

## **Changing Behavior and Environment in a Community-based Program of the Riverside Community**

**Joyce Marcella Laurens**

*Faculty of Civil Engineering and Planning, Petra Christian University, Indonesia*

*joyce @peter.petra.ac.id*

### **ABSTRACT**

The riverside communities devised a community-based program to negotiate with the local government so that they are not evicted. As an intervention package, -which aims to upgrade the living environment and increase the residents' pro-environmental behaviour-, this program consists of organization and information, combined with social interaction, commitment and feedback performance. Intensive observations were used to examine the effectiveness of the program to environmental behaviour change and upgrading settlement. The finding reveals that having common objective of renovation is the most influential variable in motivating individuals to increase environmentally friendly behaviour on the upgrading environment.

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### **1. Introduction**

There are about five thousand families on the riverbank settlements along Wonokromo and Surabaya canals in Surabaya. As the second biggest city in Indonesia, Surabaya experiences a rapid population growth and struggles of economic development. The city government has planned to make beautification along the canal in accordance with the idea of making Surabaya as an international trade city. In 2002, more than 400 houses on the riverbank were demolished; the communities' homes and livelihood are threatened with eviction for years. People do not know where and how to continue their living; since walk-up apartments provided by the government are unaffordable for them. It seemed that the dominance of the economical sphere shifts the environmental and social cost on to these poor communities with no political or economical power. Policies, legislation and regulation were not on their side. Whenever the canal gets serious problems, such as river pollution or flood that often occurs in Surabaya, the whole city will blame the riverside communities to be responsible for, and again pressure are put on them to be relocated.

As response to this condition, residents of the riverbank settlement along Surabaya canal organized themselves, and established the riverside community (Paguyuban Warga Strenkali Surabaya - PWSS) in 2004. They developed a community-based proposal to negotiate with the government, and showed how flooding could be avoided and city development could still be promoted, while they can keep living on there without destroying the environment. Supported by Urban Poor Consortium (UPC) and Uplink, -non government organizations-, and experts from the universities, a technical study has been initially done; the result shows that in fact, the settlement of the poor riverside communities was not responsible for most of the degradation of the river's ecological integrity, but the fast decline of forests on the upper hill, and the existence of industries and factories along the river were the main contributors. However, it is important to make people aware that the riverside settlements themselves could not be maintained as they are; they need to be upgraded, from a slum area to be a healthy and sustainable settlement.

Resident's habits and decisions in using the river ultimately have a major effect on the sustainability of the river and their living environment. They did not show the responsible environmental behavior that is desired. It is stated in their negotiation with the government that, they need to change their own behavior in their interactions with the riverside environment, in order to behave more environmentally friendly.

After struggling for 4 years proposing the concept of renovating instead of relocating; in 2007 the government published a local regulation (Perda 2007) that allowed limited settlement's existence along the riverbank and gave the community five years time to upgrade their settlements instead of relocating them.

This regulation is not the final objective of the community, but the first step which should be followed by realizing their proposal.

Considering that many behaviors need to be changed if they are to achieve a sustainable society, then priority and focus of the community-based program are of utmost importance. Intervention studies generally target only one or a few types of behavior in a short time, and thus have a limited scope. Moreover, if it only changes one specific type of behavior for the duration of the intervention, then it would have a limited practical value. The community-based program of the riverside community is not a short term intervention program. It has been conducted for more than seven years, and it is still running to achieve their dreams of having a peaceful life that is free of eviction threat.

Having this condition in mind, it is particularly interesting to examine the community-based program of the riverside community. In this paper, description is provided to see more deeply and more respectfully the effectiveness of this program in the way it works. The main issues are to understand what happened to the people of the community before and after the government regulation was published to identify the variables that influence people to change their pro-environmental behavior and to examine the substantial and durable pro-environmental behaviors that change in relation with the upgrading settlement.

## **2. Literature Review**

Over the past few decades, research that aims to increase environmentally friendly behavior or to reduce environmental degradation has received a significant attention in various scales from a voluntary individual level to a national scale. Considerable research has been conducted to find or to evaluate certain intervention techniques to change the behavior with environmental consequences. However, such research is lacking in the developing countries, especially in a poor community area with a big environmental problem. This paper is concerned with efforts of the poor communities to change their environmental behavior in their neighborhood. The community-based program initiated by the poor communities in Surabaya seems to play the role as an intervention program.

