

Chapter 7

Formative Research

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Although it provides the program manager with basic information, a rapid assessment is only rarely sufficient for designing a program. Formative research comes next.

Formative research is conducted in the early stages of designing an environmental education or communication program to define: the target audience(s), the convincing messages for each audience, the packaging of the messages, the media mix, and the ideal frequency of exposure to the message. Participation of stakeholders in formative research contributes to producing a higher quality research project by keeping the focus on issues important to the community.

Formative research helps the practitioner:

- ◆ Identify behaviors to promote.
- ◆ Identify the knowledge and barriers, or the facilitators to, desired behaviors that messages need to either overcome or strengthen.
- ◆ Identify central themes and messages comprising EE&C interventions

Behavior identification involves selecting among the ideal behaviors. All ideal behaviors may not be possible. Reality checks should help determine which ideal behaviors are possible in certain contexts. Long lists of ideal behaviors may be reduced to shorter lists on which EE&C interventions can focus.

Once target behaviors have been identified, their *external and internal determinants* must be defined. External determinants include contextual factors that may influence whether or not people will adopt the desired behavior. They could include public policies supporting specific actions or access to technology and products. Internal determinants include: knowledge, beliefs about what the adop-

tion of target behaviors will or not help accomplish, beliefs about social norms that exert pressure on individuals to adopt or perform those behaviors, and the skills necessary to perform them. The study of internal determinants requires comparing “doers” and “non-doers” of the target behaviors, and also requires comparison by gender.

FORMATIVE RESEARCH IS...

Formative research is any research that helps define the content of an intervention. It may be either primary or secondary research, and can be qualitative or quantitative. Often, secondary research is undertaken first to find out what previous initiatives others have done about the same issue and try to understand the barriers they encountered. Once that step is completed, primary research, strengthened by adding the results of earlier efforts, may be conducted.

The importance of formative research is reflected in the questions it can answer:

- ◆ Who are the target audiences?
- ◆ What messages will be conveyed to each one of those audiences. What major themes will be addressed, what do we want people to know and/or do, what convincing evidence will be presented to support the messages?
- ◆ How will the information be packaged? Who will present the messages? What format will be used to present them?
- ◆ Through which channels will the information be conveyed?
- ◆ When should the messages be disseminated and how often should they be repeated, particularly if mass media are used?

Communicators often begin with a promotional idea that may not influence behavior, and may in fact be a waste of time and money.

FORMATIVE RESEARCH IS NOT...

Formative research is not “baseline research,” which is part of an evaluation strategy generally using a pre-test/post-test design to assess the effects of an intervention. Baseline research occurs before program implementation to assess target audience attitudes about particular messages. It should not be conducted to help make decisions about program content or the audience itself.

STAKEHOLDER PARTICIPATION

Stakeholder involvement is an important element of formative research and can take place in a number of ways. Stakeholders can participate in all stages—setting up research objectives, developing research instruments; and collecting, analyzing, and interpreting data. Their participation in any of these phases usually contributes to a higher quality product.

The major advantages of stakeholder participation include developing an appropriate research agenda, ensuring action-oriented research, obtaining more trustworthy information, developing information ownership, and correctly interpreting collected data. All this information will be used to translate research findings into workable EE&C programs.

STEPS FOR FORMATIVE RESEARCH

To reach its objectives, the design of an EE&C program requires several basic steps; the first three are described in this section.

Step 1: Identify Behaviors

GreenCOM recommends that intervention planners start with identifying what behaviors to promote. Communicators often begin with a promotional idea that may not influence behavior, and may in fact be a waste of time and money. If the purpose of the intervention is to change behavior, the first design step is identifying what the target audience is expected to do. For example, while the short life span of a landfill may be important to the experts, the general public will probably not find

this knowledge useful. Information about *how* to recycle, presented in the context of why it is important, may be the primary need.

