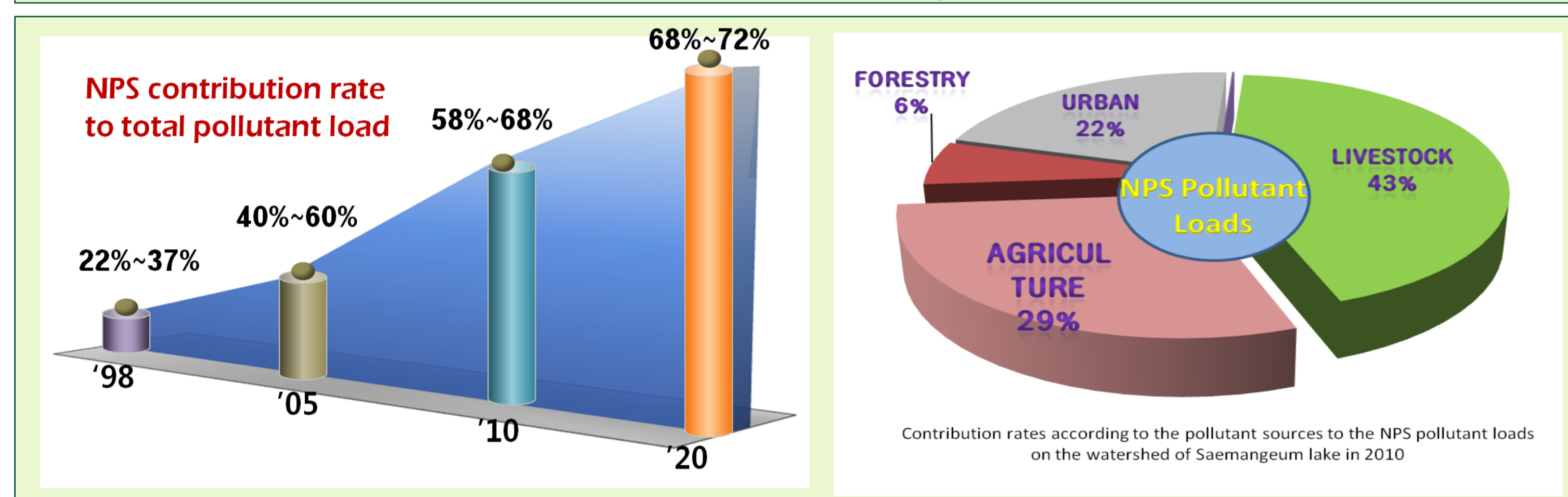


## Introduction

Saemangeum project is a large scale of state run to develop land resource and fresh water resources by reclaiming tidal land area located at middle western shore region. But, worry of water contamination is a hot emerging controversial issue surrounding Saemangeum project in recent years. Contribution rate of non-point source(NPS) pollutant load will be risen up 70% to the total pollutant load by 2020 in Korea. Especially, Area agricultural activity oriented NPS pollutant load takes charge of almost 50% of the total NPS pollutant load on the Saemangeum watershed. Thus it is needed to prepare countermeasure for addressing NPS pollution including agricultural contribution. But, awareness of NPS pollution is very vulnerable for people to understand and especially agricultural NPS pollution is even more. The purpose of this study is to understand the way that how farmers and residents are aware to agricultural NPS issues in the study area

Figure 1 The Increasing trends of NPS pollutant load(left) and the contribution rate of agricultural NPS pollution load (right)