### **2.1 Environmental Behavior**

Individual's behavior toward the environment should have something to do with what they feel and what they think with respect to the environment and pro-environmental action. Study of behavior usually focuses on the determinant factors of personal variables, rather than situational variables which are related to the physical environment (Black, et.al. 1985). In their investigation, Joze AC & Jaime B (2000) pointed out that environmental behavior depends on personal (values and beliefs) and situational (physical environmental) variables in an interactive way. Interaction between personal and situational variables can be defined in terms of the degree of conflict or consistency between them. This conflict will be high when personal and situational variables are of different signs. This is when there is high/positive disposition to action but the situation makes it difficult, or when personal disposition to act is low /negative and the situation facilitates it. Consistency occurs when personal disposition and situational variables are of the same sign. This is when the personal disposition to the behavior is low and situation makes it difficult; or when the personal disposition to the action is high and the situation facilitates it. When the high conflict level is generated between personal dispositions and situational conditions, the predictive power of attitudes tends to be minimal. Meanwhile, it tends to be maximal in the case of there is consistency between them.

Degree of conflict between personal and situational variables will influence people environmental behavior, whereas the influence of situational variables is found to depend on the environmental action considered. The understanding of these interactive processes will facilitate the raising of average levels of pro-environmental behavior, and propose a tentative explanation of differences in environmental behavior. Factors that motivated individuals to take pro-environmental action, could be indicated in the study of Hines et.al. (1986) and Aytul Kasapoglu & Mehmet Ecevit (2002) who identified the influential variables in motivating people to take pro-environmental action. Those are cognitive variable, -dealing with understanding about the environment-; psychosocial variable, -factors related to personal characteristics, i.e. ability to change the environment, personal responsibility to their environment, verbal commitment, and economic orientation-, and demographic variables.

### **2.2 Intervention Technique**

Dwyer, et.al. (1993) reviewed the effectiveness of some intervention techniques; they found out that most of the techniques have difficulties in achieving durable behavior change, because there is a limited duration of the behavior change and generally they have only a limited numbers of behaviors as their target. The effectiveness of the program to change existing behavior to targeted pro-environmental behavior was retained only for less than 12 weeks after the intervention program was over. Concerning the persistence of pro-environmental behavior change, De Young (1993) urged researcher to focus on developing

interventions techniques that create self-sustaining change. He argued that durable pro-environmental behavior change can be facilitated by devising techniques that combine the detail procedural information, feedback of one's performance, and a supportive social environment. Geller (1990) also proposed this combination of elements to increase the effectiveness of intervention techniques.

Information is one of the most widely used means to promote pro-environmental behavior change. Information may serve to increase problem awareness, which in turn can affect behavior or inform people of other's efforts which may increase cooperation.

Feedback of performance may increase the sense of individual and collective efficacy. Feedback may also trigger change through appeal to social and personal norms. In general, feedback has been helpful in changing behavior; however, without having a periodic application of feedback and information, the effectiveness at the individual level is reducing.

Supportive social environment is the condition that employs social support. Lewin (cited in Staats, 2004) stated that one of the factors responsible for the success of changing behavior in a small group, is the social interaction by being able to experience group standards before explicit decision is made. Hopper and Nielsen (1991) studied the impact of social interaction to change group standards, or social norms on recycling behavior, by identifying a person in the neighborhood who personally informed the people in the neighborhood about the program and encouraged them to recycle.

Henk Staats et.al. (2004) developed an intervention program, the Eco Team Program (ETP), to overcome the limitation of the effectiveness of the intervention techniques. This program's objective is to realize substantial and durable environmental changes in the way a household is run, by targeting about 100 behaviors that determine together most of the ecological effects of a household. Unlike the general intervention techniques, this study examined the long term effects of participation in the ETP on changes in household behavior and environmental resources. This approach consists of (a) a group setting focused on the impact of social setting to discuss certain environmental household behavior, (b) information, which is presented in a workbook concerning the household problem, consequences of specific behavior change needed and details to execute the change (c) feedback that is about the accumulated results of the team stated in a newsletter form and is given periodically. It shows that information, feedback and social influence from the ETP are successful in accomplishing long term pro-environmental behavior change, and increase the strength of intentions to explain behavior change, irrespective of previously existing change.

### **3. Methodology**

This study is based on phenomenological approach, which aims to see more deeply and unfold the essential nature of the community-based program. The data was collected through empathetic looking and seeing, a careful and comprehensive observation of the environment, in depth interviews with the communities. All of them are gained through visits and participation in the community's agenda since 2003. Documentary historical material and technical survey result conducted by the riverside communities are part of the data observed. Qualitative description of the examination has been made based on the literature review above, with the emphasis on discovering what and how concrete things, events, and experiences happened in the community. A holistic view seeks to maintain the uniqueness of the community-based program.

