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# Action Program to Develop Community Recycling System by Environmental Volunteers<sup>(1)</sup>

環境ボランティアによる地域リサイクルシステム構築のアクションプログラム

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## 日本語要旨

廃棄物減量と資源リサイクルを進めるという合意を地域で作るためには、資源リサイクルのシステムを構築するアクションプログラムを作成することが必要となる。そこで、住民自身がボランティアとして地域でリサイクルの仕組みを立ち上げるために実施したアクションプログラムの成功例を紹介し、それぞれのアクションがどのような効果を持ったのかをリサイクル資源の回収量を手掛かりにして評価した。ボランティアは、リサイクル資源回収への地域住民の協力を促し、その成果を住民にフィードバックし、地域でリサイクルの仕組みを作るという合意を形成するための一連のアクションを実行するという重要な役割を果たしていた。その事例に基づいて、住民と行政間での双方向のコミュニケーションを通じて地域の環境保全プログラムを開発することの重要性について考察した。

## SUMMARY

In order to build a consensus on addressing garbage reduction and resources recycling in the community, it is necessary to prepare an action program to develop a resources recycling system. I described a successful example of the action program to promote community recycling system carried out by residents as volunteers, and evaluated the effects of actions by the amount of collected recyclable resources after each action. The volunteers performed a key role in implementing a series of actions to encourage the local residents' voluntary participation and cooperation, gave feedback of these actions to the local residents, and in doing so they succeeded in building a consensus on the community's recycling system. I discussed the importance of developing an environmental preservation program through interactive communication between public administration and residents.

## Key Words

environmental volunteer, resource recycling, waste reduction, action program

## 1. Consensus Building for Waste Reduction and Resources Recycling

As Containers and Packaging Recycling Law was put into force in Japan in an attempt to reduce wastes generation and promote cyclic use of resources, the mutual cooperation between public administration and local residents is becoming more evident. However, not many local governments are actually ready to introduce the separated collection system for recyclable resources based on the Containers and Packaging Recycling Law. Public administration seems to be reluctant to introduce such system that requires new burdens to be borne by local residents including separation of garbage and recyclable resources. Apparently the lack of the clear prospects for local residents' consensus and cooperation on a new recycling system stands in the way of introducing such system.

While a public administration is an organization with a substantial entity to engage in the system, it is not clear for local residents how to build a consensus on addressing garbage reduction and resources recycling. For example, some cities have worked out a basic plan for garbage disposal with citizen participation<sup>[1]</sup>. They selected planning committee members from among citizens, held a workshop to hear a wide range of citizen's requests about the garbage disposal, or conducted a questionnaire survey or public comment to inquire citizen's opinion on the proposed plan. Despite these efforts, they are currently in the try and error stage of developing a way to realize citizen

participation and consensus building on the garbage disposal plan.

Under such circumstances as described, it is also necessary for those local residents who are interested in garbage problems to volunteer their own services in seeking for the possibility of developing a resources recycling system. Can volunteers encourage both other local residents around them and public administration to develop a separated collection system for recyclable resources? What actions and at what timing do they need to carry out in practice for the purpose of building a consensus of the local residents on resources recycling? What effects do these actions have? How do they feed back the results of actions to all of the local residents? In order to answer these questions, an action program needs to be created for the local residents to build a consensus among themselves on an environmental preservation system in their community.

## 2. Volunteers' actions for consensus building on a recycling system

In this chapter I describe a successful case<sup>[2]</sup> of the action program for residents as volunteers to establish a separated collection system for recyclable resources in their community.

This attempt took place in a big-city suburban town. The town had disposed garbage by a cooperative consortium shared with other two neighboring towns. A construction project of a new larger scale incinerator was planned for the reasons that the amount of garbage was increasing and the existing incinerator

was aging. However, a separated collection of recyclable resources and garbage was not conducted as a measure to reduce wastes. Then, a group of volunteers was formed, aiming at establishing a recycling system for not only their community but also for the whole town, along with the people from two other communities of the town.