Identifying the desired behaviors will facilitate both choice and segmentation of audience. Traditionally, audience segmentation has focused on socio-demographic and socio-economic variables. However, segmentation, based on environmentally-friendly or unfriendly behaviors currently in practice, offers the opportunity for more focused EE&C programs. For example, people who have tried to recycle household waste may need different messages than those who have never recycled.

Step 2: Study the Behavioral Factors

Understanding the factors that facilitate or hinder the performance of behaviors—including what the audience knows, believes, and cares about the issues—is the second step. A theoretical framework is used to establish the formative research parameters (see Chapter 2). Factors to be considered may be external or internal to the individual—external may include policies, institutional support, availability of a given product, or market incentives, while internal may include knowledge or skills, social norms, and perceptions of individuals about what others want them to do. These become the behavioral motivators that EE&C programs can affect.

Depending on available findings and the complexity of the task, the second step may be divided into two stages. During the first stage, qualitative research can help identify the range of relevant external and internal behavioral determinants. This phase may employ in-depth individual interviews using a semi-structured instrument and open-ended questions, or use focus group discussions and rapid appraisal techniques.

Data obtained during this stage can be used to construct closed-question surveys to obtain additional information from individual respondents. The findings are then used to obtain further information from target population samples. Statistical analysis of the data can help identify which factors predict the behaviors. For example, are the behav-

iors predicted by internal or external factors? In either case, which play a predictive role?

Quantitative research techniques can help explore and test the validity of “hunches” identified during a qualitative research phase. The statistical analysis will provide clarity and enable program managers to establish quantitative links between the behavioral determinants and the behaviors, as well as determine the magnitude of these relationships. This will help prioritize and select the determinants for use in the EE&C program. Consequently, results of this analysis are essential in identifying and developing message content.

Step 3: Identify Central Themes

The third step is to identify the central program themes. These may be common denominators for different aspects of the intervention that provide the context for the behaviors to be promoted. For example, a recycling program may develop a theme that conveys the importance of neighborhood improvement, or of health and cleanliness (see Box 7.1).

Communications materials promoting the central theme(s) are then produced. Normally, rough versions of those materials are pre-tested to make sure that they are understood by the target audience(s) and are sufficiently persuasive. Although some may consider this research “formative,” it is described under

BOX 7.1

Formative Research Identifies Theme

In Machala, Ecuador, researchers developing a recycling program asked participants in a formative research study to indicate whether household waste was a problem and, if so, why. The responses were grouped into three categories: health, aesthetics, and environmental pollution. Respondents said that waste either attracted flies and rats that cause disease, or was directly responsible for people getting sick. For example, if they walked through rotting waste, got home, untied their shoes, and touched their eyes, they could end up with an eye infection. The health-related concerns were mentioned more frequently, particularly among the poor who comprised the majority of the population and lived in neighborhoods where

daily, nearly 45 metric tons of solid waste accumulated in vacant lots.

As a result, researchers suggested to program designers that health maintenance was the most important factor for the audience in resolving the solid waste problem. Consequently, the new waste collection services could be positioned as a contribution to the health of the population. With this in mind, “Better Health for All” was considered a possible central theme to serve as a consistent thread throughout the communications messages and materials (e.g., posters, flyers, brochures, decals, radio spots).

Because research also showed that a waste collection system associated with the municipality would be better accepted by the audience, the

messages could also stress that the municipality was providing the waste collection service.

Research also showed that the most outstanding benefit residents saw in an expanded curbside waste collection service was the reduced “cost” in terms of effort and time by putting out the waste on the sidewalk in front of the house, instead of taking it to a transfer station. As a result, the messages to be disseminated through the intervention could revolve around the following ideas:

To ensure better health for all, use plastic bags to dispose of your waste and place it on the curb twice a week to be picked up by your friendly waste collector working for the municipality. You will save time and effort.

pretesting in Chapter 8. A final evaluation should be conducted after the program is implemented.