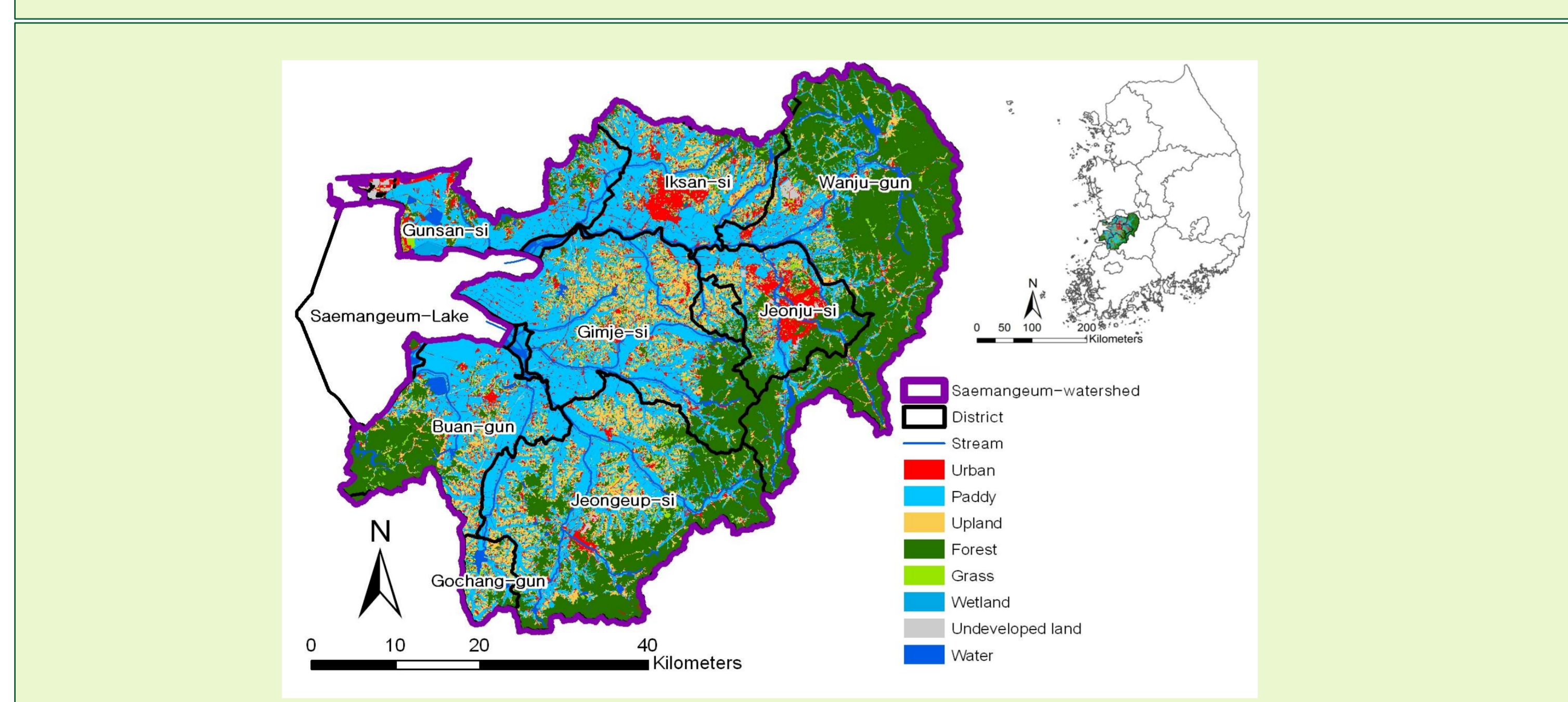


## Materials and Methods and

### Study Site

Six communities were selected as study sites located at near downstream of Dong-Jin river and Man-Gyeong river to implement education program. Educational program was conducted to enhance capability of NPS management in rural area.

Figure 2 Location map of the Saemangeum watershed



### Questionnaire Survey

Residents questionnaire survey were conducted before and after education program to analysis improvement of awareness of agricultural NPS pollution. Study was conducted from 2013 to 2014. Respondents were 167 persons(4 villages) in 2013 and 142 persons(6 villages) in 2014, respectively.

Table 1 Respondents of questionnaire survey before and after education program implementation

Year	MP	SJ	SN	SG	HP	YH	Sum
2013	30	40	-	59	38	-	167
2014	15	20	24	32	30	21	142

Twenty one farmers who conducted environment-friendly-farming practice were questioned regarding agricultural NPS issues. And twenty persons placed in policy making level like central, province, district and specialists were interviewed deeply to analysis knowledge flow among the stakeholders.

## Results and discussions

### Effects of educational program for resident to improve awareness of NPS

At first, 100% of the respondents(167) did not hear NPS pollution including agricultural NPS before education program implementation in 2013 while this percentage was decreased to 87% in 2013 and 73% in 2014, respectively. This result showed effectiveness of education programs. Residents hope to learn education program periodically by at least once a six-month. Furthermore, It is needed to prepare a custom fit educational program like considering aging society in rural communities.

