BEHAVIOR CHANGE IN THE MAYA GOLDEN LANDSCAPE

Compilation of tools for assessing and targeting attitudes & behaviors

Photo taken by Bartolo Teul, Ya'axché
Courtesy Lighthawk

Written By:
Maximiliano Caal
Ekaterina Alexandrova

Document was prepared by
Ya'axché Conservation Trust
with funding from
U.S. Fish & Wildlife Service

Contents

PREFACE: GENERAL APPROACH

Ya'axché Conservation Trust is implementing a two-year project titled *"Changing Attitudes and Behaviors Towards Conservation through Coordinated and Integrated Landscape Management in the Maya Golden Landscape in Southern Belize"* with funding from the United States Fish & Wildlife Foundation. The project aims to understand and assess current attitudes and behaviors related to land-use in the Maya Golden Landscape (MGL), as well as barriers to and opportunities for behavior change towards more sustainable practices. Additionally, the project will identify, develop, and implement appropriate and evidence-based strategies to encourage sustainable practices in the Maya Golden Landscape. Finally, the project will strengthen capacity of stakeholder groups to collaborate effectively in the management of the MGL.

In order to more effectively assess attitudes and behaviors Ya'axché undertook a rapid review of existing research on theories of and methods for understanding behavior and behavior change. The review covered published papers on behavior and behavior change, environmental education toolkits, and case studies from various conservation projects. Literature was sourced online and through colleagues and covered methods for baseline assessment of current attitudes/behaviors, internal and external factors that act as drivers or barriers, and tools on influencing behavior. Literature on conceptual models of behavior change (e.g. Cyclical and hierarchical models) was reviewed but not included in this document due to practical and not theoretical purpose of this document. The review focused specifically on behavior change within the conservation field. All sourced information has been distilled into key messages, tools, and approaches *for use by practitioners*.

Human behavior is at the basis of most conservation problems. It is extremely complex and requires complex solutions to amend unsustainable practices. Therefore, it is important to approach behavior change systematically using a project cycle with discrete steps:

1. Assessment and Research: towards understanding behaviors and their context
2. Planning: design activities to influence behaviors
3. Implementation: promote sustainable behaviors
4. Evaluation: should take place at all stages of the process

By systematically addressing the problem of unsustainable behaviors, it becomes easier to organize resources and target the most appropriate practices and audiences. Information presented in this report should be used as part of, and fully integrated within, broader project planning and development processes to strengthen project design and effective adaptive management.

CHAPTER I. GETTING THE BASELINE: HOW TO ASSESS ATTITUDES AND BEHAVIORS

A full assessment of the situation is needed before beginning projects or programs in order to avoid false assumptions, to properly address all aspects of the problem, and to monitor results.[1] Initial research to understand the audience and their context needs to address questions that reveal people's perception, reality, and motivating incentives.[2] Some basic questions that should be considered include:

WHAT
What activities, practices, decisions, behaviors affect natural resources in a specific situation?

WHO
Who are the actors at all levels with regards to natural resource management?
Who are the persons whose behaviors affect natural resources management?

WHERE
Where is the problem relevant?
What is the spatial extent of the problem?

WHEN
When do behaviors that affect natural resources occur?

TRENDS
What trends are occurring in relation to natural resource use over longer time periods?
Are resources depleting or increasing over historical timelines?

In all assessments it is important to realize that **attitudes contribute to human behavior, but they do not define it** since many other factors contribute to each situation. During the baseline assessment a number of tools can be used to gain insight into what people know and understand about the issue, their attitudes towards the issue and how they act in regards to the issue (behaviors). Some of these tools are presented in this chapter. *In all assessments, it is important to record both, the positive and negative attitudes/behaviors.

[1] Bruce A Byers, 2001, p. 3
[2] Kotler and Roberto, 1989

Tool 1: Surveys/Questionnaires

Formal surveys/questionnaires can be used to gather information about behaviors, knowledge, skills, attitudes, and motivational factors. Survey questions can range from highly constructed ones, with acceptable answers restricted to a few choices such as "agree" or "disagree", to open-ended questions in which possible answers are not suggested, such as "What is your opinion of…?" Each type of question has advantages and disadvantages; question choice depends on the kind of information needed. Some examples of the types of survey questions that have been used to learn about conservation and natural resources management behaviors in Africa are given in Box 1.

Tips:

- The question should be pretested on a small sample group. Revising ambiguous or problematic questions is crucial.
- Written questionnaires are not useful in areas with low literacy.
- With oral delivery, the interviewer knows the respondent and the level of trust between interviewers and respondents is a key consideration in assessing the accuracy of survey results.
- The actual or relative anonymity of some types of surveys encourages people to express views they might not express in public. Women, for example, may give truthful answers on a survey but hide their real opinions at a meeting that includes men.
- When this information is made public, or used in a participatory process, it can help to educate community members about community diversity.