The formation of the group started in the wake of hearing the news of volunteer recycling activities by local residents of a neighboring town. Inspired by this news, some women who were concerned over the garbage problem started activities. The main members called on their friends to join a small meeting of recycling held at their home and recruited volunteers. Their efforts resulted in the gathering of about 30 people, which enabled them to start collection of recyclable resources such as bottles and cans. With the ultimate goal of encouraging the public administration to introduce a recycling system for the whole town by way of wastes reduction, they set a short-term target of developing the recycling activities to be spread over their community and to be organized by the resident's association. In order to realize this target, they worked out on an action program for encouraging people in the community, by referring to some academic information including the environmental social psychology about consumers' behavior.

The first action that the volunteer group took was to directly ask local friends and acquaintances connected to the members' social networks to bring bottles and cans to the newly started recycling station.

At the same time, they took another action of placing collection containers across their community, with one container per every several blocks, which they borrowed from the health and medical division of the town through negotiation, for a certain period of time. At the first stage of the activity, containers were permanently placed, but three months later the placement period was shortened to one week. This is because it is more effective to minimize the initial sense of cost at the behavior change for facilitating the development of a new habit of recycling. When there are many collection containers, it takes less trouble of carrying empty bottles and cans, and when the containers are placed for a longer period of time, it provides the same time span for recycling as the one for noncombustible garbage, that is once a week. These conditions help most of the people who have positive views on garbage reduction and resources recycling to behave in accordance with their attitude. Moreover, if those people can believe that they behaved so not because it was just trouble-less but because it was owing to their attitude toward recycling, their new action will be more easily sustained.

As the third action, they delivered a group newsletter to all of the households in the community every month, aiming at promoting people's attention and awareness to their activities by calling for participation in the newly started recycling activity. According to the group, such information that the amount of collected recyclable resources is increasing and many people are cooperating in recycling activity helps local residents to know the

actual situation in which recycling is steadily spread over the community.

Three months later since the start of their volunteer activities, the group decided to conduct a questionnaire survey on the recycling, as their fourth action. Usually, it is difficult to reach out to people face to face when they are not connected to the volunteer network. The result of the questionnaire survey incidentally showed that only 20% of the local residents were recommended to join the recycling by their friends. In an effort to provide an opportunity for reaching out to the remaining 80% of the people to encourage participation in the recycling, they came up with the action of a questionnaire survey. Another purpose of the survey was to collect detailed information about recycling from as many people as possible, since there had been no other sources than the monthly data about the amount of the collected recyclable resources in order to materialize the response from the local residents as a whole. It was also necessary to find out why some of the local residents were not able to participate in the recycling as well as to collect information that would help eliminate disincentive factors for their participation. The volunteer group thought that cooperation on a questionnaire survey or confirmation of own opinion about recycling would set the stage for a larger number of the local residents to participate in recycling.

Three months later, the group fed back the result of the survey to the people in the community as their fifth action. The survey results showed most of the residents favored

recycling and more than half of them actually participated in recycling. In feeding back the local norm of positive attitude toward recycling to the local residents as a whole, a consensus on recycling is easily built as the community consensus. The feedback process was carried out through two types of media: the mass media and a local media. The group reported in detail the results of the survey in twice in their newsletters. In the mean time, they asked a local branch office of a newspaper publishing company to carry the story of the independent questionnaire survey by volunteers. They believed that providing information from multiple media sources would generate a positive effect in giving certain validity to the volunteers' activities in the community.

Their activities to promote recycling so far were all requiring heavy burdens on the people who have cooperated as volunteers. If they continued to be burdened for longer period of time, it could cause a "burnout" and a large number of people could drop out from the volunteer activities. Then the group took the sixth action at the 9th month of their series of activities by shortening the installation period for collection containers from one week to three days. They took such action since they figured that the majority of the people already built up the habit of recycling and they also needed to reduce the volunteers' burden by slightly increasing the burden on the entire local residents.

When one year has passed since the activity started, the 7th action was taken to transfer their recycling activity into a collection

operation organized by the residents' association. Based on their accumulated recycling results, the group encouraged the public administration to designate their community as a model district for recycling. The town accepted their suggestion and made a request accordingly to the residents' association. Following this request, the board members of the residents' association and the volunteer group discussed the subject through the mediation of the president who had a favorable opinion about recycling. The residents' association agreed to organize the recycling operation as a model district, which was also approved at the general assembly of the association. The once-a-month sorting work of recyclable resources was to be carried out by the association's board members and the volunteers alternately, in which the number of container installation sites was reduced to three places and the collection period was shortened to one and a half days, aiming at minimizing the operational workload.

