



Benefits of citizen participation in Taiwan river patrol team system.

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Since 2002, Taiwan Environmental Protection Administration had promoted the public participation in assisting in the protection of water environment, and local governments also collaborated with residents, teachers, students, and NGOs to establish the river patrol teams (RPTs) and form a pollution reporting system. Volunteers were trained to identify and report pollution problems to the related authorities, and also operated fundamental monitoring of water quality. Numerous training courses were held to enhance the environmental knowledge of these volunteers, and several innovative technologies were introduced to help their volunteering works.

Up to the end of 2018, there are 424 river patrol teams and more than 10,000 volunteers in Taiwan. This study surveyed volunteers and local government officials through interviews and questionnaires, exploring the participants' experiences in the patrol teams and river pollution mitigation policies, the motivations of involvement, their environmental behaviors and changes after participation.

Results showed that volunteers' viewpoints toward rivers are an important motivation for their involvements. The river should be "not stinky", "clear" and "no waste", while government should pay more attentions to the "ecological diversity" and "functionality of leisure and recreation" in the riverine environment. Some recognition were proposed by these volunteers after participation. Volunteers are more familiar with the ecological environment in their communities, paying more attention to the changes of the river environment and relevant policies. The involvement motivates participants to do more environmental behaviors, and the quality of the rivers in Taiwan has improved and the RPTs system does help such a change. Furthermore, several teams have devoted to the environmental education, and the team members became certified environmental education lecturers, establishing the river ecological classrooms, holding environment cleanup initiatives, developing ecological tourism in the river basin. They also help the promotion of ecological environment knowledge in their neighborhoods.

However, the RPTs also faced several difficulties, such as "insufficient time and participation for volunteers", "no significant changes from river pollution", "no response after notification" and "unable to identify sources of pollution", and etc. On the other hand, the volunteers also proposed the priority working items of river remediation policies. First, officials should clean wastes on surface water regularly, aggravate the penalty of illegal smuggling, and accelerate construction of public sewage sewer and ecological constructions.

In response to volunteers' feedbacks and policy recommendations, the governing officials who are responsible for management of RPTs, took the advice and revised the relevant water environment policy and management strategies, trying to gain an in-depth understanding of local river pollution through the RPTs.