SELECTING BEHAVIORS

Planners can use several methods to create a list of actions. GreenCOM has used two techniques: 1) consulting experts and 2) forming a team of stakeholders. Two cases illustrate the approaches.

Selecting Behaviors for a Multi-Media Campaign in El Salvador

In 1995, research was conducted in El Salvador to support the development of a multi-media campaign to increase environmental awareness among the general public. As part of this exercise, six major unifying topics under consideration were pre-tested. One of the first findings was that the target audience was interested not only in understanding the magnitude of typical environmental problems in El Salvador, but also in having a sense of what could be done to tackle them. As a result, public and private sector representatives with extensive environmental experience met to determine actions that the general public could perform that would have a positive effect on the environment.

The meeting generated a list of 46 actions, divided into three categories, that could be implemented by: 1) everyone 2) urban dwellers and 3) rural residents. To determine their viability, eight focus groups were conducted with men and women representing the rural, peri-urban and urban dwellers from three regions of the country (i.e., Western, Central and Eastern). Focus group participants were asked to rate the proposed actions into three categories: “easy to do,” “not so easy,” and “difficult.” They were also asked to explain the reasoning behind their choices.

As a result of this exercise, 20 of the 46 actions were classified as feasible (see Table 7.1). Criteria used by study participants to determine feasibility were:

- ◆ Extent to which actions generate personal gains and easily become new habits.

Table 7.1 List of Viable Environmentally Friendly Actions from El Salvador

Target Audience Actions (In Descending Order of Viability)

General Public

- ◆ Turn off unneeded household lights
- ◆ Take care of trees you planted
- ◆ Protect wildlife and don't buy wild animals for pets
- ◆ Carry a plastic bag for trash generated when driving
- ◆ Empty trash bags in cars at gas stations

Urban Dwellers

- ◆ Save water by turning off faucets when not using them
- ◆ Save water by sweeping, not washing your floors
- ◆ Take out the garbage when the garbage truck comes
- ◆ Discard snack wrappers in trash bins
- ◆ Put trash in the bins and cans provided in public areas
- ◆ Iron only twice a week to save electricity
- ◆ To save gas, start your car when everybody is seated
- ◆ To save gas, check the tire pressure when buying gas
- ◆ To save gas, tune up your car periodically

Rural Residents

- ◆ Learn to trim trees for firewood
- ◆ Put out fires after cooking
- ◆ Use crop debris instead of wood for fires
- ◆ Bury garbage instead of burning it
- ◆ Bury your garbage instead of throwing it in the river
- ◆ Wash fumigation tanks away from rivers
- ◆ Take soap wrappings home after washing in the river

- ◆ Time and effort required for implementation.
- ◆ Cultural acceptability and financial implications.

Selecting Behaviors in a Sustainable Land Use Program in Ecuador

An ecological reserve in northwest Ecuador, Cotachi-Coyapas covers more than 200,000 hectares and ranges from 100 to almost 5,000 meters above sea level, representing multiple ecosystems (Booth, 1996). USAID funded a sustainable land use pro-

gram, the SUBIR Project, with buffer zone residents in the southeast of the reserve. One program objective was to limit agricultural expansion in the reserve by promoting intensive use of existing agricultural plots. A multi-disciplinary team—project staff, local counterparts, representatives of community groups and local farmers—identified 27 ideal behaviors that farmers in the area should implement. However, after observing which behaviors have been adopted and the reasons for their adoption, the list was expanded to include a total of 30 behaviors. Many of the original ideal behaviors were fine-tuned to fit the local conditions. The final list of behaviors negotiated with extension agents after the field observations of farmers appears below.

Through a series of workshops and meetings, the multi-disciplinary team defined the overall goal and five objectives of the project, as well as the ideal behaviors for each of the five objectives. Research was then conducted with the target audience to answer two questions:

- ◆ What difference exists between ideal and actual behaviors, if any?
- ◆ What factors have influenced farmers implementing the ideal behaviors to adopt them and what factors have prevented non-adopters from doing so?