### Effects of educational program for farmer to improve awareness of NPS

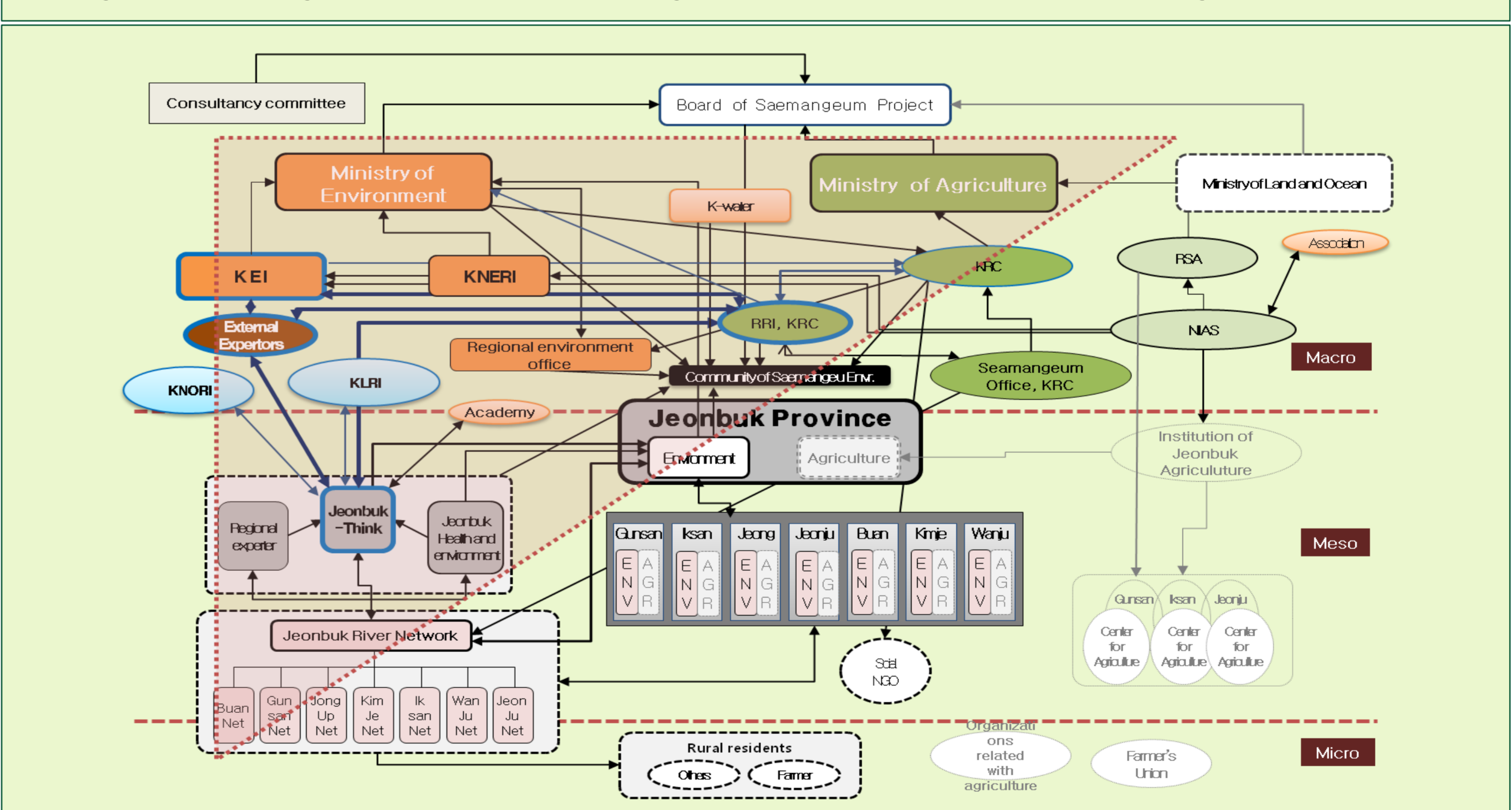
Only 38% of the farmers knew about NPS pollution before educational program conduction while this figure increased to 100 % after two times educational program implementation. They were aware of agricultural NPS as a pollutant source after education, too. They showed high point(3.86 point to 5.0 point) regarding a pollution reduction effect of best management paractics(BMPs) but willingness to implement BMPs and recommendation to others showed a little bit lower value like 3.4 point and 3.5 point, respectively.

They thought that the hard things to implement BMPs were complexity, difficultness, hassle, additional cost, no effectness, etc. This result shows that BMPs development study is needed more deep consideration regarding technological confidence of pollution reduction, easiness and simpleness of application, cheaper to implementaion.

### Result of a deep interview survey to analysis knowledge flow of NPS within Saemangeum watershed

As shown in figure 3, knowledge and information of NPS pollution were seriously biased to left side like macro level and environment related organizations such as MOE,KEI, NIER, Institute of Jeobuk developmet so that agricultural sectors including farmers and local residents did rarely expose to NPS information. Especially, farmers and local residents, who are the main driving force to address NPS pollution in rural areas, were excluded from NPS pollution knowledge flow. It can be vulnerable to manage NPS pollution by driving agricultural sectors. This result implied that methodologies which can remove communication obstacles between environmental and agricultural sectors as well as which can transfer and expand NPS pollution knowledge to rural societies.

Figure 3 Investigation results of knowledge flow of NPS pollution in Saemangeum watershed



### Acknowledgement

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