

Abstract

Research of the Community Strength for Environmental Conservation a case of study of the Saen Saeb Canal

The main objectives of a principal research project on "Research of Community Strength for the conservation of Water Source: Saen Saeb Canal Communities Case Study" are : - 1) study data on geographical, economic, and social conditions of communities along Saen Saeb Canal, and 2) study relationships between characteristics of community, lifestyles, and water conservation behaviors and the Saen Saeb water quality. The principal research comprised 5 following sub-projects : - 1) a study on geographical conditions of Saen Saeb Canal along the two canal banks, with 45-kilometer long, 2) a study on the water quality in Saen Saeb Canal by chemical analysis, 3) a study on strength of communities along two canal banks of Saen Saeb Canal, 4) a study on lifestyles, mindsets, and thoughts accounting for water source conservation behaviors of housewives and youths living in communities by Saen Saeb Canal, and 5) a case study on specific community succeeded on water source conservation.

The tools utilized in the research comprised :1) 1995 satellite images, 2) 1995 aerial photo maps , 3) Vector maps, 4) Raster images, 5) satellite Global Positioning System, 6) interviewing questionnaires to community leaders on community strength, 7) questionnaires to community senior citizen on ways of life connected to Saen Saeb Canal in the past and at present, 8) questionnaires to housewives and youths on lifestyles, mindsets, thoughts and water source preservation behaviors; divided into 10 mini-questionnaires, 9) guidelines for interviewing leaders of communities on success in conservation of Saen Saeb Canal.

The Study samples comprised the water samples from 7 locations of Saen Saeb Canal and 22 locations of branched canals, official leaders of 30 communities totally 150 persons, 30 community senior citizens, 422 community housewives, 425 community youths, 16 leaders of communities succeeded in water conservation.

A combined result of the sub-projects was presented according to 3 environmental zones as follows.

Dense urban environment

This zone was 16 kilometers long starting from Sraket Temple to Bangkapi District office. Land usage in the area was high density. The quality of water as indicated by DO, BOD, and COD showed lower quality as compared to type 3 standard of surface water. Among 15 sampled communities in this zone, 6 of them were classified as high in community strength. The water conservation of house-wife and adolescent was moderate. Behaviors ranking from high to low were: no littering, persuasion others, areas monitoring, and picking garbage from the canal. The important explained variables of the behavior in house-wife samples were: intention, self- efficacy (directed measure), awareness, and subjective norms (in directed measure), picking garbage from the canal. The important explained variables of the behavior in adolescent samples were: intention and subjective norms (directec measure).

Semi- urban environment

This zone was 12 kilometers long starting from Bangkapi District office to Minburi district. Land usage in the area was medium density. The quality of water as indicated by DO, BOD, and COD showed lower quality as compared to type 3 standard of surface water. Among 5 sampled communities in this zone, 3 of them were classified as high in community strength. The water conservation of house-wife and adolescent was moderate. Behaviors ranking from high to low were: no littering, persuasion others, areas monitoring, and picking garbage from the canal. The important explained variables of the behavior in house-wife samples were: intention, self- efficacy (directed measure), awareness, and subjective norms (in directed measure), picking garbage from the canal. The important explained variables of the behavior in adolescent samples were the same as of the housewife.

Semi- rural environment

This zone was 17.5 kilometers long starting from Minburi market to Nong Jok district.. Land usage in the area was medium-low density. The quality of water as indicated by DO, BOD, and COD showed lower quality as compared to type 3 standard of surface water. However water quality in Bangchan-Minburi and Minburi-Ning Jok districts were generally better condition- but not all parameter. Among 10 sampled communities in this zone, 8 of them were classified as high in community strength. The water conservation behavior of adolescent was moderate. Behaviors ranking from high to low were: no littering, areas monitoring, persuasion others, and picking garbage from the canal.