Two research instruments were used: structured observation and in-depth interviews. Structured observations were done using an Ideal Behavior Observation List. Fortunately, most of the ideal behaviors—such as where and when to plant, and how pesticides were used—could be observed; only a few required verbal reporting. The Observation List was pretested in the field before final use. Members of the multi-disciplinary team, including farmers, collected the data. An in-depth interview guide was developed and researchers were trained in interviewing techniques. The training addressed issues such as how to begin and end an interview, questioning and probing techniques, and nonverbal communication.

The pre-test of the instruments demonstrated that it took more than one person to conduct an interview. Consequently, interviewers worked in pairs:

one person was the interviewer and the other the note-taker. After each interview, the pair reviewed the observations and notes, compared what had been seen and heard, and arrived at agreements. Two communities in the buffer zone were selected based on the following criteria: altitude (lower vs. higher), concentration of households, and amount of time where the project had worked in the community (“old” vs. “new” communities).

Because the list of possible ideal behaviors was long, a decision was made to select project participants and non-project participants in each community. A total of 18 participating farmers were interviewed; equal numbers for project and non-project participants were retained. Thirteen respondents were male and five were female. Results were graphed and analyzed by the multi-disciplinary team.

From these observations, behaviors were selected in two workshops with the participation of local farmers. In the workshops, researchers shared the findings and their recommendations based on the application of a behavioral analysis scale. Discussions at the workshops helped decide what behaviors to focus on and helped fine-tune those behaviors (see Table 7.2).

IDENTIFYING BEHAVIORAL DETERMINANTS

Identifying the relevant determinants is an important step in developing an effective EE&C program. As seen in Chapter 2, different theories about behavior change have different assumptions about which factors are most powerful in influencing an individual to start a new behavior. Through focus groups and interviews, GreenCOM can better understand the audience and the determinants of their behavior. As noted earlier in this chapter, external determinants may be policies and regulations, access to materials, and availability of products or services. Internal determinants include an assortment of variables, such as knowledge, attitudes, social norms, skills, and competence.

Identifying determinants is a bit easier when comparing information from the selected behaviors’

Table 7.2 List of Behaviors Promoted by Sustainable Land Use Program in Ecuador

<p>Specific Behaviors</p> <ul style="list-style-type: none"> ◆ Pest and Disease Control: prepare the soil 20 days before planting ◆ Lay prepared soil fallow for a minimum of 20 days 	<ul style="list-style-type: none"> ◆ Plant crops on the contour ◆ Plant commercially viable fruit trees or forestry species, establish live fences on the contour within the plot
<p>Use pesticides and fungicides as follows:</p> <ul style="list-style-type: none"> ◆ January to May: products with blue labels ◆ June and July: combine organic and green labels ◆ August and September: only organic ◆ October and November: combine organic and green labels ◆ Rotate short-cycle crops 	<p>Soil Quality Maintenance</p> <ul style="list-style-type: none"> ◆ Incorporate organic material in soil preparation ◆ Incorporate organic material during the growing season
<p>Fertilization</p> <ul style="list-style-type: none"> ◆ Use chemical fertilizer only after a soil analysis indicates it is necessary in the minimum quantities recommended mixed with organic fertilizers ◆ Cultivate at least three ecologically compatible crops ◆ Cultivate at least three income-generating crops ◆ Cultivate at least three crops for family consumption 	<p>Multiple Use Forestry</p> <ul style="list-style-type: none"> ◆ Do not cut down forest to cultivate grass or crops
<p>Soil Conservation</p> <ul style="list-style-type: none"> ◆ Open fire breaks before burning land for cultivation ◆ Burn only the areas to be planted immediately ◆ Burn fallow land against the wind ◆ Do not burn stubble 	<p>Management</p> <ul style="list-style-type: none"> ◆ Cultivate existing agricultural fallow land instead of opening forest areas
	<p>Water Conservation</p> <ul style="list-style-type: none"> ◆ Keep trees for 50 meters around springs ◆ Keep trees for 10 meters along river and stream banks
	<p>Guinea Pig Management</p> <ul style="list-style-type: none"> ◆ Raise type one (purebred) guinea pigs ◆ Raise guinea pigs in cages ◆ Feed guinea pigs: ground corn, king grass, sugar cane or corn leaves, and salts and minerals ◆ Pick the best of a litter for future breeding ◆ Put maximum ten females with one male

