

Acknowledgements

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The Center for Environmental Strategies is delighted to have had the opportunity to help the field of environmental education and communication grow and to share lessons learned in this publication and in many others created over the life of the contract. Most of these products (including this publication) may be downloaded free of charge from the project's Web site, www.greencom.org.

On behalf of AED, the Center for Environmental Strategies, and the staff and consultants who have worked on the GreenCOM project, we wish to express our gratitude for the opportunity to be involved in global environmental education and communication.

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GreenCOM
Strategic Environmental Communication

The Center for Environmental Strategies would also like to thank the dozens of staff members who served the GreenCOM project, both those who worked in Washington and those who made the project possible by their dedicated work in the field. GreenCOM was blessed with an incredible array of dedicated professionals who made this program successful. Their creativity, professionalism, and passion for their work enabled our project to examine, innovate, and experiment with a wide variety of education and communication strategies that addressed a broad set of issues scattered across the globe.

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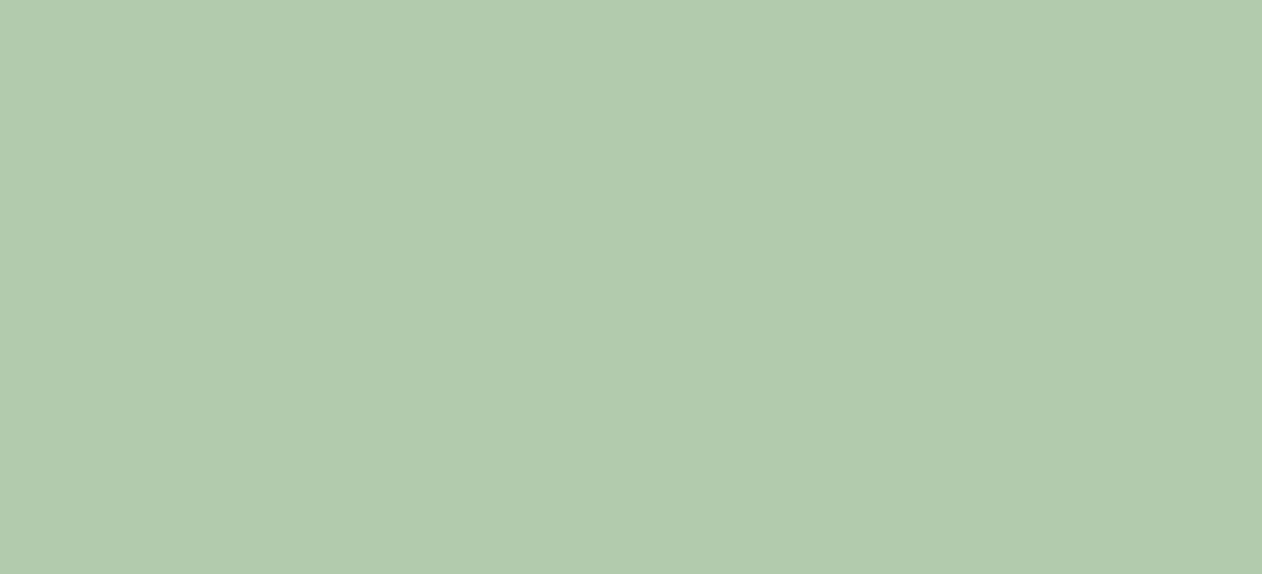
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EE&C builds on and incorporates the

crafted and systematic methodology that is driven by research and rooted in science.

GreenCOM's experience demonstrates that effective EE&C is based on behavioral science. As mentioned earlier, EE&C is a methods-driven profession that utilizes research and public participation to guide strategies and generate measurable results. With adequate assessment, funding, and evaluation, EE&C will produce specific results.

Yet EE&C is also an art and the artist's creativity flourishes all the more within this scientific framework. The profession requires clever, innovative thinking in order to compete with the myriad messages and advertisements bombarding people

From its involvement in more than thirty countries, GreenCOM has learned some simple lessons that are fundamental to EE&C and can be generalized across projects:

Successful EE&C is a dynamic process, not a one-time event

As the section on the communication process emphasized, successful environmental education and communication results from following five practical and systematic steps: assessment, strategic design and planning, pretesting, implementation, and monitoring and evaluation. This process is essential for sustainability because it develops local capacity and increases the participation of diverse stakeholders.

Many people who work on environmental and natural resource projects may be concerned that they don't have the time or money to invest in environmental education and communication. In reality, however, EE&C interventions are time-efficient and cost-effective. For example, information learned in the assessment

stage—which many managers cannot imagine allowing time for—actually pays for itself rather quickly by giving decision makers and practitioners vital information that helps them avoid costly miscalculations of what will work in their particular location. Such information may include identifying the individuals most likely to change their behavior early on (so-called early adopters), spotting potential project champions and leaders, and learning which local entities will anchor project activities while also growing in their own management capabilities. It should be stressed that using a systematic process does not obliterate the element of creativity or fun from EE&C! Instead, it gives practitioners the stability necessary for innovation to bloom.

