaion plan</b> .....	<b>15</b>
1. Monthly pollution status of Shin-gal lake and inflow streams .....	16
1.1 Sampling position and method .....	16
1.2 Sampling position and the experimental device .....	18
1.2.1 Experimental method .....	18
1.3 Result .....	20
1.3.1 Status of water quality of Shin-gal lake .....	20
1.3.2 Status of water quality of analytical items .....	22
1.3.3 Status of water quality and flow rate of inflow stream .....	32
1.3.4 Summary of water quality status .....	32
1.3.5 Status of water quality of analytical items .....	33
1.3.6 Result of sediments investigation .....	45
2. Application plan .....	46
<b>Chapter 4. Reference</b> .....	<b>49</b>



.....

**SUMMARY** .....

**CONTENTS** .....

**1** ..... 1

1. .... 2

2. .... 4

**2** ..... 5

1. .... 6

1.1 ..... 6

1.2 ..... 8

1.3 ..... 9

1.4 ..... 10

1.4.1 ..... 10

1.4.2 ..... 13

**3** ..... 15

1. .... 16

1.1 ..... 16

1.2 ..... 18

1.2.1 ..... 18

1.3 ..... 20

1.3.1 ..... 20

1.3.2 ..... 22

1.3.3 ..... 32

1.3.4 ..... 32

1.3.5 ..... 33

1.3.6 ..... 45

2. .... 46

**4** ..... 49

1. .... 49