“doers” and “non-doers.” The two following cases from Ecuador and Egypt suggest how to locate doers and non-doers, what questions to ask them, and how to analyze the resulting data to reveal the behavioral determinants.

Waste Separation: Doers and Non-doers in Quito, Ecuador

In 1993 the Municipality of Quito initiated a pilot recycling program in 11 inner-city neighborhoods. The program required participants to separate garbage into three categories: organic kitchen waste, recyclable paper, plastic, glass and metal trash, and non-recyclable wastes. Waste was collected by type

on different days. Neighborhood micro-enterprises were responsible for garbage collecting and disposal, reducing the cost of transporting the waste to a landfill outside Quito. Some micro-enterprises used organic waste to produce compost and sold recyclable waste to intermediaries.

However, recycling rates dropped over time in the neighborhoods that had participated the longest in the program. GreenCOM’s study explored ways to reverse these deteriorating recycling rates.

The study was conducted in four neighborhoods. Selection criteria included socio-economic level, access to alternative garbage collection systems, and population density. Qualitative data were gathered through focus group discussions

Non-doers viewed waste separation as a hard, time-consuming, and dirty task.

with neighborhood committee members, in-depth interviews with micro-enterprise managers, and focus group discussions with household residents in both program control neighborhoods. Table 7.3 lists the interview questions. Pilot program participants were divided into two subcategories: doers (who followed the collection regime) and non-doers (who did not). Individuals were assigned to a category based on information from their garbage collectors and verified by a research team examining content of curbside garbage put out for collection by the micro-enterprise collectors.

The study revealed that perceptions about waste separation could be grouped into four areas of concern: financial, development-related, self-growth and self-image, and the time and effort required to separate waste.

Followers differed from non-followers on a number of beliefs such as the benefits of sorting waste for recycling. Doers perceived waste separation as a fast process that made handling waste easier, since wet and dry garbage were deposited in separate containers. Non-doers viewed waste separation as a hard, time-consuming, and dirty task. Non-doers had the misperception that separation occurred after different waste products had been deposited in one container. For them, separation implied sticking their hands in the garbage to separate the waste. In addition, a striking contrast between doers and non-doers was the role attributed to self-image. For the former, waste separation gave them a positive image with neighbors and family members. For the latter, waste separation was a demeaning task fit only for scavengers.

Findings from a subsequent quantitative study, using a pre-coded questionnaire with a sample of residents from neighborhoods participating in the pilot program, revealed that social pressure to separate wastes is part of the mix of determinants. However, the sources of that social pressure vary by gender. While social pressure from neighbors is a predictor of waste separation for men, social pressure from both neighbors and family members is a predictor for women.