Frequently there is great urgency or even pressure to dive in and develop a curriculum, brochure, or television spot (in other words, to create a one-time event) without first assessing what is really going on and developing a comprehensive strategy. Many practitioners leap directly into implementation, bypassing audience assessment, strategic planning, and the pretesting of materials and products. However, following the five-step process greatly enhances the probability that the project will be successful and sustainable.

Successful EE&C focuses on changing behavior

Awareness is not enough. Nor are information and education by themselves sufficient to cause behavior change. Experience gleaned from hundreds of behavior change programs around the world has shown that raising public awareness about a problem or issue does not ensure that people will act on their new knowledge.

Simply put, people don't always act the way they know or believe they should. The biggest gap in human behavior exists between what people know and what they practice (see box "What Is an Environmental Practice?"). For example, how many urban centers around the world have anti-littering campaigns with posters, billboards, and trash barrels instructing citizens not to litter? Yet city streets and sidewalks remain covered with paper products, plastic wrappers, and garbage.

So what makes some people take action to protect their water, forest, air, or wildlife? It depends on *who* is taking *which action*. The reasons why people engage in varied environmental actions—recycling, practicing sustainable agriculture, or adopting cleaner production technologies—will be very different. Successful EE&C focuses on understanding not only which actions help the environment but also the specific factors that influence people to take those actions.

Successful EE&C involves people

EE&C is a people-centered process. It starts with listening to the people who will be involved in the environmental practice to understand what they know, what they

with local people to show them how to obtain the maximum benefit from the new system to store solid waste and keep their communities clean and healthy. Launching a communications campaign without assuring that technical services are in place or that a policy will be enforced results in negative repercussions later on. EE&C, therefore, must be integrated with other strategic tools, such as policy, technology transfer, and capacity building in order to be effective and sustainable.

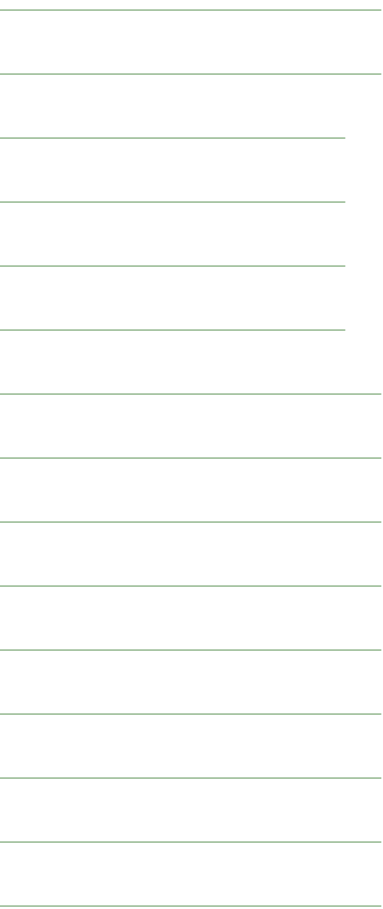
Successful EE&C is multidisciplinary in its approach and implementation

Successful EE&C integrates social marketing, public participation, behavior change, policy formulation, research, training, advocacy, partnership development, and new information technologies such as the

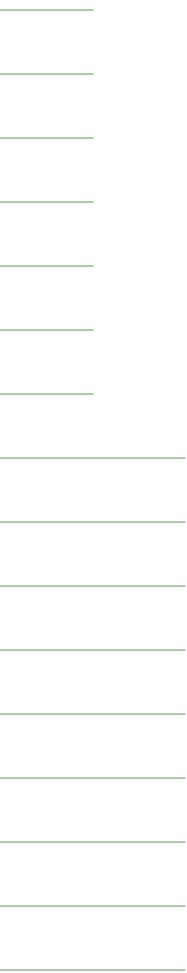
Internet to generate maximum impact and results. For example, EE&C practitioners work closely with multidisciplinary teams of scientists (such as biologists and ecologists), technicians (such as extensionists and foresters), the private sector (production engineers and CEOs, for instance), and representatives of local stakeholder groups (including average citizens, consumers, and civic and religious leaders). Each discipline and perspective provides important guidance to the development and implementation of effective EE&C.

The preceding pages provided a general overview of environmental education and

Politics, personalities, preferences, power structures. These are just a few things that must be understood before an EE&C intervention begins. Effective education and communication places a priority on first *listening to people* about



In Egypt, GreenCOM worked with the Ministry of Public



Assessments don't need to be complicated, costly, or lengthy. A range of experiences has shown the value of using innovative assessment techniques that involve local groups in ways that build environmental support (advocates) and provide ample training opportunities.

In sum, an assessment is a reality check. And reality may prove to be very different from how project managers perceive it. For instance, technical specialists frequently tend to think that if they just tell people the facts and stress how important their cooperation is to the world, the environment, the government, the economy, or their community, then people will comply. But people usually have very good reasons for behaving as they do. Most people base their actions on more personal, and often less visible, reasons that managers, planners, and decision makers may not understand or address without an assessment.