3

[3] Schindler, List, and Steel, 1993

Box 1: Examples of Survey Questions

Closed or Forced Choice

Is there any crop damage by wild animals in this village? ( ) yes ( ) no ( ) don't know

There is no need to keep areas of natural forest. ( ) agree ( ) disagree ( ) undecided

When was the last time you ate game meat? ( ) this year ( ) last year ( ) year before last

How do you participate in natural resources management in your area?

a) as a member of village natural resource committee
b) in patrol work
c) in hunting
d) in management planning

Scaled

Cultivation by residents of the Ngorongoro Conservation Area should be allowed.

( ) strongly agree ( ) agree ( ) undecided ( ) disagree ( ) strongly disagree

Semi-open

What do you do when wild animals raid your farm?

a) shout to scare wild animals to run away
b) confront the wild animals with spears, bows and arrows, sticks, pangas, etc.
c) report to the village Game Scouts
d) guard crops day and night until harvesting
e) do nothing
f) other_____

What are the benefits of living next to Tsavo National Park?

a) provides water
b) built a classroom
c) transport
d) grazing
e) none
f) other

Open

What things are happening to the natural resources of your village/area that you do not like?

If Tsavo West National Park could do one thing to make life in your village better, what should it be?

What benefits would you like to get from the park (list according to priority):

a)_____ b)_____ c)_____ d)_____

Sources: African Wildlife Foundation, 1993, "Knowledge, Attitudes, and Practices Survey," unpublished survey; Katalihwa, M. 1993. "A Preliminary Assessment of Attitudes and Values Pertaining to Conservation among the Human Communities around Mkomazi Game Reserve, Tanzania." Unpublished project proposal; Mkanda, F.X. and S.M. Munthali, 1993. "Public Attitudes and Needs Around Kasungu National Park, Malawi." Unpublished report; Miriam O-Zacharia, Tanzania Wildlife Department, personal communication.

Tool 2: Semi-structured Interviews

Instead of formally-phrased questions, semi-structured interviewing uses a checklist to guide the interviewers through the topics they wish to address. In semi-structured interviews the interviewer prepares the questions, but makes them sound as if they came up on the go (like a regular conservation). The interviewer probes the issues when they come up by asking related questions and trying to deepen the understanding. This is where the interviewer has to be particularly alert as she or he listens to the answers and thinks up what to ask next. To the informant, a semi-structured interview should seem like an informal conversation, with one topic leading naturally into another.

[4]

Tool 3: Community Meetings (to identify stakeholders and user groups)

Community meetings bring together representatives of interested parties to discuss issues and problems. These meetings may bring out important dimensions of behavioral motivations that methods aimed at individuals, such as questionnaires, interviews, and direct behavioral observation, sometimes miss. Community meetings often reveal opinion leaders – people who are respected and listened to by many community members – who can play key leadership roles in programs to maintain or change behaviors.

Because communities are not homogeneous, **practitioners must understand the community's actors and institutions when deciding who to invite to meetings**. Some possibilities include political leaders, religious leaders, other kinds of opinion leaders, women or men, children or a whole village at once.

Separate meetings with each of community's many subgroups may be useful. Meetings to consider especially contentious issues, if poorly planned or facilitated, can increase tensions and strengthen divisions in communities rather than build consensus. Meeting format and protocol can influence the quality of participation. Some experiments with nontraditional meeting format and protocol used by the Tanzania Community Conservation Project are discussed in Box 2.

[4] Freudenberger and Gueye, 1990

Box 2: Community Extension and Outreach in Tanzania National Parks

Several practitioners in Tanzania are using community meetings as a way to understand and begin to address needs of local people. The Tanzania Community Conservation Project, based at Tanzania National Parks (TANAPA) headquarters in Arusha and sponsored by the African Wildlife Foundation, usually begins its community extension work by meeting with the leaders of communities near parks. According to project director Patrick Bergin, a basic level of trust is necessary before any community meetings can be held, and in some communities this level has not yet been reached. In such cases, trust must be developed using other methods before meetings are held.

After meeting with community leaders, the Community Conservation Project holds larger community meetings. Project staff try to get away from the traditional meeting format of straight lines of chairs for the audience and tables at the front for officials or leaders by mixing up seating in the room. The meeting facilitator prevents anyone from monopolizing the meeting. Whenever someone offers an idea, it is written down. Such changes in meeting format and protocol have resulted in a wider diversity of views being expressed, with community members and junior staff members from TANAPA speaking up in meetings in the presence of senior government officials for the first time.