Table 7.3 Formative Research Questions asked in Quito

- ◆ How would you define waste?
- ◆ What types of waste are there?
- ◆ How many places to dispose of waste are there in your house?
- ◆ Where are they located in the household?
- ◆ What types of waste disposal containers do you use in your house?
- ◆ Who in your household is in charge of handling the waste?
- ◆ What happens to the waste you dispose of? Where is it taken?
- ◆ What does it mean to separate waste?
- ◆ Why would one separate waste?
- ◆ How does one separate waste?
- ◆ Is waste separation practiced in your house?
- ◆ Who does it?
- ◆ What advantages do you see in separating the waste?
- ◆ What disadvantages do you see in separating the waste?
- ◆ How do you get rid of cardboard? Newspapers? Glass? Metal? Plastic? Kitchen waste? Bathroom waste?
- ◆ What made you get rid of cardboard that way? (Same questions with newspapers, glass, metal, plastic, kitchen waste, and bathroom waste)
- ◆ Who has say in how you dispose of the waste generated in your house? Who else?
- ◆ Who would approve of us separating waste?
- ◆ Who would approve of giving different types of waste to collectors on different days? Who else?
- ◆ Why?

Efficient Water Management: Doers and Non-Doers

GreenCOM helped the Ministry of Public Works and Water Resources (MPWWR) in Egypt implement a campaign to make the general public and farmers aware of a nationwide water scarcity. For centuries, the Nile River had provided Egypt with an abundance of water. However, with the construction of the Aswan High Dam, Egypt agreed to share the

waters of the Nile through a pact with neighboring countries. The amount of water Egypt can release from the High Dam is now 55.5 BCM (billion cubic meters) per year. As a result, in the past 10 years Egypt has gone from having a water surplus to a water deficit. The nation now finds itself using more water than the treaty allows, necessitating the reuse of water that is not overly polluted.

MPWWR requested assistance from GreenCOM to develop a communication intervention based on the concept that Egypt had a fixed amount of water available and, as the population increased, each individual share would be more limited. This strategy was to serve as a base for future interventions directed at helping users conserve water. The basic assumption of the first campaign was that increased awareness about water scarcity would lead to the adoption of water use efficiency and conservation practices by farmers.

Formative research was conducted to guide decision-making for the first campaign. GreenCOM trained staff from the Water Communication Unit (WCU) of the MPWWR in qualitative research methods, data analysis, and interpretation. Data were analyzed and interpreted by staff with guidance from GreenCOM.

The research was conducted in three cities in different regions: Damietta, Al Fayyum, and Aswan, with each region having different levels of access to irrigation water. Data were obtained through focus groups and in-depth interviews with both male and female farmers interviewed separately in each region.

Prior to conducting the research, MPWWR technicians suggested that the communication intervention focus on the following topics:

- ◆ The Koran tells us that water should be used wisely
- ◆ Egypt has limited water sources, the Nile is the major source
- ◆ Past droughts have had negative consequences on agriculture in the Nile River
- ◆ Basin Water supply is fixed by treaty to 55.5 billion cubic meters per year
- ◆ Demand for water has increased over time, given a growing population in Egypt

- ◆ The increased demand comes from different sources: industry, farmers, and domestic users
- ◆ Per capita consumption of water in Egypt is different from that of neighboring countries
- ◆ Water scarcity in the past has been associated with wars in the region. Future regional conflicts could also be associated with water scarcity
- ◆ Several policies and projects have been implemented by the public sector to conserve water and prevent water pollution
- ◆ Irrigation water overuse may not increase productivity, yet it may reduce water availability and aggravate water scarcity

The formative research was designed to find out whether farmers were already engaged in water conservation practices, the role that awareness about water scarcity played in motivating farmers to perform those practices, and to identify what other psycho-social and contextual factors influenced farmers' decisions to conserve water.

The research indicated that farmers were already highly aware of national and local water scarcity problems and had established the connection between the two. Study participants were also acutely aware of how the water supply had changed in recent years, the problems around water pollution; and the impact of population growth on water resources and food security.

Research results also indicated that local issues about water scarcity had the strongest influence on decisions farmers made about water use. Furthermore, water conservation and water management practices were known and had been adopted. They included: irrigating at night to reduce evaporation, leveling the land to facilitate water flow, choosing crops that require less water, and cleaning irrigation canals to facilitate water flow.

According to the research results, the major motivations for the doers included taking care of growing family needs, self-sufficiency, and food security for family members. Farmers practiced these methods because they wanted to conserve water for the future to meet growing family needs. They valued self sufficiency in food and water for the family.