Therefore, an EE&C assessment can help to ensure that a project is well designed and actually produces the intended outcomes for various stakeholders or beneficiaries. Although it is tempting, don't make the mistake of jumping straight into planning, design, or implementation.

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Lesson 2. Ask the Right Questions

Assessments can focus on six basic questions:

1. Which **action(s)** could people take to make a difference for a specific environmental or natural resource management issue?
2. Which specific **group of people** (or target audience) should take these actions to address the environmental problem?
3. What are the **perceived barriers** that prevent the target audience from taking these actions? What are the **perceived benefits** they would receive if they changed their behavior? Why is it in the best interest of the target audience to take these actions? How can the barriers be lowered and the benefits increased?
4. What is the target audience presently **doing instead of** the preferred actions? What are the barriers they perceive if they were to change their behavior? Which benefits do they feel they would be giving up?

ASSESSMENTS PERMIT
IMPLEMENTERS TO
EXPLORE THE REAL
PROBLEMS, BARRIERS,
AND OPPORTUNITIES
THAT NEED TO BE
ADDRESSED.

5. What is the best way to reach and involve the target audience? What are the best time and place to do so? Which media do they use to receive information? Who or what are credible sources of information? Which groups and individuals most influence the target audience, and how can they be involved in the strategy? Which combination of mass media, interpersonal communication, folk media, and print materials should be used?

6. Which other groups and individuals should be involved *as partners*?

Answering these questions means first looking at the big picture—the overall contextual factors (social, economic, cultural, and political) as well as environmental conditions—and then tailoring the most feasible and effective strategy to employ within that context.

Comparing doers (people who are currently practicing an environment-friendly behavior) and non-doers (people who are doing something else) is a cost-effective way to help shape feasible and effective strategies. Why do the doers practice environment-friendly behaviors? What motivates them? Why do non-doers behave in other ways? The differences between the two groups often hold the key to change and may become the focus of the EE&C plan of action.

- project appropriateness
- application of research results to solve the problem, not just to collect information
- validity of the information gathered
- local ownership of the information
-

UNDERSTANDING
DIFFERENCES IN
MEN'S AND
WOMEN'S NEEDS
AND PERSPECTIVES
IS SOMETIMES
PIVOTAL TO
SUCCESS.

which to base the EE&C strategy; understanding differences in men's and women's needs and perspectives is sometimes pivotal to success.

> ***Involve women and make sure they receive benefits from their participation.*** Throughout the developed and developing world, women have demonstrated their eagerness to become involved in activities that will improve conditions for their families and communities. However, women are often underrepresented when it comes to decision making at the local government level and in community-based organizations. Even when they are involved, at times they don't receive the benefits (economic, educational, job, and decision making authority) that male participants receive. Gender inclusiveness may be difficult and require special effort when working in traditionally male-dominated cultures, but it pays off. Conducting a gender analysis to see whose roles change and how negative impacts might be mitigated leads to increased success of the activity. Some of the ways EE&C practitioners can strengthen women's involvement include: holding meetings, events, and training at times that are convenient for women; working with women in groups rather than individually; providing sufficient time for women to reach consensus on a particular issue or action to be taken; and ensuring that women receive benefits from their work, including improved access to and control over social services, training, and environmental and economic resources.

> ***Design strategies, materials, and messages specifically for women.*** Literacy levels of women in developing countries are often much lower than levels for men. Women are frequently less fluent in the national language, speaking only the dialect of their local area. In some countries, women also have fewer opportunities than men to view printed materials, so they aren't always familiar with the conventions associated with pictorial literacy such as symbols, perspective, and close-ups. Women are also not a homogeneous group. For example, teenage girls, rural farmwomen, and urban professionals may need specific environmental messages delivered through different communication channels. Good EE&C materials feature women and girls in ways that demonstrate their positive environmental stewardship roles, thus increasing their status and expanding the range of socially acceptable female behavior.

Gender and Recycling in Ecuador

The city of Quito, Ecuador, instituted a pilot recycling program in some of its lower-middle and lower class neighborhoods.



Initially, city officials had launched a major communication campaign to promote the program and to encourage recycling. Although the program met with success for a few months, participation declined dramatically at about the same time that the communication campaign ended. City government leaders felt that a new education intervention was needed to restart community recycling habits. Before such an intervention could be launched, however, they needed to understand the big picture behind the drop-off in participation.

GreenCOM conducted research on men's and women's knowledge, attitudes, and practice with regard to garbage and also investigated the different views men and women held about recycling. Results of the study indicated that the end of the city's communication initiative did have a negative effect on program participation. More important, however, were researchers' findings that gender also played a role in shaping residents' recycling habits and that an education plan would need to address gender issues in order to succeed.