Incidentally, among three volunteer groups in the same town, only the above-mentioned group that introduced a series of actions into the community to reach out local residents was successful in achieving the target of shifting their recycling activity into a formal operation of the residents' association. Once achieved their target, this group carried on their effort using the network of the town's liaison office for resident's associations to promote recycling activities to other communities within the town. Since the town administration appreciated the group's achievement and were convinced of cooperation

from local residents, they also came to make a request to other communities within the town to perform recycling operation organized by resident's association. As a result, after the lapse of three years since the start of volunteer group activity, recycling organized by residents' association was to be performed in all the communities throughout the town.

### 3. Evaluating the effect of the volunteers' actions

The group in the above-mentioned case (hereinafter "the experimental group") implemented a lot of unique actions that were not carried out by other two groups in the same town (hereinafter "the compared group A and B") at intervals of three months. Therefore, by comparing the amount of collected recyclable resources of each group conducted around the same period of time, the effect of each action can be evaluated. I examined the effect of volunteers' actions on the participation of the local residents in recycling, with the amount of collected recyclable resources as an indicator.

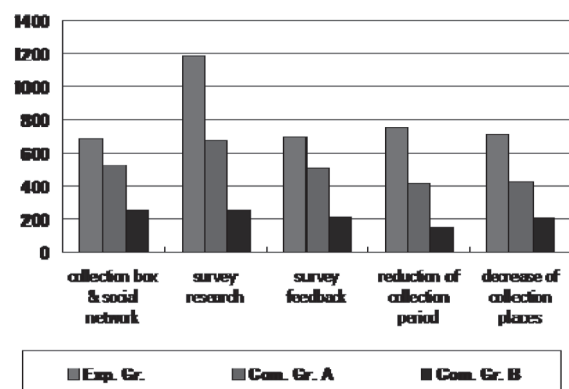


Figure 1 Monthly average amounts of cans and bottles collected by the experimental group and the compared groups

Figure 1 shows the monthly average collection amounts for the experimental group and the two compared groups over the three months immediately after implementation of actions.

### **3.1 Effects of the number of social networks and collection containers**

As for the number of people invited through networks, it can be estimated as the most for the experimental group, the next for the compared group A, and the least for the compared group B, according to the number of group members and their networks. The number of collection containers placed in each community after three months from the start of activities was 11 for the experimental group, 6 for both the compared group A and B respectively.

The effect of the two actions is reflected in the collection amounts of recyclable resources for the following three months conducted by the experimental group. As the monthly collection amounts for three groups are ranked the experimental group the first, the compared group A the second, and the compared group B the third, it shows that each of the two actions is independently effective to the participation of local residents. The results of the survey conducted by the experimental group also endorse the effect of the two actions. More than half of the residents invited to the recycling actually participated in the recycling, and the awareness and participation rate of recycling activity was higher when the collection container was settled nearer to their home.

### **3.2 Effect of the cooperation for the questionnaire survey**

This action can expect two effects: One is an effect that the local residents take double commitments by themselves when they cooperate with the volunteers by answering the questionnaire survey and express their positive attitude toward recycling. The other effect is that the survey itself can raise public attention to the recycling. In fact, the survey results showed that the majority of the local residents favorably responded to garbage reduction and volunteer activities.

The effect of the survey appeared as a dramatic increase in the amount of collected recyclable resources over the following three months. As it was summer, the amount of the compared group A was also increased around 30% on the same period last year; however, the 70% increase for the experimental group is highly remarkable.

### **3.3 Effect of feedback of the survey results**

The expected effect of the feedback was not found. Since the period of time was just the transition from summer to autumn, the collection amount was decreased for all three groups. However, as for the increase in the collection amount from the last three months prior to the survey, the experimental group saw more increase than the compared groups, which tells that the effect of the survey is still sustained during that period as well.