Based on these findings, researchers developed a set of new messages that reflected the motivation of the Doers, the farmers who were already carrying out the desired behaviors. They also eliminated some messages from the original list because the farmers did not relate to them. Table 7.4 shows the new messages as well as the messages retained and eliminated because of the formative research.

Formative research contributed to developing the messages conveyed through this campaign and helped program staff see the need to modify their original messages. In addition to helping create a more effective communication campaign with messages that resonated with the intended audience, formative research saved the project time and money by limiting topics.

GENDER CONSIDERATIONS

While the importance of gender considerations in program design are more fully addressed in Chapter 4, it is important to keep in mind that behavioral determinants may differ for men and women. It is imperative, therefore, that data be collected from both men and women separately and that a gender analysis be conducted to determine differences. Multi-disciplinary program teams should, of course, include both men and women—it is important to compare not only “doers” and “non-doers,” but also female “doers” and “non-doers,” as well as male “doers” and “non-doers.” Interventions need to be sensitive to the concerns of both men and women, since messages designed to persuade one group may not necessarily speak to the other.

The importance of understanding different gender perspectives was made clear in GreenCOM’s experience with a waste collection project in Quito, Ecuador, presented earlier in this chapter. An analysis of results obtained through formative research to design a recycling intervention in that city revealed contrasting results for men and women. The major differences observed by gender were connected to the following issues: who reaps the benefits of recycling, the self-image that waste separation enhances, and the health implications of

Table 7.4 How Formative Research Changed the Campaign Messages

New Messages Developed through Formative Research

- ◆ Conserve water for the secure future of your family
- ◆ Enough water means enough food for your family: conserve water now

Messages Retained from the Original List

- ◆ The Koran tells us that water should be used wisely
- ◆ Egypt has limited water sources, the Nile being the major source
- ◆ Past droughts have had negative consequences on agriculture in the Nile River
- ◆ Basin Water supply is fixed by treaty to 55.5 billion cubic meters per year
- ◆ Demand for water has increased over time, given a growing population in Egypt
- ◆ The increased demand comes from different sources: industry, farmers, and domestic users
- ◆ Irrigation water overuse may not increase productivity, yet it may reduce water availability and aggravate water scarcity

Messages Dropped from the Original List

- ◆ Per capita consumption of water in Egypt is different from that of neighboring countries
- ◆ Water scarcity in the past has been associated with wars in the region. Future regional conflicts could also be associated with water scarcity
- ◆ Several policies and projects have been implemented by the public sector to conserve water and prevent water pollution

waste separation. Men believed that if their family participated in the recycling program, outsiders would obtain the revenue from recyclable sales. The implication was that those funds should be collected by the members of households where the waste was generated.

Women, on the other hand, believed that recycling would generate funds for use in neighborhood development projects and supported the program on those grounds. Whereas men believed recycling to be a demeaning task, women generally

felt that recycling would foster their image as industrious neighbors, and, for their relatives, as responsible family members fulfilling their household duties.

Most men did not mention the health implications of separating waste. Women noted that waste separation eliminated vectors and odors and made their houses look prettier. Women against the program also mentioned health implications, particularly with respect to bathroom waste. For them, the program required retaining that type of waste too long in the household, a measure believed to be unhealthy. Surprisingly, women also showed a knowledge of how recycling could benefit the country's economy, such as the fact that providing recycled materials to industry could diminish the demand for imported material, and that recycling

could contribute to national development. Neither of these two benefits was suggested by men.

In general, men appeared to be more critical than women. However, women critical of the program expressed opposition for different reasons: the expense of plastic bags, a perceived intrusion into household management, and forced collaboration with neighbors they disliked.

The implications of these results were obvious, as the program had to pay particular attention to men, and to try to bring them on board with the program objectives.

References

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