For example, researchers found that women supported community recycling efforts because the refund money they generated brought in needed revenue for neighborhood improvements. Men, by contrast, were uncomfortable with the idea of a community reaping the financial reward for recycling and preferred a plan in which each family did its own recycling and collected the money for itself. Because the study highlighted the difference between men's and women's perceptions of recycling, the city government could then tailor its recycling education program to address the concerns of each group.



Plan & Design

Use the Assessment As Your Guide

The information gathered during the assessment is used to make decisions during the planning and design of EE&C strategies, materials, and messages. This means setting aside preconceived ideas and plans and constantly recalling what the assessment revealed in order to develop the most effective and participatory EE&C approach. During this step, EE&C planners use the answers to the questions asked during the assessment to determine:

- specific environmentally positive actions people can take to make a difference
- the specific group of people (target audience) who need to take these actions
- the barriers that need to be lowered so the target audience can take this action, as well as the benefits that need to be increased
- the best way to reach and involve the target audience (the most important messages, the most appropriate time and place, and the most effective combination of mass and electronic media, interpersonal communication, folk media, and print materials)
- other groups and individuals who need to be involved as partners.

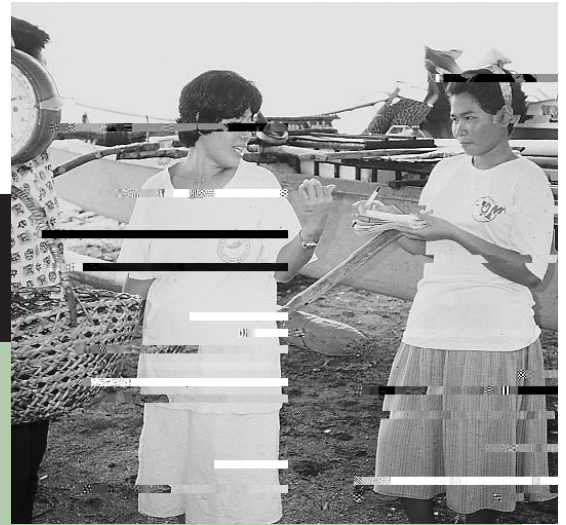
Creating Critical Alliances in the Philippines

A critical part of GreenCOM's coastal resource management (CRM) communication strategy in the Philippines was the formation of networks and alliances of municipalities, government institutions, NGOs, donor organizations, businesses, academics, people's organizations, and media groups. The island of Olango provides one example of how forging connections among diverse groups, institutions, and sectors in the country resulted in a coalition that played a pivotal role in the success of the communication strategy.

Olango, a small island off the coast of Cebu, is home to an internationally recognized bird sanctuary. GreenCOM's formative research and consultations revealed limited and inadequate municipal and government presence on the island, as well as a dearth of community-based organizations to collaborate with.

A series of consensus-building workshops led to the creation of the multi-institutional and multi-sectoral Olango Synergy Group, which planned, implemented, and monitored the Olango communication program.

The Synergy Group's efforts resulted in several significant events, one of which was the first-ever visit to the sanctuary by a Catholic Cardinal based in Cebu, who was an important opinion leader in the region and who also blessed the sanctuary. A media advocacy workshop, attended by representatives of the major Cebu-based media organizations, was conducted the same day. Participants toured the sanctuary, sat in on technical briefings, and had opportunities to interview the Cardinal, the municipal mayor, and other community leaders.



Many EE&C strategies and materials focus on the benefits of environmental action to protect animals, plants, and birds. Frequently overlooked are the people whose lives are either positively or negatively impacted by these actions. In the Philippines, fisher folk recognized that their catch had significantly fewer and smaller fish every year and that they should let the reefs rest so that numbers could build up again. "But," they said, "how would we live? What would we eat?" Although community members may appreciate the flora and fauna of their national parks, they will not stop hunting, poaching, or over-harvesting if they don't have an alternative way to earn a living or feed their families. Sustainable environmental improvements, natural resource management, and biodiversity conservation ultimately depend on the benefits and opportunities environmental actions create for people—especially when natural resource use has direct impact on an individual's family or livelihood.

Nevertheless, behavior change studies have conclusively shown that people don't base chof5

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Lesson 8. Remove Barriers and Provide Incentives

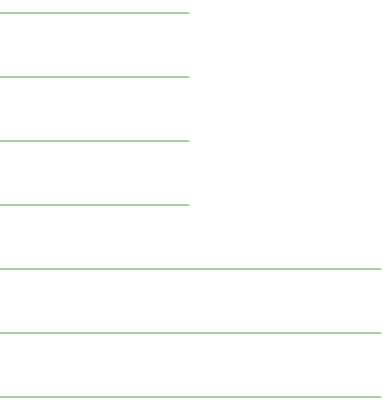
As emphasized earlier, EE&C strategies that rely solely on providing information to raise awareness and change attitudes often have little or no effect on people's behavior. Behavior change research has demonstrated that:¹

- > People naturally gravitate toward actions that yield high benefits and for which there are few barriers.
- > Perceived benefits and barriers vary dramatically among individuals. A benefit to one person may be a barrier to another.
- > People choose between behaviors. If they decide to do something differently, it is usually because that behavior provides more benefits and has fewer barriers than what they are currently doing.