### **3.4 Effect of shortening the collection period**

In order to examine whether the amount of collected recyclable resources was



decreased by an action of shortening the container installation period, which was implemented only by the experimental group, the collection amount of the experimental group was compared to that of the compared groups. The comparison did not show any difference between the experimental group and the compared groups. Even though the setting period was shortened, the recycling habit once established was not affected nor disappeared.

### 3.5 Transition of collection operation unit from volunteers to the residents' association

The last action was to reduce the number of container installation sites and to shorten the collection period. In the compared groups' communities, the collection was still carried out by the volunteer groups. As there is no difference in the variation of the collected amounts between the experimental group and the compared groups, the transition of operation from the volunteer group to the residents' association can be regarded as successful without losing the participants in recycling.

## 4. Environmental preservation program as the interactive communication

The case described herein is an example of practice and evaluation of an environmental preservation program carried out by volunteers. The volunteers performed a key role in implementing a series of actions to encourage the local residents' voluntary participation and cooperation, gave feedback of these actions to the local residents, and in

doing so they succeeded in building a consensus on the community's recycling system. In order to determine whether this action program is effective for other communities or not, a further social experiment will be required. In addition, it will be also necessary to examine the points to be improved for realizing local residents' participation and consensus building.

There have been many approaches to promote change in perception, attitude, and behavior about environmental issues in the field of the environmental social psychology (Geller et al., 1982<sup>[3]</sup>). By referring to the two-phase model for the decision making process of environmental conscious behavior (Hirose, 1994<sup>[4]</sup>), these approaches can be divided into the following three phases: (1) promoting environmental friendly attitude by changing the environmental perception, (2) encouraging people to strengthen the link between environmental friendly attitude and intention of environmental conscious behavior, (3) promoting the development of environmental conscious behavior intention by changing the behavior evaluation (Figure 2).

Taking the volunteers' actions as an example,

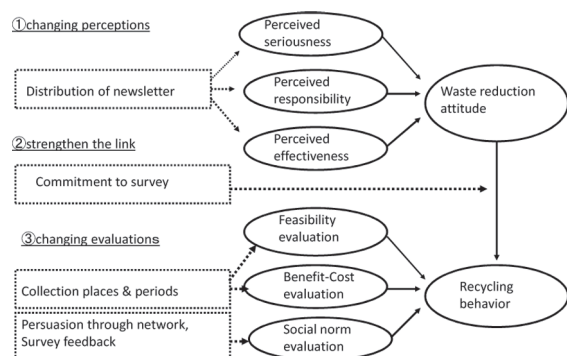


Figure 2 Promoting approaches based on a model of environmental conscious behavior



the action of distributing the newsletters to the residents is the first approach to change their environmental perception of waste reduction. The action of asking the households to cooperate with the survey is the second approach to strengthen the link between their attitude of waste reduction and their intention of recycling behavior. The action of placing collection containers and persuading the friends to participate in the recycling activity are the third approach to change their evaluation of recycling behavior.

In most of the previous studies, the major body for approaching people was composed of researchers or administrative experts, and the program of approaches was performed as a field experiment, a lecture or a workshop targeting the local residents. These approaches aim to promote a new life style for environmental preservation from top to bottom, which is known as the top-down style and can be regarded as the unilateral communication. After a single or limited action is introduced on a trial basis to a small number of local residents who agreed to cooperate on the study program, the effect of the action is evaluated by measuring the change in the local residents' attitude and behavior. The expression of attitude or behavior is the response from the local residents to the researchers' approach; however, further feedback of the experiment results is rarely given to the local residents.

A consensus building on the environmental preservation system for a whole community will not be realized unless the local residents accepts the environmental conscious idea and

behavior through interactive communication that is an exchange between the continuous approach and evaluation. The next task for the environmental social psychology must be not only to prepare a general program that consists of combinations of multiple actions to elicit local residents' evaluation and response to every approach, but also to provide many interactive programs under which the next action is to be worked on the people while giving them the feedback of the effects of the previous actions.

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#### Note

- (1) This article is based on a discussion paper which was presented at the psychology seminar in Eindhoven University of Technology on September 2002. I appreciate professor Cees Midden giving me a chance to discuss on my studies and his many valuable comments.

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