Analysis and synthesis of geographical data, economic data, and physical characteristics of water revealed that there were 3 groups of environments along Saen Saeb Canal: - 1) dense urban environment, from Sraket Temple to Bangkok District Office, a 14-km distance: land use along canal banks was in the range of medium-high to high, concentration of water was in the range of medium-high to high, contaminated-water drainpipes was high number at approximately 10 pipes per 1 km, with all day boat activities; 2) semi-urban environment, from Bangkok District Office to Minburi District, a 12-km distance: land use along canal banks was of medium density, concentration of water was in the range of medium-low to medium, with various use of water-related activities e.g. of agriculture, water consumption, and shipyards, number of water drainpipes was about 1 pipe per 1 km, with connecting ditches and canals; 3) semi-rural environment, from Minburi Market through Nong Jok to the perimeter of Bangkok Metropolitan, a 17-km approximate distance: land use along canal banks was of medium-low density, concentration of water was low, number of water drainpipes was low but with many connecting ditches and canals, water related activities was mainly agriculture, e.g. cage culture, in-water vegetable cultivation.

Water samples and chemical analysis of water quality in Saen Saeb Canal, were made 4 time periods: 1) in December 2000, 2) January-March 2001, 3) April-June 2001, and 4) July-September 2001. The results indicated indices of DO, BOD, and NH₃-N in between Sraket Temple - Bangkok indicated of water quality below the standard of type 3 surface water (water source from waste water of certain activities, can be utilized for utility and consumption after prior general sanitization and quality improvement processes). While water quality in Bangchan-Minburi and Minburi-Nong Jok districts were generally better condition - but not all parameter, This indicated that water quality in dense urban areas was lower than those of semi-urban and semi-rural areas. However this findings has exception regards to seasons, areas, and water quality parameters. The season effect was more obvious in rural areas than urban areas .

For total 30 sample communities along Saen Saeb Canal were examined by using strength-of-community indicative indices of: - 1) availability of public areas as communication channel, 2) number of activities or projects for communal benefits, 3) good relationship of people within community, 4) high degree of public mind, 5) leaders of strong character, i.e. attentive to opinion of community members, devoted and dedicated to the goods of community, charismatic and of high

moral principles, able to motivate people toward public-benefit works, no segregation between leaders and followers, with ability to contact outside agencies for external funds and support, and with fully-cooperative committee members, 6) strong relationship between people and institutions, and 7) high proud of the community. The study indicated that 16 communities showed high and medium-high community strength. Of these 16 communities, only 9 communities were with information regarding water conservation behaviors. Correlation was found between strength of community and behavior of community-members in preservation of water source, approximately at 77.7% (housewife group) and 44% (youth group)

In addition, the result of research sub-project analyzing the communities success in Saen Saeb Canal conservation revealed that success of Saen Saeb Canal conservation works depended on 3 main factors: -

1. Conditions impetuous to people's collaboration. The two conditions concerned were 1) community leaders were conscientious to resolve problems with Saen Saeb Canal, leaders were charismatic, command respect and confidence of the community people, and 2) people having long attachment to Saen Saeb Canal witness the changes as water in Saen Saeb Canal becomes contaminated.

2. Process of people's collaboration arised from voluntary action, inner motivation, with continuous development of shared public mind, continual expansion of group, initiation of activities related to community occupation, youth's learning, religious practices, community tourism, and forming of network with organizations outside community.

3. Leaders roles in all process phases: - in administration, conflict management, coordination, and in knowledge transfer.

For explanation and prediction of water-source conservation behaviors with variables from Planned Behavior Theory and related research works on conservation of natural resources, research results were summarized as follows:

First, research results revealed that key variables that had overall effects (direct and indirect) on the degree of water conservation behavior were intent on water conservation, realization of behavioral control capacity -directly and indirectly measured, inclination toward referenced groups concerning water conservation behaviors -directly and indirectly measured, and awareness of water conservation. Second, realization of control capacity on water conservation behaviors was overall a very influential variable on water conservation

behaviors in housewives, next to intention on water conservation. Third, inclination toward referenced groups concerning water conservation behaviors -directly and indirectly measured, and intent on water conservation had direct effect on water conservation behaviors. Fourth, awareness of water conservation, inclination toward referenced groups concerning water conservation behaviors -directly measured, and realization of control capacity on water conservation behaviors -directly measured, had direct influence on intent on water conservation. Fifth, realization of control capacity on water conservation behaviors -indirectly measured, inclination toward referenced groups concerning water conservation behaviors -indirectly measured had direct influence on realization of control capacity on water conservation behaviors -directly measured, inclination toward referenced groups concerning water conservation behaviors -directly measured.