That's why the EE&C assessment compares doers and non-doers; it explores what doers perceive to be the barriers and benefits of performing the environment-friendly action while also looking at what non-doers see as the barriers and benefits of what they are currently doing as opposed to the desired action. The differences between the two groups usually hold the key to behavior change. The EE&C strategy can then incorporate other components such as the provision of environmental services, development of alternative livelihoods, transfer of clean technologies, or formulation of natural resource management policy to lower the barriers and increase the benefits and incentives associated with the proposed environmental actions.

¹Doug McKenzie-Mohr & William Smith, *Behavior Change: A Practical Guide to Environmental Education and Communication* (British Columbia, Canada: New Society Publishers, 1999)





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Lesson 9. Establish a Baseline and Indicators of Success

Assessment results document the initial situation (baseline) and establish the indicators of success that should be written into the EE&C strategy or action plan. Indicators may include changes in knowledge, attitudes, and behaviors, but they need to be achievable, specific, and quantifiable. Some examples of indicators and targets are "number of industries using cleaner protection technologies"; "percentage decline in volume of municipal water use"; "number of local visitors to a national park"; or "percentage increase in household recycling." Now monitoring and evaluation can measure how well EE&C is meeting these targets.

Indicators that describe changes in behavior are the easiest to measure because people can observe them. For example, in GreenCOM's work with the Cotacachi-Cayapas reserve in Ecuador anyone—project donors, managers, technicians, or community members—could travel through the buffer zone around the reserve and evaluate how well the sustainable land-use program had met its objectives. This could be done by using a simple observation checklist to count the number of farmers who had

Setting EE&C Indicators in El Salvador

USAID Intermediate Results	EE&C Indicator
More effective citizen actions to water issues	<ul style="list-style-type: none">> Percentage of the target audience that knows address at least one cause and one consequence of poor water quality (.)> Percentage of the target audience that knows appropriate solutions to keep water safe for human consumption (.)> Percentage of the population that applies household solutions to improve the quality of the water it consumes (.)
Improved performance of water delivery systems	<ul style="list-style-type: none">> Number of municipal ordinances and agreements related to the protection of water safety (.)> Amount of municipal investment in increasing water access and protecting or improving water quality (.)

adopted targeted behaviors such as planting crops on a contour, keeping (not cutting) trees for ten meters along river and stream banks, and cultivating at least three ecologically compatible crops.

Once a baseline and indicators have been established, monitoring and evaluation can measure how well EE&C is meeting these targets. In fact, monitoring and evaluation are essential in the EE&C process because they permit implementers to understand what they have achieved and what they need to do to improve their strategies, messages, and materials. Monitoring and evaluation foster participatory, two-way communication because they require EE&C practitioners to maintain an ongoing relationship with their target audiences and to respond to their changing needs. Constant feedback from monitoring will ensure that EE&C is having the desired effects and will reveal weak areas that require mid-course corrections. If results show that progress is not being made, changes may be needed. Further research and public participation can identify exactly what needs to be done to improve the project.

**ESTABLISH INDICATORS
DURING THE PLANNING STAGE
SO THAT EE&C MONITORING
AND EVALUATION CAN LATER
USE THOSE INDICATORS TO
MEASURE IMPACT AND
EFFECTIVENESS.**

Qualitative research techniques such as in-depth interviews and focus group discussions can then be used to understand the reasons why people did or did not take certain actions and what can be done to improve the program to support and maintain the desired environmental actions.

Unfortunately, evaluation of EE&C interventions is seldom viewed as a high priority or is overlooked in the project design phase. Don't fall into the trap of putting evaluation off until after implementation is over. Instead, plan early for sufficient time and resources to carry out effective monitoring and evaluation and build it into any implementation or work plan. Whether measuring changes in knowledge, attitudes, or behaviors, the important point is to establish indicators during the planning stage so that EE&C monitoring and evaluation can later use those indicators to measure impact and effectiveness.

10

Lesson 10.



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Lesson 11. Pretest Strategies, Messages, and Materials

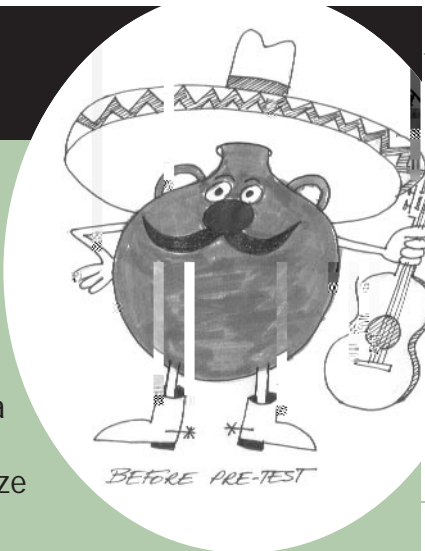
Pretesting strategies, messages, and materials will make them more effective because, if done right, it actually involves the target audience in their design, refinement, and fine-tuning. The following examples briefly describe how pretests are carried out.