Mr. Chengulla, the TANAPA Community Conservation Warden at Tarangire National Park, uses another method to identify local issues and problems. He contacts village chiefs and asks them to invite him to village meetings, especially if the meetings will include discussions about wildlife. This method is an alternative to having TANAPA call a community meeting and may have some advantages in terms of encouraging community leaders to take the initiative.

Source: Patrick Bergin and Ezekial Dembe, Tanzania Community Conservation Project, P.O. Box 1300, Arusha,Tanzania.

Tool 4: Focus Groups

A focus group is considered a qualitative rather than quantitative research method because the information gives decision-makers valuable insights into the target audience's perspectives without providing statistical data (Moulton and Roberts, 1993).

In order to access the full diversity of perceptions and opinions in the community, it is recommended to meet with men and women (or any particular members of the community) separately.

[5]

[5] Thomas-Slayter, Esser, and Shields, 1993

Tools 5 & 6: Maps and Transects (of community, resources, hazards, etc)

Maps and transects can be used to represent information about ecological and social systems in space, such as the spatial distribution of natural resources, their uses, and relevant opportunities and problems. Maps take an aerial perspective, while transects take a cut-through, horizontal view of a place. Both of these can be very simple and still contain a large amount of relevant information.

They can be produced by local people or by practitioners working with local people, using very simple materials. A patch of smooth sand or soil; a stick for drawing lines in the sand; and perhaps a few stones, stick, or leaves to represent houses, trees, or other features are enough. Maps made on the ground can be sketched or photographed later, if a record is needed.

A large piece of paper and markers for drawing can also be used to make the initial map. Sheets of transparent acetate plastic can be used to overlay maps containing different kinds of information. Such low-technology maps can often provide much relevant information and can be geo-referenced to combine with computer-created GIS maps.

Tools 7 & 8: Seasonal Calendars and Timelines (of activities, events, etc)

Calendars and timelines are tools for gathering information about how people's interaction with the environment varies through time, usually through an annual cycle of seasons. Seasonal calendars, for example, show the changing patterns of livelihood activities throughout the year.

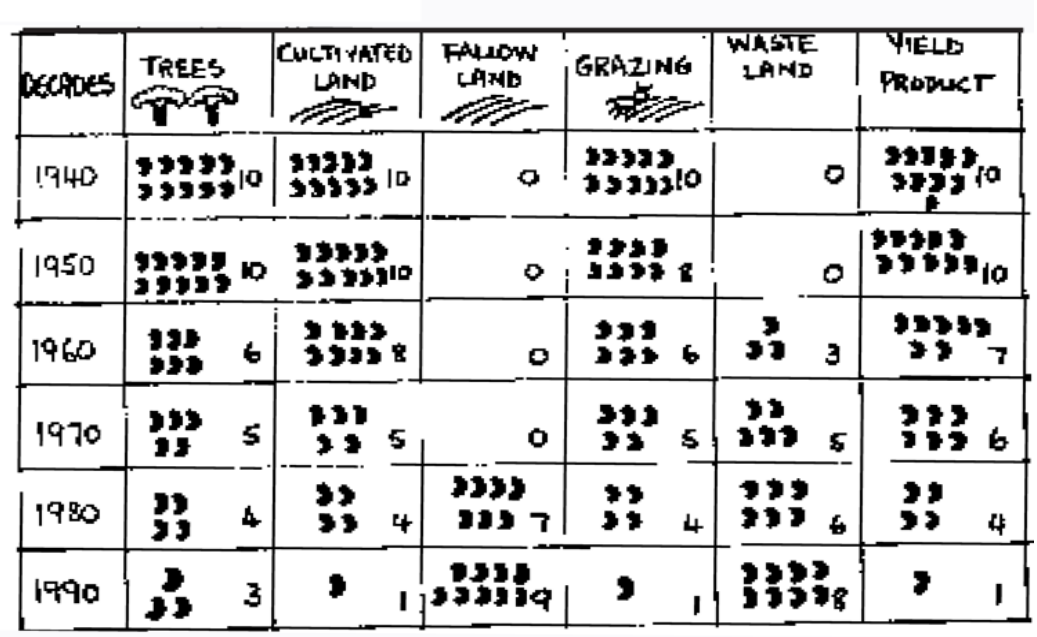
Information about the timing of activities can be gathered using participatory methods such as interviews and community meetings.

Tool 9: Matrices of Historical Trends

Longer-term historical trends in resource use and the quality of the environment can be summarized in matrix form, as shown in Box 3. Historical trends matrices often show that local people recognize long term trends in their environment and in their interaction with it. People usually have hypotheses about the causes of trends they observe, even if they do not fully understand the causes.