### **4. Results and Discussions**

Discussion were made based on the collected data from 2003 to 2010. An initiative of the community to establish PWSS started in 2002, but it was formally announced to public as a community organization in 2004. Within that time, many agendas were taken individually by groups of residents in a particular kampong along the riverbank to protest against the government eviction. They were not yet well-organized as a big community, but indeed they were the pioneers of the PWSS. With the support and advocacy of some NGOs, in 2004 PWSS was established with members of 1033 families coming from 9 kampong located along the riverbank. In average, they have been living on the riverbank for 30 years (51.4% of them have been living on the riverbank for more than 21 years; 4.3% for more than 50 years). When they were asked about the reason to live on the riverbank; 42.1% of the community answered economical value of the location as the main reason (56.1 % of them has the work-place less than 1 km from their houses, 15.0% in 1-3 km away); only 5.3 % of them mentioned the river as the pull factor.

Source of information that let them come to the riverbank were families (37.5%) and friends (17.1%) from the same village they originally came from.

All kampongs are very dense settlements; most of them are slum areas. Total area of the riverbank settlement along the Surabaya canal is 6.76 ha; there are 926 buildings (59.3% permanent, 30.9% semi permanent, 9.8 % non permanent buildings). Most of the buildings are functioned as houses (57.8%) and some (33.6%) are used as work-house or running business. Environmental condition of the neighbourhood is very poor. Some buildings are not proper buildings to live in; along the river, there are many houses or public toilets built on the reclamation area of the river.

Within the negotiation time with the government, they started demolishing those buildings; showing their willingness to change their behaviour in their interaction with environment (figure 1).



Source: (PWSS, 2004)

Figure 1: The community members demolished public toilets which were built on the reclamation area

#### *4.1. Organization*

In 2010, PWSS was reorganized. Management and leadership of the organization were shifted to the younger generation. The situation they face is different; the first generation had to convince with their proposal fighting the relocation concept of the government and showing that they could upgrade their living environment and increase their pro-environmental behavior, while the second generation has to give evidence about what they proposed after the government regulation (Perda 2007) was published.

##### *4.1.1. Intervention and Advocacy*

Management of the first generation of PWSS was fully supported by the NGO's (UPC and Jerit; later on UPC and Uplink). As a new established organization, the community had to learn a lot, how to manage and what to do in facing the government plan of evicting their settlements. There were two groups of board. The NGO performed as Advocacy Organizers (AO) who managed the organization and played the role as the think tank of PWSS; and people from the community became coordinator of the region.

AO was conducting some intervention programs which aimed to raise the community understanding about their rights and sustainable environment, build and strengthen up the social relationship amongst the residents, their self-confidence, do networking with experts from various disciplines and institutions, and advocate the community in negotiating with the government. The regional coordinators had to be responsible for communicating information to and among the residents in their own region. Internal meetings were held routinely, but mostly organized by the AO.

Intervention and advocacy of the NGO's (UPC and Uplink) during the first generation of PWSS managed not only in raising the community's understanding about their rights or educating people about some technical and social issues in relation with their environment, but it also indirectly became a leadership training. Through all the intervention programs conducted by the AO, the community experienced how to manage the community's members. Talented leaders were appeared in numbers. After seven years of advocacy, they decided that organization had to stand on its own feet, not depending on AO anymore, and regeneration is needed.

##### *4.1.2. Group Leader Approach*

The second generation of PWSS has become a more formal organization with statutes and rules of association. Their mission is stated clearly, empowering the riverbank community to be a strong organized, autonomous urban poor society sides with the sake of the marginal. Their strategy is organization management, advocacy and networking. Philosophical views put autonomic value, social justice, gender, environment, transparency and equality. The role of NGO's in supporting PWSS management which formerly was performed by AO, has been taken over by all members of the board who are the community themselves. AO is now doing monitoring job.

There are three levels of leadership which work autonomously; the top management coordinates the whole program of PWSS; the second level is the region coordinator; and the smallest unit in the third level is the K-10, which is a group of 10 families living close to each other in the same region, or a group of 10 relatives coming from the same village (for example Ponorogo, Probolinggo) and living close to each other in the same region. The long history of staying in the neighborhood, made them know each other quite well, and have a close social relationship. Coming from the same village might lead them to have a



similar culture, beliefs or values so they can choose the leader of K-10 amongst themselves. By identifying a person living in the neighborhood that should personally inform people in the neighborhood about the community program, and actively encourage them to realize the plan; information and problems will be well communicated and discussed.