> **Pretesting Strategies:** New EE&C strategies designed to address such issues as recycling, forest fire prevention, or water conservation, may be pretested in a number of ways, including participatory processes that involve average citizens through focus group discussions, rapid surveys, and in-depth interviews. In this way, people who will be affected by the strategy have the opportunity to give feedback about how it can be improved. The results of the pretest frequently provide crucial information needed to revise the strategy before it is implemented on a city, regional, or national scale.

> **Pretesting Messages and Media:** Prototypes of print and mass media materials may be shown to groups or individuals who are representative of the target audience. Posing a series of questions to a sample group helps to ascertain whether the materials deliver the intended message. Sometimes multiple versions of the same message or material are developed and people are asked which ones they think are better and why.

> **Pretesting Behaviors and Products:** Observe people doing desired actions, such as forest management practices, or using new environment-friendly products, such as water-saving devices, to identify barriers and benefits and refine training and reinforcement strategies.

Pretesting in El Salvador: Making a Good Idea Better

In El Salvador, GreenCOM decided to create a fictitious character that would serve as a symbol of the Usulután watershed communication campaign. Experience has demonstrated that people are more likely to believe and act on communication messages when they are delivered by a credible source of information. After much discussion the communication team chose as a symbol the , a jug that Salvadoran women in all of the country's rural communities use to collect water. Women use the same size

and shape of cantaro throughout the region, so the team thought it would be an excellent common symbol. The next step was to turn the cantaro into a personality.

The team chose the name Cantarito ("little cantaro") and their graphic artist created a visual design of Cantarito to pretest with the target audience. Because Cantarito would be singing some of the messages, they thought he should carry a guitar. Mexican rancheros music was the preferred musical genre in the region, so the graphic artist gave Cantarito the characteristics of a Mexican singer: big cowboy hat, mustache, and boots.

This design was taken to the field and pretested with men and women. The idea of Cantarito fascinated everyone, especially women. But they suggested many

Implement

Let It Roll!

Assessing, planning and designing, pretesting, and revising are completed before implementation begins to ensure that the EE&C approaches, messages, and materials reach the right audience and produce the desired impact. If this groundwork is laid, implementation should run smoothly. Also, the capacity-building efforts of local partners that began in the assessment and planning and design steps need to continue throughout implementation. To build in sustainability, involve or mobilize a number of people instead of investing entirely in a single individual or group. For best results, implementation should be locally run, with outside technical guidance provided only as needed.



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Lesson 13. Implementation Is Dynamic and Flexible

An EE&C strategy is constantly evolving. Mid-course adjustments are the rule, not the exception, and improve the ultimate outcome. Monitoring and evaluation permit EE&C practitioners to *consult with and listen to* people being affected and to refine and fine-tune approaches, messages, and materials. As people begin to change—learning new information, developing new skills, and trying new things—they will likewise require new EE&C initiatives that respond to their evolving needs.

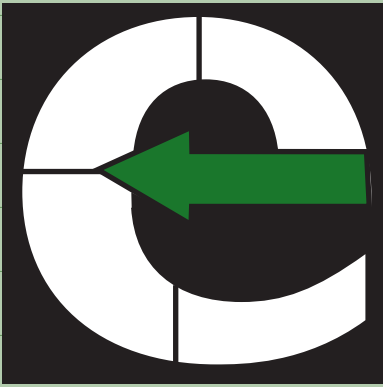
Video Letters in Nepal

14

Lesson 14. Implementation Happens in Stages

Change doesn't happen overnight. Many theories view change as a process that moves along a behavior change continuum. People may enter, fall out of, or reenter the process at different places and for different reasons. Figure 3 presents five broad stages commonly observed as the process of changing behavior unfolds. At one end of the continuum is the non-doer, the individual or group uninterested in altering behavior in order to address an environmental problem. At the opposite extreme are the doers, who have not only changed their behavior but have become advocates who encourage others to change as well.

People need different kinds of EE&C messages, materials, training, and support in each of these stages. For example, people who are unaware that their behavior is harmful or damaging to the environment may need better information from sources they trust. Others who are thinking about trying a new environmentally benign behavior may need social support and skills training. When people first try a new behavior, they experience what psychologists call "cognitive dissonance," which is an uncomfortable feeling that makes them second-guess the new behavior. At this point, it is important for the EE&C strategy to reinforce the new behavior. Also, for a behavior to be maintained, repetition is critical. Successful EE&C planners and



Monitor & Evaluate

Is It Working?

Monitoring and evaluation provide vital information to design, refine, and fine-tune EE&C strategies, messages, and materials. Successful EE&C uses these tools throughout the EE&C process to guide and shape the project. Assessment, pretesting, and monitoring are all formative evaluations used to listen to, consult with, and respond to what people want and need. When evaluation is conducted at the end of the project to measure its impact it is called *summative evaluation*.