Trends matrices are a good example of an information gathering tool that is also in part an analytical tool since it reveals people's awareness and knowledge. Matrices organize environmental information in a way that helps people think about cause and effect and identify problems and opportunities. Another advantage of this tool is that it is very visual and a practical way of getting all members of a group involved in the discussion.

Box 3: Matrix of Historical Trends in Natural Resources and Land Use (From Tsupaneng, Natal, South Africa)



Tool 10: Wealth Ranking

Wealth ranking is a simple method of gathering information about perceptions of socio-economic status at the village or community level. Key informants are asked to sort cards with the names of each household in the community into piles representing wealth or well-being categories. Comparing the results of the rankings obtained from a number of key informants can give a fairly accurate picture of the socio-economic situation at the local level.

6

Tool 11: Direct Behavioral Observations

One of the advantages of direct behavioral observations method is that it preserves the holistic nature of the behavior and its complex interaction with the environment. This method provides direct evidence for behavioral steps, antecedents and consequences, rather than indirect information via self-report methods like surveys and questionnaires.

7 8
,

[6] Freudenberger and Freudenberger, 1993; Freudenberger and Gueye, 1990; Thomas-Slayter, Esser, and Shields, 1993
[7] Thomas-Slayter, Esser, and Shields, 1993
[8] Graeff, Elder, and Booth, 1993

CHAPTER II. FACTORS THAT INFLUENCE BEHAVIOR: BARRIERS AND DRIVERS

It is necessary to understand why people behave the way they do in order to plan strategic interventions. The methodologies described in the previous chapter are used to identify existing attitudes and behaviors of the target audience and to help monitor how they change over time. Through this analysis it is important not only to evaluate information gathered on the context but also to try and identify the *drivers of existing behaviors* and *barriers to desired behaviors*.

Barrier – is a factor that prevents a person from conducting a certain behavior. Lack of knowledge about an issue *may* be a barrier to desired behavior, but even when knowledge is available, other factors may still serve as barriers. A person may *know* that a particular practice has negative environmental consequences, but might have no ability to change that behavior. For example, a farmer may want to farm organically but cannot afford the extra time and labor – in this case the extra time and labor required to farm organically are barriers to the adoption of more sustainable farming practices.

It is essential to answer the question, **"Why is the desired behavior currently not possible?"**

Driver – is a factor that directly or indirectly allows or provides incentives for a particular behavior. For example, a high price for bush meat is an example of a driver that encourages (provides an incentive to) people to hunt.

It is essential to answer the question, **"What encourages current or desired behaviors?"**

This chapter provides further details about the factors that may play a role either as barriers or as drivers to encouraging sustainable behaviors. They are broken down into two categories, external and internal/cognitive. External factors are those outside of the control of an individual, such as laws and economics. Internal factors are those that relate to the cognitive understanding and ability of each person. Each factor is accompanied with an associated important question that has to be answered and suggested tools that can be used to address it.

EXTERNAL FACTORS

Factor 1: Socio-economic opportunities

What is the socio-economic status of the target group?

Suggested Tools: Surveys, semi-structured interviews, wealth ranking

Before participating in any conservation activities, people need to fulfill their most basic physiological needs: security, food & water, shelter, basic health care. It is obvious that **people will not make sacrifices for the sake of environmental conservation unless they have met these basic needs**. If the farmer cannot grow enough food for his family and does not have money to purchase supplemental food, he will have to hunt for wild game even if it requires going into the protected areas.

However, it is possible to show people that environmental health can provide many of the basic physiological needs. Research also shows that providing opportunities to increase income, even when

basic needs are already met, is one of the most important factors to stimulate participation in conservation programs. Although at the same time, increasing income does not *necessarily* lead to positive behavior change in a conservation context.

Factor 2: Laws and Policies

What laws and policies exist pertaining to the issue?

Suggested tool: Literature review

Laws/policies can provide incentives or disincentives (for example in the form of fines or prison sentences) for particular behaviors. The strength of the law, both in its legislature and enforcement, can also affect whether the law is a driver or a barrier. For example, even if intended to hinder an unsustainable behavior, a *weak* law may not provide enough incentive to lead to behavior change. Thus, during research it is important to assess both *what* the laws/policies are, and *how effective* they are.

Factor 3: Time

What are the time pressures relating to current/proposed behaviors?

Suggested tools: Focus groups, seasonal calendars

Time is a very important resource and people try to use time as efficiently as is possible when fulfilling some of their essential needs. Farmers, for example, may see hand clearing around crops instead of chemical spraying as a huge time investment and for some it may not be worth it to switch to the more sustainable practices.

Factor 4: Infrastructure

What relevant infrastructure is available for the proposed behavior?

Suggested tools: Focus groups, maps and transects

Factor 5: Alternative Options

Are feasible alternatives to the targeted unsustainable behavior available?

