

# Development of a process to invoke community actions to reduce canal waste: a case in Bangkok

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## INTRODUCTION

Canal waste i.e. wastes thrown into canals and small rivers, is an issue in many communities along canals in Bangkok and other South East Asian countries. They could degrade the living environment and increase flood risks. Previous studies have pointed out that both littering and unintentional dropping (fall) of waste from communities set up along canals are potential causes of this issue (Tajima et al., 2018; Tajima et al., 2019). Against this backdrop, we aimed to develop a process to invoke proactive community actions towards canal waste reduction, through a case study in Bangkok.

## METHODS

### Overview of the study project

The study was undertaken at four communities along Prem Prachakorn canal in central Bangkok. These communities were selected because canal wastes were commonly found, and household wastes of the settlements were basically retrieved from collection points set up along the canal by district officers using boats. The number of households in each community ranged from 184 to 302. Members of the community group steering committee, including the community leader, actively participated in the project.

The study was undertaken with the cooperation of 35 Thammasat University students who enrolled in the class of “Environmental Policy and Management”. Students were divided into four groups, each responsible for one community, under the supervision of four research assistants and one overall project manager.

### Study process

The interaction with communities started from September 2019 and lasted for 3month. We designed the study process as follows, guided by the methodology of action research (e.g. Stringer, 2014). The project started from a plenary meeting where representatives from all four communities gathered to learn about the project and share some initial ideas about the situation of canal waste issue and ideas to solve them. This was followed by two community activities: a joint field survey and community meeting. A “community waste map” showing the location of waste collection points/bins and unattended wastes were developed through the field survey undertaken jointly by the research group and community members to develop common understanding of the issue. The factors behind the identified canal waste issue were discussed in the meeting held at each community. The results of these works were shared among communities and with district officers at the second plenary meeting, and actions to solve the canal waste issue were discussed at the end.

## RESULTS AND DISCUSSION

### Outputs of the study process

At the final discussion of the second plenary meeting, both individual and collective actions of waste reduction (e.g. use refillable glass container, use compost for community plantation, etc.) and actions to improve waste disposal behavior (e.g. purchase more waste bins, the community steering committee being a model of appropriate waste disposal behavior) were proposed as canal waste reduction measures. Many of these ideas were not found from the discussion on the same topic at the first plenary meeting. In addition, there were many requests to the local government to solve the issue, including awareness raising, improvement of waste collection schedule, provision of waste management equipment, and enforcement of environmental regulations. It is worth highlighting that both community members and local government members proposed to set up a place or opportunity to have more frequent communication with each other on waste management.

### Impact of the process

The results of the questionnaire survey undertaken after the second plenary meeting to the study process participants from all four communities are presented in Table 1. Given that the highest score is seven, the results indicate that the participants found both the study process and output highly effective in terms of solving their canal waste issue. It also suggests that the participants cultivated or maintained high motivation for working proactively.

**Table 1 Result of survey after the 2<sup>nd</sup> plenary (n=18)**

	Mean <sup>*4</sup>	Std. dev.
Project process effectiveness <sup>*1</sup>	6.39	0.70
Project output effectiveness <sup>*2</sup>	6.06	0.87
Willingness to act <sup>*3</sup>	5.94	0.64

\*1: "I find the collaboration between the research group and community effective in terms of improving the waste management in communities", answer in 7-point scale.

\*2: "I am confident that solutions identified through this study are effective to decrease canal waste", answer in 7-point scale

\*3: "I am willing to spare some time to solve the issue of canal waste for the community this weekend", answer in 7-point scale

\*4: the mean was calculated assuming that the 7-point likert scale is interval scale, 7 being the most positive answer (strongly agree) to the question.

## CONCLUSIONS

The case study in Bangkok indicated that the community involvement process including joint fact finding and joint analysis of causal factors was effective in terms of invoking future community actions towards reduction of canal waste. The results need to be further analyzed to clarify the factors related to effectiveness and retention of the communities' willingness to act.

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