To make evaluations useful and to reduce their cost, determine during the planning stage those indicators needed to measure success and focus the evaluation on measuring those specific indicators. For example, if the goal of the EE&C strategy is to increase awareness, then focus the evaluation on measuring changes in knowledge. If the goal is to change behavior, focus the evaluation on measuring the specific behaviors that the EE&C strategy is targeting.

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Lesson 15. Evaluation Makes Comparisons

Knowing whether EE&C has made an impact requires a comparison of current conditions with a previous status, another site, or a different group of people. Changes in knowledge, attitudes, and behavior may be measured by comparing levels before and after an EE&C intervention. Changes may also be measured by comparing the actions of people who were involved in an activity or exposed to communications (television or radio spots, billboards, or printed materials, for example) with people who were not. If there is no comparison, there can be no evaluation. Without an initial measurement, such as one taken before a project is implemented, the second observation loses its meaning and is merely a description of what is happening at the moment.

Jordan: Water Conservation Curriculum

Water scarcity and conservation are two of the most serious environmental problems faced by Jordan. If left unresolved they threaten to become a national crisis within the next decade.

GreenCOM worked with the Royal Society for the Conservation of Nature (RSCN), a Jordanian non-governmental environmental organization, to conduct formative research that was used to develop a new water conservation curriculum that advocated a number of specific personal, household, and parental behaviors to save water. The curriculum was used in Jordanian eco-clubs for youth, and GreenCOM trained the eco-club leaders on how to use interactive teaching methods to present it to club members.

After the clubs had used the new materials, an evaluation was conducted to measure the impact of the curriculum. The results indicated that changes in reported water conservation practices are possible as a result of using such techniques. Students involved in the new curriculum demonstrated a higher level of knowledge of water conservation facts than students in the control group. They also performed recommended behaviors more often than students who were not exposed to the curricular materials. Students who were exposed to multiple water-saving elements of the curriculum were more likely to discuss water use habits with their parents. An additional benefit was the training that club leaders received in interactive approaches to education.



As EE&C implementation progresses, both the people (and, ideally, their environ-

Involving and training community members to measure behavioral and environmental indicators, is another emerging and powerful tool to shape and measure change. It is powerful because it assists citizens in making informed decisions—that is, to seek, organize, and use data to improve both their built and natural environments. In countries around the world, community members are measuring water quality and identifying numbers of birds, trees, or animal species as a way to measure biodiversity. In Ecuador, local extension agents and farmers used an observation checklist developed by a multidisciplinary EE&C team to measure progress toward land-use management. In sum, evaluators need to be flexible, integrating research into projects that can be a learning tool for public participation.

Students Help Evaluate the Panama Canal Media Campaign



In Panama, GreenCOM created an eco-club called Watershed Guardians with fifth graders in twenty-six schools located throughout the Panama Canal Watershed (PCW). Each month, students work together to accomplish their "mission," a set of basic activities that increase local action to protect the watershed. One task was to collect evaluation data on knowledge, attitudes, and practices in order to measure the impact of a recent media campaign about the PCW and its benefits.

More than 600 fifth-grade students, both girls and boys, collected information from their mothers and fathers as part of a two-day homework assignment. Social scientists trained teachers in how to administer and support the students' data collection activities. Quality control measures included supervised role-playing before students conducted interviews in the community and daily homework review and feedback for the following day. The children interviewed 860 people from 534 households. After careful analysis to assure validity of the data, 815 interviews (411 mothers and 404 fathers) were considered reliable. The results of the students' research were found to be similar to a professional study conducted by the Center for Latin American Studies that used a probability sample of adults between 18 and 60 years old.

GreenCOM learned that school children can collect useful data for planning and monitoring mass media campaigns. The process of collecting this information helps them learn more about environmental problems and issues. Student involvement, plus data entry and analysis, cost \$1,500, making this type of research affordable for a low-budget program.



Sharing research results with stakeholders builds constituencies and advocates. It

HEATING UP:

GETTING BEYOND

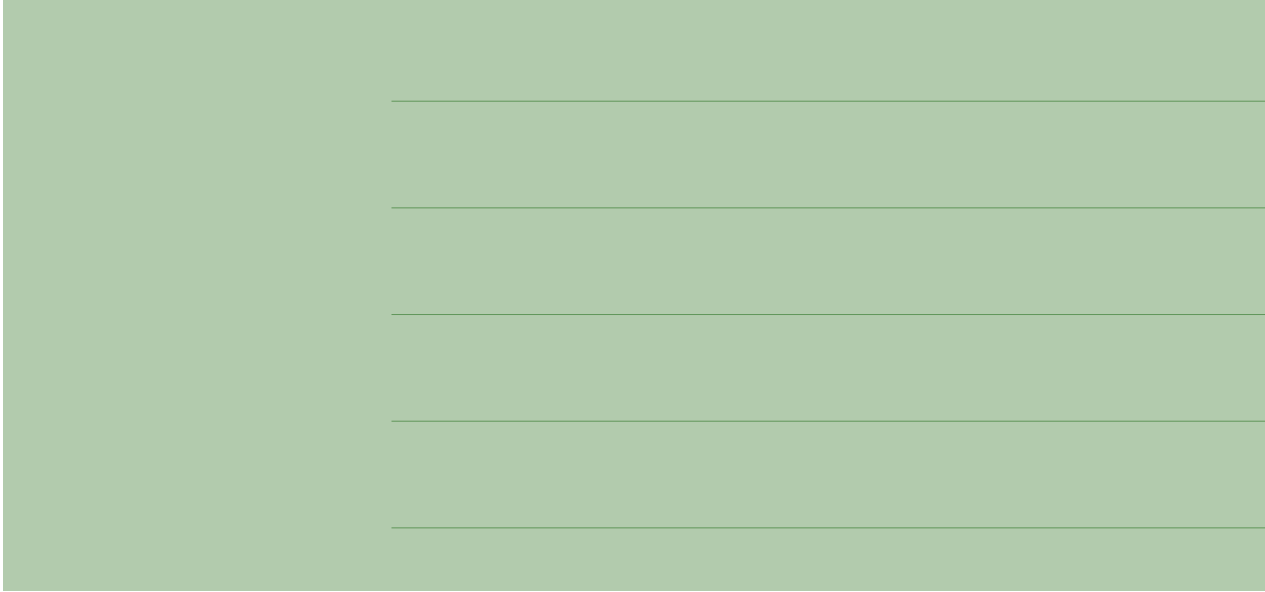
INDIVIDUAL BEHAVIOR

Behavior change research has shown that people don't change at the same speed. Some people (early adopters) are quick to try new things. Others (late adopters) are leery about and resistant to change. Most people fall somewhere in the middle, frequently watching how the early adopters fare before they try something new. If the early adopters are successful, others are more likely to follow. As a general rule, change spreads gradually through a country, community, or group just as water simmers before it boils.

It is also important to remember that the actions needed to address environmental protection and natural resource management problems are numerous, complex, and interrelated. In fact, the actions needed for families to protect and maintain the quality of their water source, for farmers to adopt soil conservation practices, for communities to carry out sustainable forestry, or for municipalities to manage their solid waste effectively, can seem so complex and overwhelming that people simply keep doing what they have always done.

The concept of "heating up" addresses both the varying rates of change and the complexity of change. Heating up means

with groups of receptive people who are ready to make a change. Therefore, focus on something they can do relatively easily and help them to be successful in doing it. When people are successful at trying something new, they gain competency and confidence in their ability to try other, more complex actions in the future. The concept of "heating up" addresses both the varying rates of change and the complexity of change. Heating up means starting with groups of receptive people who are ready to make a change. Therefore, focus on something they can do relatively easily and help them to be successful in doing it. When people are successful at trying something new, they gain competency and confidence in their ability to try other, more complex actions in the future. When different segments of society are trying to address a common environmental challenge or threat, a collective feeling emerges that change is happening, thereby generating more attention. Change starts simmering with the early adopters and builds to a boil over time until it becomes the social norm, something almost everyone does. The skills and confidence developed during people's first experience can be applied gradually on a larger scale that moves toward more complex environmental issues, problems, or



- > ***Invest enough in both time and resources to allow for the heating-up process to be engaged.*** Start small. Start simple. Promote and build on success. Realize that to trigger this process, a series of audiences and issues must be addressed. However, the value of this level of investment is multiplied because many people will voluntarily engage in changed behavior simply as a result of the excitement that is generated.
- > ***Engage the best professional communicators and educators you can find.*** Environmental communication is neither a fluffy concept nor a magic wand

but rather a combination of different disciplines that, taken together, offer a powerful and complete set of strategies, methods and tools. Because most people think they are good communicators, they believe EE&C doesn't deserve much attention in their projects or programs. Yet there are real skills involved in producing effective EE&C strategies, messages, and materials, and there is a developing science to strategic communication. Don't fall into the common trap of thinking anyone can do this. When people build a road, they hire an engineer and when they design a building, they hire an architect. When you communicate, hire a communicator!

- > ***Establish a baseline of data*** so evaluation can take place again and again.

As global threats and challenges to environmental quality and natural resource stewardship mount, conventional policy options, technological solutions, and management initiatives must be paired with new strategies, methods, and tools that focus on and involve people. Only by addressing human behavior can such threats be minimized and sustainable improvements introduced. Investing in EE&C may be one of the best actions a manager, planner, or decision maker can take.

ENVIRONMENTAL COMMUNICATION IS NEITHER A FLUFFY CONCEPT NOR A MAGIC WAND BUT RATHER A COMBINATION OF DIFFERENT DISCIPLINES THAT, TAKEN TOGETHER, OFFER A POWERFUL AND COMPLETE SET OF STRATEGIES, METHODS, AND TOOLS.

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