Suggested tools: Focus groups, interviews, open-ended survey questions

People may know that a practice has negative environmental consequences but other alternatives to that practice may not exist or where they do exist, they may not be widely known. Alternative options need to be identified and made available.

Factor 6: Social Norms

What behaviors are perceived to be acceptable and not acceptable within the target group?

Suggested Tools: Focus groups, semi-structured interviews, surveys

**Wealth ranking may also be a valuable tool to assess how wealth is identified in a community and a relative wealth of people in the community. Sometimes wealth may be associated with influence (but not always). Relevant example: If a rich and popular village leader made his money from slash-burn cultivation in mountain forests, his behavior could set a norm that may influence other people's actions. The discussion in conjunction with the wealth ranking (i.e. interviews) can help to provide understanding of how wealth is created and, in turn, help influence attitudes towards certain wealth-generating activities.*

"Social norms" are patterns of behavior that are commonly accepted as the norm by the target group. Social norms may vary according to numerous variables. In general, social norms are important to assess because it can determine whether they function as opportunities for or barriers to particular behavioral changes. Questions that need to be assessed are:

- What behaviors are perceived to be acceptable and not acceptable within the community?
- Whose opinion do people respect the most? Are there role models?
- To whom do people turn to for advice and support?

Factor 7: Culture

Suggested Tools: Focus groups, surveys, semi-structured interviews, direct behavioral observations

Information about people's culture may be important for conveying environmental messages. It is important to understand the traditions, customs, beliefs and taboos of a community.

INTERNAL FACTORS

Factor 8: Knowledge

What is the current level of understanding about the issue within the target group?

Suggested tools: Focus groups, surveys, semi-structured interviews

People need to have basic knowledge about the environmental issue in order to act pro-environmentally in a conscious way. If people lack sufficient information, then they cannot be expected to act responsibly. Therefore, access to information is essential, but it must be presented in a language/manner appropriate to the target group. It is important to note once again that although knowledge is an essential initial step of changing behaviors, it does *not* have a direct link to changing behaviors – other motivational factors are also at work.

Factor 9: Skills

Do people have the necessary skills to change their behavior?

Suggested tools: Focus groups, surveys, semi-structured interviews

Lack of skills, whether actual or perceived, may be a barrier to behavior change. If the proposed behavior requires technical skills or training, then the fear of failure or embarrassment may become a barrier to its adoption. Having the skills, or the perception of being able to undertake a certain behavior, can empower people to take action.[9]

[9] Hungerford and Volk, 1990

Factor 10: Values

What do people place the biggest importance on? To whom do they listen?

Suggested Tools: Surveys, focus groups, semi-structured interviews

Values are things or attributes that people consider important and judge as a higher priority. For example, someone might value the forest for its non-monetary ecosystem services, while someone else may value the forest only for the financial benefit received from logged timber. Distinguishing between different types of values can help to understand why people think/act in a particular way.

Values are usually influenced by the 'micro-system' where the person has spent a significant amount of time – the 'micro-systems' comprise of the immediate social net, such as family, neighbors, and community. A fully comprehensive analysis of values is usually a very lengthy anthropological process. For the sake of collecting baseline information for environmental education initiatives, it may be sufficient just to take notes on how people feel about/prioritize the following items.

- Affection: friendship, love, or loyalty
- Wealth: ownership of resources
- Power: ability to make decisions that affect person's own life or other peoples' lives
- Skills: pursuit of proficiency in an area
- Respect: recognition from others
- Rectitude: pursuit of religious or moral standards
- Enlightenment: seeking of knowledge
- Traditions and customs: following traditions passed down from generations

As part of researching people's values, it is important to note *who* they value in addition to *what* they value. Often, individuals and communities have specific people that they respect and listen to. Usually, those people are community leaders, including those in particular leadership positions, as well as those who are leaders through the strength of their personalities. **It is advantageous to pay attention to the community and target those individuals that are respected.**

Factor 11: Locus of Control

Does the person believe in the weight of his/her actions?

Suggested tools: Focus groups, semi-structured interviews, surveys

Locus of control is the individual's perception of whether he or she has the ability to bring change through own behavior and that it is his/her responsibility to do so. People with strong internal locus of control believe that their actions can make a difference and will have more motivation to uptake environmental practices.

Although specific tools are recommended for exploration of the described internal and external factors, the choice of tools should also be based on the general context. The guide below gives further insight into choosing an appropriate research tool.