Applying “a group leader approach” is more effective than monthly reminder or information brochure distribution because they can meet in a flexible time and place. Gender becomes an issue in the composition of members of the board since there should be about the same numbers between male and female. This policy empowers women to play a role in the program, whilst housewives have a more flexible time than the formal male workers. During the meeting, personal experiences, ideas, and achievement related to environmental household behavior are shared. Top management has a routine weekly meeting, while for the second and third level boards depend on their needs.

#### *4.2. Community Program*

All programs are planned in reference to the main issue of the community proposal to the government that is based on the concept of upgrading their environment.

##### *4.2.1 Activities Following Negotiation with the Government*

The first generation of PWSS had the task of implementing the first category of the program which consisted of preparing the technical evaluation report comprised of (a) engineering argument confronting the government plan to normalize the river. PWSS and professional experts from the universities made a technical design proposal showing that flood could be avoided, without having to widen the river on both sides and clear the riverbank spread in 15-25 m (b) arguments about human right, socio-cultural and economical aspect of the riverbank community. PWSS supported by NGO's, professionals in various discipline and universities' students, made a detail existing map of the whole riverbank settlements, involving all community' members. Based on this map, a research was conducted to find the potential lost (about Rp.286 million) suffered by the community. The community participated in developing a new layout plan of their neighborhood. In this category, roles of the professional experts are dominant, but indirectly it is an education process for the community. By following the technical discussion and debates and participating in doing the research, the community is not only introduced to know technical issues but also open up their mind about their rights and the potential aspects of each region. For example, in the region of Semampir, the research found plenty of fish and reptile species. The community realized that they could be a good commodity for them but they could also be extinct if they did not maintain the environment properly. Experience is another form of information to increase problem awareness and change their existing environmental unfriendly behavior to pro-environmental behavior.

In the second category, the role of the professionals is minor to the role of the community. Most of the programs that started in the first generation of PWSS continued to the second generation of PWSS was initiated by the community. They organized themselves and proclaimed as the river guardian. The intervention technique devised by the AO was facilitating details of information about being a river guardian, organizing discussion in a workshop or seminars, inviting experts to share information or ideas, sharing information and experience with other national and international communities (in international conferences), and doing cooperation with education institution.

To be a river guardian means doing several actions: (a) Clear the river by demolishing all buildings, either houses or public toilets which are built on the reclamation area of the river, to make the river flow freely not to be impeded by building construction as before. In doing this program, cooperation among the neighborhood is the most valuable thing (b) Build 3.00m inspection road along the river by cutting off all buildings which block the area, to enable inspection vehicles passing through (c) Reverse orientation of the house along the riverbank; all houses are to face the river, so that people can always monitor the condition of the river (d) Provide Sewerage Treatment Plant, as not to pollute the river (e) Construct drainage system to avoid flooded and create a healthy neighborhood (f) Recycle the organic garbage using Takakura basket in a household scale, and process the organic garbage communally. Inorganic garbage is collected to be sold. By recycling, people do not throw the garbage away into the river (g) Greening the environment by planting the area along the riverbank, especially with pollutant absorber plants (h) Organize the Cultural Events in relation with the river, as an expression of gratitude to God. This is a traditional ritual, disposing an offering by floating it away in the river, which is combined with traditional art festival.

The most important program to upgrade the environment is the program of saving. As a poor community, it is certainly very difficult for them to realize their proposal without financial support. Therefore, focus of the second generation of PWSS is increasing the saving. Through having a constant saving, showing the seriousness and persistence of increasing their pro-environmental behavior, opportunity of getting grants from foundation, or financial loan supported by formal institutions is possible.

They organized saving groups in every region. The K-10 units play an important role in achieving target of saving in every region.

#### *4.2.2. Feedback Performance*

Some of the proposed program have been done while some others are still going to proceed. Only program (a) has been totally finished in the whole riverbank settlements, but other programs are partly constructed in the whole region; for instance program (b) and (c) in Gunung Sari region (800 m of paving inspection road), in Semampir (1200 m of paving inspection road), and in Kebraon (200 m of renovation road). They have already reversed the front of their house to face the river. Program (c) and (d) have been done individually in some houses, program (f) and (g) are mainly concentrated in particular regions, because of the limited area available. The last program (h) was performed yearly in a different place until 2007

Since the Perda 2007 was published, activities of the community in relation with their program seem to be decreasing. Poor pro-environmental behavior relapsed, for example in Gunung Sari region, their houses are nice, but they tend to neglect maintaining their frontage area properly, using it as a garage or storage which potentially could become dirty. Former progress of their efforts in being river guardian, or progress of negotiation with the government were written in the community newsletter, and distributed to the community; however, the last edition was in 2007 in which they reported the success of their struggle by having Perda 2007. Boards of PWSS, with their new management organize to provoke and generate the new spirit. Realizing the time given by Perda 2007, to upgrade their settlement is only 1 year left, they make priorities program, i.e., saving program and program (b) in two regions. They focus to renovate houses of particular K-10 unit of each region which shows persistent efforts as a group in running the saving program and keep maintaining their pro-environmental behavior. Grants will only be given to them. In this way, the community gains insight into their own behavior, individually or collectively with regard to the saving program. Feedback of performance of each K-10 unit may increase the sense of individual and collective efficacy. Feedback may also trigger change through appeal to social and personal norms. In general, this kind of feedback has been helpful in changing members of the community behavior. Thus saving program increases partly as a result of increasing social and personal norms toward the benefit of saving.

