

The purpose of this study was to investigate the effect of action research in facilitating agricultural drainage reduction behavior, and the decision-making process of farmers on agricultural drainage reduction behavior.

Agricultural drainage is one of the causes of water pollution of Lake Biwa. To reduce its effects, both hard measures, such as the legal establishment and maintenance of an institution, and soft measures on the part of individual farmers, are important.

One effective method of changing individual attitudes and behavior is persuasion. This study showed that the effects of persuasion were similarly effective on an individual's attitude to environmental problems and on their subsequent behavior. In this study, we attempted persuasion on the issue of agricultural drainage reduction in the action research, in which an experimental workshop under controlled conditions was held with actual farmers, and investigated how the attitudes and behavior of farmers with respect to agricultural drainage reduction could be modified.

In the action research, four experimental conditions were provided. First was the emotional approach (Emotional condition). This condition was based on information such as the farmer's attachment to their local area and to living things, and attempted to promote subjective norm evaluations and the behavioral intentions. Second was the rational approach (Bio-Chemical condition). In this approach, scientific information, such on chemical substances which cause water pollution and their biological influence, was presented with the intention of promoting risk cognition and in this way modifying the goal intentions of the farmer. Third was the emotional plus rational approach (E + BC condition) which added together the above two conditions. Fourth was the control condition in which no specific information was supplied.

A questionnaire with room for unstructured responses was distributed after one week of workshops (the number of responses was 39). The results of analysis using KJ methods revealed that E conditions are effective in the facilitation of behavioral intentions. On the other hand, the BC condition facilitated goal intentions, but did not lead to facilitation of behavioral intentions: Moreover, under the E+BC conditions, both the goal intention and the behavioral intentions toward reduction of cloudy water were promoted. Under the control conditions, it was shown that giving minimal information about the present condition of Lake Biwa was counteracted by the effects of discussions by participants in the workshop, so the validity of the workshop itself was verified.

To investigate more comprehensively the attitudes and behaviors toward agricultural drainage reduction on the part of the farmers and their decision-making process, a questionnaire was distributed two months after the workshops (number of responses: 60). Multiple regression analysis revealed that the goal intentions toward Lake Biwa and attachment to the local environment had significant influence on overall behavioral intention. A detailed analysis of each factor affecting behavioral intention revealed that the goal intention toward the aquatic environment and attachment to the local environment significantly influenced collective behavioral intentions, and the goal intention toward the local environment and identification with the local area had significant influence on individual behavioral intentions.

Overall, it was shown that action research by workshops assisted in modifying attitudes and behaviors concerning reduction of farm agricultural drainage; and that for promoting action on the part of farmers to reduce agricultural drainage, it was important to arouse goal intentions on different levels and focus their concerns on the local environment.