Factors to research	Type of tools to use	Examples of tools
Sensitive factors (household assets, income)	One-to-one methods	Surveys, interviews
Complex factors (values, attitudes, social norms)	Less-structured methods	Interviews, focus groups
Interplay between intentions and actual behavior	Participant observations	Direct Observation
Feasibility of alternative behaviors	Methods that extract facts	Seasonal calendars, timelines, maps, transects

Many of the tools presented in this chapter involve participatory approaches for conducting social research. To avoid discouragement it is important to realize that participatory work never gets 100% participation rate. It is useful to note the level of participation that is most appropriate for a particular situation. While some aspects require full participation of the stakeholders, others might need only partial engagement. The "ladder of participation" (Figure 1) is a visual representation of the possible participation levels. Each word illustrates the manner in which the target audience is engaged. The level of participation increases from bottom to the top.

Figure 1. Ladder of Participation of the Target Audience

A few further tips about applying participatory approaches follow and additional considerations about gender are listed in Box 4.

- Participatory work should begin with courtesy calls/visits and initial discussion meetings with leaders.
- It is important for the project manager/environmental educator/social scientist to step into the shoes of participants, which helps to "become equal".
- In participatory discussions you can agree to a rule that participants are allowed to speak a second time, only after everyone has spoken once. It is also useful to start the meeting with ice-breakers.
- It is best for research questions to be phrased by the locals because they have the most appropriate mental models.

Box 4: Further considerations about gender

Two important questions need to be answered through gender research

- What are the constraints that affect men/women differently?
- What are the opportunities for men and for women?

Variables that can help assess gender needs:

- **Personal Characteristics**
  - Age, Occupation
  - Education
  - Marital status
  - Ethnicity
  - Religion
  - Seniority in household
  - Membership in community organizations
  - Seasonal allocation of time
  - Environmental knowledge, attitudes, beliefs, and practices
- **Household Characteristics**
  - Hierarchy of household
  - Family size
  - Number and ages of children
  - Social class/caste
  - Gender-based division of labor (adults and children)
  - Sources of income
  - Spending patterns
  - Financial responsibilities and control
  - Intra household decision-making/conflict-resolution processes
  - Location (rural/urban)
- **Community/Societal Characteristics**
  - Gender-based access to resources and legal framework(e.g., education, training, information, new technologies, extension services, administrative and government services, land tenure, traditional rights and official ownership laws, credit, infrastructure, markets, transportation, labor rights)
  - Social institutions (relevant existing neighborhood and community groups, including membership composition and rules)

Important considerations:

- Do not homogenize all "women" into one group
- Literacy is usually lower for women
- Likewise, pictoral literacy is usually lower for women (may not be familiar with progressions of pictures on a page, or unfamiliar pictoral signs). All materials always need to be pretested
- Decision-making is frequently hard for women in developing countries where they want to feel that their decision is in line with the group's. Group exercises are usually more useful than individual ones.
- Women have immense amount of work and activities should be seasonally/daily timed very well
- Women often engage only when they see an immediate benefit to their families

CHAPTER III: INFLUENCING BEHAVIOR

Since human behavior is complex, changing it requires complex strategies. Behaviors can be changed either by establishing specific regulations or by encouraging conformity to a particular practice. The establishment of a regulation system usually produces temporary results because as soon as reward/punishment is removed the motivation disappears. On the other hand, **conformity that occurs when individuals observe the behavior of others in order to determine how to behave can have long-lasting effects.** Environmental education attempts to change people's behavior by encouraging this conformity to sustainable practices.

The most crucial point to understand in environmental education is that even though education is an essential step in the process of shifting behaviors**, there is no direct link between knowledge/understanding and action**. Numerous steps have to be addressed after knowledge is disseminated/positive attitudes are built and before the behavioral uptake occurs. **The most important step in encouraging behaviors is to remove the existing barriers** – this is what makes collection of baseline data crucial. If significant external barriers exist (such as inconvenience, costs, time) addressing the internal barriers will not be sufficient. The nature of external barriers can vary dramatically across communities and strategies for removing these barriers will have to be tailored to each situation.

Secondly, it is important to realize that **uptake of a new behavior does not occur instantaneously and must be broken down into several steps** according to the progress made in taking up the behavior. Environmental messaging should, therefore, be tailored to the current level of behavioral uptake. For example, the message to clean-up the riverside for the first time is different than the message to continue cleaning-up the riverside every month. In general, uptake of a new practice can be broken down into:

Table 1. Stages of behavioral uptake

Stage of uptake	Description	What should environmental messaging target at this stage?
Pre-contemplation	Individual knows nothing about why the current behavior is unsustainable and why it needs to be changed	Information-based messages about why the current behavior is unsustainable and the need to change it
Contemplation	Individual is thinking about the possibility of changing his/her behavior	Messages aimed at step-by-step process of *how* to make changes to the behavior. This is also a good stage to begin addressing barriers.
Action	Individual is actively making changes to current behavior	Provide information, skills, and tools for each step involved in up-taking new behavior and in addressing barriers
Maintenance	Individual has implemented the new behavior and is in the early stages of maintaining it	Encourage commitment to the new behavior
Advocacy	Individual is practicing the new behavior and is well-placed to serve as an example to other community members	Provide individual with tools and/or authority to disseminate the practice among the community

Don't assume that success at one stage will necessarily lead to success in another! Targeted messaging and assistance are required at all steps.