While having a design of the renovated houses, PWSS and NGOs (UPC, RCUS, -Rujak Centre for Urban Studies, and Petra Christian University) organized a design competition. Seven prominent architects were invited to share their ideas, and the competition was won by Wiyoga, a young architect, with his ideas of making quilts by using the concept of harmony in diversity (Figure 2 and 3).



Source: (Petrus, 2010)

Figure 2: The architect presented his design idea for renovating the riverside settlements



Source: (Author, 2010)

Figure 3: Design of renovated houses, using reused and recycled materials

#### **4.3. Degree of Conflict and Consistency**

The riverbank communities were not concerned of their environment, until the eviction threat in 2002. They did not pay attention to the condition of their neighborhood, which were unhealthy, crowded and dirty. There was no one coming to inform them about the benefit of having a sustainable environment. People did not have any knowledge in understanding their environment. They might also not have the ability to change the environment,. They thought that it was the government's task to change the environment or they accepted their conditions as their fate. When this personal disposition to pro-environmental behavior is low and situation they face makes them difficult to act, it means both variables are of the same sign. Then the degree of consistency is high, which means no pro-environmental behavior can be expected to occur.

Since PWSS was established, variety of its program changed the personal disposition. They got informed about sustainable environment and pro-environmental behavior, trained to be responsible and have high commitment, which raises personal disposition to carry out certain environmental responsible behavior and perceived the situation as inhibitory to pro-environmental behavior. Then the degree of conflict is high, because both variables are of the different sign. It means that the attitudinal dispositions are partially blocked by the effect of the situational variables. Given this condition, various programs organized by PWSS are breaking the block and enabling pro-environmental behavior to happen. Over the past 8 years, since 2003, concerning about the environment has led to an impressive number of actions intended to upgrade their environment. A host of initiatives is being taken, spanning from negotiating with the government, participating in the professional's research and technical studies, to collecting and recycling garbage instead of throwing them away.

Degree of conflict or consistency will influence the environmental behavior. Community with favorable disposition would always be expected to present more pro-environmental behavior than the group with unfavorable disposition to pro-environmental behavior.

#### **5. Conclusion**

Community-based program of the Riverside Community plays its role as an intervention package in increasing the pro-environmental behavior of their living environment. The second generation of PWSS, managed the organization in a more autonomous way compared to the first generation, which was strongly supported by Advocacy Organizers from NGO.

Applying a group leader approach in their programs enables the community to experience standard group before individual explicit decision is made. It is the factor of being responsible for the success of the changing behavior in a small group setting, the K-10 unit, as compared to a large organization. Effect of group discussion is also favorably compared to individual instruction, ruling out that it was the amount of attention given to each person individually that was responsible for the change in behavior. This joint effect of group interaction and explicit decision made in public by the group members was apparently quite successful in changing behavior.

It showed the effectiveness of supportive social environment in increasing pro-environmental behavior. The effects of participating in a discussion group did not decrease with time, due to the possibility to discuss freely about the advantage and disadvantage of making an explicit decision. It showed the positive side of face-to-face interactions regarding changing behavior.

Since its program was initiated by the community members, the interventions came from within and concerned their own problems. Having a common objective, -that is refusing the government concept of relocation, and promoting their own concept of renovation-, was a powerful agent in motivating them to persistently increase their pro-environmental behavior in upgrading environment. Feedback of performance is needed to be applied regularly. Conditions that affect some pro-environmental behaviors will make other behaviors also susceptible to change because of the shared elements of their respective supporting conditions. It is argued that the intervention alone does not cause the effect but that the change in the environment and its interaction with the environment are responsible for the alteration.

Community-based intervention package of PWSS has proved that change, was not only in one specific type of behavior, but it created a self sustained change in the community. With the sense of community and place, there was a wish to take responsibility for more than their immediate homes.

The study has a practical value because the programs identify for organizations and policy makers which actions to take to increase that level of pro-environmental behavior and consequently upgrade the environment.

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