An Analysis of the Impacts of Participatory Process in Collaborative Decision-making of Stream Restoration: Anyang Stream Restoration Case from South Korea

ChangYu Hong
Portland State University
SRA 2014-02

I have been researching and studying a case of collaborative governance and sustainable urban planning under the title of "An Analysis of the Impacts of Participatory Process in Collaborative Decision-making of Stream Restoration: Anyang Stream Restoration Case from South Korea." My research focuses on one case of the AnYang Stream Restoration in Kyonggi province and Seoul in South Korea. I wanted to understand what factors are more influential for the stakeholders in SR decision-making processes with a case from South Korea. The case has been recognized and applauded (or acknowledged) as good examples of participatory SR among scholars and others.

The main objective of this research is to examine how collaborative governance incorporate different values and visions of stakeholders. In particular, the research will cover to answer to a question: how scientific information influence collaborative decision-making of stream restoration (SR) and how participatory process makes socio cultural factors enter into the decision making process. For achieving and fulfilling this goal, my research holds a systematic investigation and analysis of the topic area with diverse data sources.

The primary methodology was content analysis based upon media, public reports, and interview transcripts using Dedoose and Atlas.ti. With the case from South Korea, this research process aims to verify the extent to which interests previous identified in the documents. In addition, the content analysis allowed for the conceptual map of participants and interests developed in the documentation review and semi-structured interviews (30 in depth interviews) to be revised and augmented with information sources linked to various interests and local contexts.

Also, I used a quantitative analysis process to provide a result of weighted and calculated priorities and preferences of stakeholders among diverse values in water resource management. This research process complimented and updated the data display through mixed method analysis. The Analytic Hierarchy Process (AHP) method is mainly used to support and assist this quantitative analysis; it is particularly suited to integrating water systems taking account of rankings and priorities among multiple interests and goals. For AHP analysis, I collected data from

field survey with 180 citizens in Anyang area.

I could learn and find which factor is most important and primary in Anyang stream restoration through AHP analysis from the field surveys with 180 citizens. Generally speaking, the stakeholders of stream restoration cases tend to consider primarily the scientific methods and knowledge, namely the advice of hydraulic engineers. In particular, these scientific factors such as Potential flood damage (PFD), potential stream flow depletion (PSD), and potential water quality deterioration (PWQD) are frequently considered and evaluated in stream restoration goal setting. This analysis has developed a quantified framework of individual values of citizens to the hydrological vulnerability in the Anyang Stream Restoration Project, using Analytic Hierarchy Process (AHP) techniques. The findings in this research can answer two questions: 1) what is the most important factor that citizens consider in stream restoration of Anyang city? and 2) How can we apply the result of weighted values (percentagewise) among the factors into urban communications? Although AHP has been often used in many research cases, it is rarely utilized for identifying and weighting values catalyzing urban communication among stakeholders at stream restoration projects. For AHP analysis, 180 participants in the area of Anyang Stream answered the survey questionnaire. The result of AHP in this research indicates PFD (29%), PSD (19%), and PWQD (52%). Citizens consider PWQD (52%) as the most important value in urban stream management and restoration. Thus, urban planners can reduce uncertainty through recognizing preferences of citizens and prioritization of their values in stream restoration in decision-making and communication with the citizens. The WEI (Watershed Evaluation Index) can be calculated to quantify integrated hydrological vulnerability by reflecting the preferences of the citizens with regard to management objectives through the weighted values of these PFD, PSD, and PWQD. Fundamentally, I believe that the WEI will be able to assist urban planners to make steady progress in complicated communications with the stakeholders in collaborative governance.

In this research, I have found most stakeholders consider scientific factors and indicators based on technological information as a key factor when the stakeholders set goals and evaluate the outcomes in stream restoration. Also, the research result has proven the assumption that the influences of scientists and engineers still tend to predominate the power dynamics among the stakeholders in stream restoration field. However, participatory decision-making system can mitigate the unbalanced power structure between stakeholders and well-organized collaborative

governance is able to provide opportunities for citizens to take part in the policy-making process about stream restoration.

The research trip to Korea during summer of 2015 was the most important duration for my academic career because I could complete my personal field research and conduct a field survey under supervision of prestigious Korean scholars. At the same time, I could meet citizens and members of NGOs who know the governance system of Anyang Stream Restoration. They shared their stories and experiences through Anyang Stream Restoration.

This research results will show that insights from understanding complex and critical systems have influenced thinking and policy making in sustainable management, planning, governance, and power dynamics in the field of stream restoration. In order to collect relevant data, I have been conducting both qualitative and quantitative analyses. From the gathered information, understanding social and ecological systems assists this research in examining why ecological engineers and scientists have been the main decision makers in stream restoration and provide potential recommendations for mitigating the shortcomings of lopsided stream restoration. In particular, three key findings of this research emerge from both empirical and successful stream restoration case. First, interviewees representing each stakeholder group in the cases indicated the importance of a balanced restoration process between scientific, local cultural, historical, and governmental information in the policy making process. Second, research participants stressed the importance of understanding sustainability in their collaboration beyond the unequal power structure. This research reaffirms the importance of collaboration and the collective contribution of academic researchers, civil administrators, and the individual participants of interest groups in fostering active communication for applying sustainability based on the context of SESs in urban stream restoration.

Financial and academic support from the SYLFF program enabled me to continue my research and field work in Korea and in Oregon. As mentioned above, I visited in Korea to conduct interviews with stakeholders, to carry out a relevant literature review in the Korea Research Institute for Human Settlements and K-water Institute, and to build relationships with local NGOs and community leaders. In particular, I made many visits and had meetings to be dedicated to data collection, including interviews, surveys, and focus groups with urban engineers (including planners), officials, and research fellows in the national institutes in Korea. After this research trip,

I have been synthesizing and analyzing my preliminary findings and data sources to include in my doctoral dissertation.

By awarding me the SYLFF Fellowship funded by the Tokyo Foundation, it has lightened my financial burden which allows me to focus more on the most important academic track, field research and preparing dissertation. The kind generosity of the Tokyo Foundation has inspired me to help others and give back to the community. I hope one day I will be able to help students achieve their goals just as the Tokyo Foundation has helped me.