In addition to identifying the stage of behavioral uptake, it is essential to break down each behavior into manageable components. *Behaviors* are distinguished from *practices*, which are a series of actions. For example, "bottle recycling" is actually a series of actions consisting of cleaning the used bottles, sorting the bottles, delivering the bottles to place of collection – each behavior in this chain requires a tailored approach. In order to ensure that the targeted behaviors are not a series of actions in disguise, environmental educators have defined "behavior" as a single, observable action performed by an individual. To distinguish a simple behavior (not a series of actions), it has to have four distinct elements:

Table 2. Elements of a single behavior

Element	What is it?	Examples
Action	The verb	**Place** garbage in a bin (as opposed to littering)
Target	Person or group affected by the action	Young children / adults
Context	How the action is done	Distinguish whether this action is encouraged at the football marathon / at the river / household
Time	When the action is done	During community events / as a daily routine

*Note that varying specifications in the third column would require tailoring the design of the message appropriately.

Designing appropriate measures and messaging is dependent on extensive research of barriers and drivers and identifying the most viable behaviors to target. Thus, the design of the environmental message must begin with identification of the goal and only then move to identifying the audience and the medium. Once these three have been described it is possible to begin working on the message itself.

Goal → Audience → Medium → Message

Tips on designing an environmental message

1. Make sure that the information presented is credible and captivating.
2. Make sure that the proposed alternative behavior is technically and socio-culturally feasible.
3. Make sure that the message is specific and one-sided (versus two-sided).
4. Make the message easy to remember.

Parallel to conducting environmental communication campaigns, it is important to continue general environmental education, which teaches students "how to think" not "what to think." Thus, the goal of environmental educators is to help learners form the capacity to collect and analyze information, make good judgments, and participate fully in civic life. The goal is to instill in learners the knowledge about the environment, positive attitudes toward the environment, competency in citizen action skills, and a sense of empowerment.

Ten strategies for encouraging behaviors

1. Avoid negative messages and design positive messages that indicate widespread participation. People are more likely to do something because everyone else is doing it. When campaigns suggest that everyone is doing a negative behavior, people are not likely to change their habits. (Ex: designate a model farm)

2. Pre-test campaign items with a small subset of the target audience.

3. Use the power of social pressure to help change behaviors. The act of making a commitment, such as signing a pledge or giving verbal agreement, has been shown to be an effective strategy.

4. Choosing the right time to put out the message is critical for its success as well as choosing the correct medium to broadcast the message. People's attitudes change with time and how a person feels towards a pressing environmental issue may vary with time.

5. Incentives may be used, but have to be selected carefully, closely pairing the incentive with the behavior. Incentives have to be visible, should be non-monetary, and should reward positive behaviors. A warning about incentives is that they will have to be removed eventually, which may cause controversy.

6. Community residents who already engage in the promoted behavior can be used to further disseminate it in the community and help others get started. Some research has shown that homes that are visited by such people are more than twice as likely to uptake a practice compared to those who simply "receive a flyer".

7. Prompts, strategic short statements or pictures that remind people about a particular practice. However, prompts are only helpful if they are well-worded/well-placed and they may lose effectiveness with time as they lose novelty.

8. Encourage responsibility for environmental health. Toledo is prevalent in mentality that "someone else will come and clean the river, build a school, organize an event. It is crucial to make the individual or the community aware that the primary responsibility lies within them.

9. Emphasize personal contact.

10. Encourage behaviors that have immediate positive consequences rather than those that generate distant benefits.

CHAPTER IV. MONITORING AND EVALUATION

Ideally, monitoring and evaluation should be conducted at every step of the process, providing feedback on all stages of the development, implementation, and outcome of a program.[10] Evaluation involves gathering and interpreting information to determine the effectiveness of activities/projects or for making decisions about those activities/projects. Such decisions can address how to modify an activity to make it more effective, whether to continue to support the activity, or whether to use the activity as a model for other programs.

Evaluation involves assessing effectiveness. There is a logical link between evaluation and all other stages of the process – the assessment, planning, and implementation stages. This logical link exists because evaluation tries to answer the question: **Did this activity/project do what we thought it would do and wanted it to do?**

Thus, evaluation provides a loop in the project cycle, referring back to initial assessment and planning stages. Clear objectives at the start make it easier to determine whether a project was successful or how it may be improved. Projects that rush into the implementation phase without assessment or planning are often hard or impossible to evaluate because the goals are often too broad and vague. Evaluation is important for adaptive management, accountability, and transparent communication with participants/stakeholders.

[10] Jacobson, 1991

REFERENCES:

Blanco, N.C.P. (2002) An Educational Strategy for the Environmental in the National Park System of Venezuela. Environmental Education Research, Vol. 8, No. 4.

Byers, B.A. (2003) Education, Communication and Outreach (ECO): Success Stories: Solving Conservation Problems by Changing Behavior. U.S. Fish and Wildlife Service.

Byers, B.A. (Understanding and Influencing Behaviors in Conservation and Natural Resources Management. Biodiversity Support Program: USAID, WWF, The Nature Conservacy and the World Resources Institute. African Biodiversity Serries, No. 4.

Clover, Darlene. (2002) Traversing the Gap: concientización educative-activism in environmental adult education. *Environmental Education Research*, Vol 8, No. 3.

Coffman, J. (2002) Public Communication Campaign Evaluation: An Environmental Scan of Challenges, Criticisms, Practice, and Opportunities. Cambridge, MA: Harvard Family Research Project.

Day, B.A and Martha, C.M. (2000) Environmental Education & Communication for a Sustainable World. GreenCOM, Environmental Education and Communication Project of the U.S. Agency for International Development (USAID).

Day, B.A. and Smith, W.A. The Applied Behavior Change (ABC) Framework: Environmental Applications. Academy for Educational Development, Washington, DC, USA.

Dolisca, F., Joshua, M.M, Dennis, A.S., Curtis, M.J. (2009) A Multilevel Analysis of the Determinants of Forest Conservation Behavior Among Famers in Haiti. Society and Natural Resources.

Dung, V.N., Trinh, L.N., Hoang, X.T., Nguyen, D.T. (2007) Community behaviours towards nature conservation: A theoretical analysis for practical approaches. PanNature – People and Nature Conciliation.

Fishbein, M. & I. Ajzen. (1975); Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research.

Fishbein, M. and S.E. Middlestadt. (1989); Using the Theory of Reasoned Action as a framework for understanding and changing AIDS-relating behaviors; V.M. Mays, G.W. Albee and S.F. Schneider (ED.), Primary Prevention of AIDS.

Griskevicius, V., Robert, B.C, and Noah, J.G. (2008) Social Norms: An Underestimated and Underemployed Lever For Managing Climate Change.

Heimlich, J.E. and Ardoin, N.M. (2008) Understanding behavior to understand behavior change: a literature review. *Environmental Education Research*, Vol. 14, No. 3

Jacobson, S.K. (2010) Commentary: Effective Primate Conservation Education: Gaps and Opportunities. American Journal of Primatology.

Jacobson, S.K. (2009) Communication Skills for Conservation Professionals. 2nd Edition, Island Press, Washington, D.C.

Jensen, B.B. (2002) Knowledge, Action and Pro-environmental Behaviour. *Environmental Education Research*, Vol. 8, No. 3.

Jurin, R. R. and Fortner, RW. (2002) Symbolic Beliefs as Barriers to Responsible Environmental Behavior. *Environmental Education Research*, Vol. 8, No. 4.

Kollmuss, A. and Agyeman, J. (2002) Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behaviors?. *Environmental Education Research*, Vol. 8, No. 3.

Matarasso, M. (2004) Targetting Behaviour: Developing Conservation Education, Communications and Advocacy Programmes with the Participation of Local Communities. Hanoi, WWF Indochina Programme.

Matarasso, M. (2009) Working with People to Design Conservation Communications Strategies. Conservation International.

Monroe, M. (2003) Two Avenues for Encouraging Conservation Behaviors. Human Ecology Review 10, No. 2.

The Working Party on Development Cooperation and Environment. (1999) Environmental Communication: Applying Communication Tools Towards Sustainable Development.

Whitmarsh, Lorraine. (2009) Behavioural responses to climate change: Asymmetry of intentions and impacts. Journal of Environmental Psychology.

Toolkits:

Day B.A & Monroe M.C. (2000) Environmental Education and Communication for a Sustainable World: Handbook for international Practitioners. Academy of Educational Development, Washington, USA

Byers, B. (2000) Understanding and Influencing Behaviors: A Guide.
Biodiversity Support Program, Washington, DC, USA

Matarasso M. (2009) Targeting Behaviour: Workign with People to Design Conservation Communications Strategies. Conservation International Foundation, Arlington, USA

McKenzie-Mohr D. Fostering Sustainable Behaviour: Community-Based Social Marketing.