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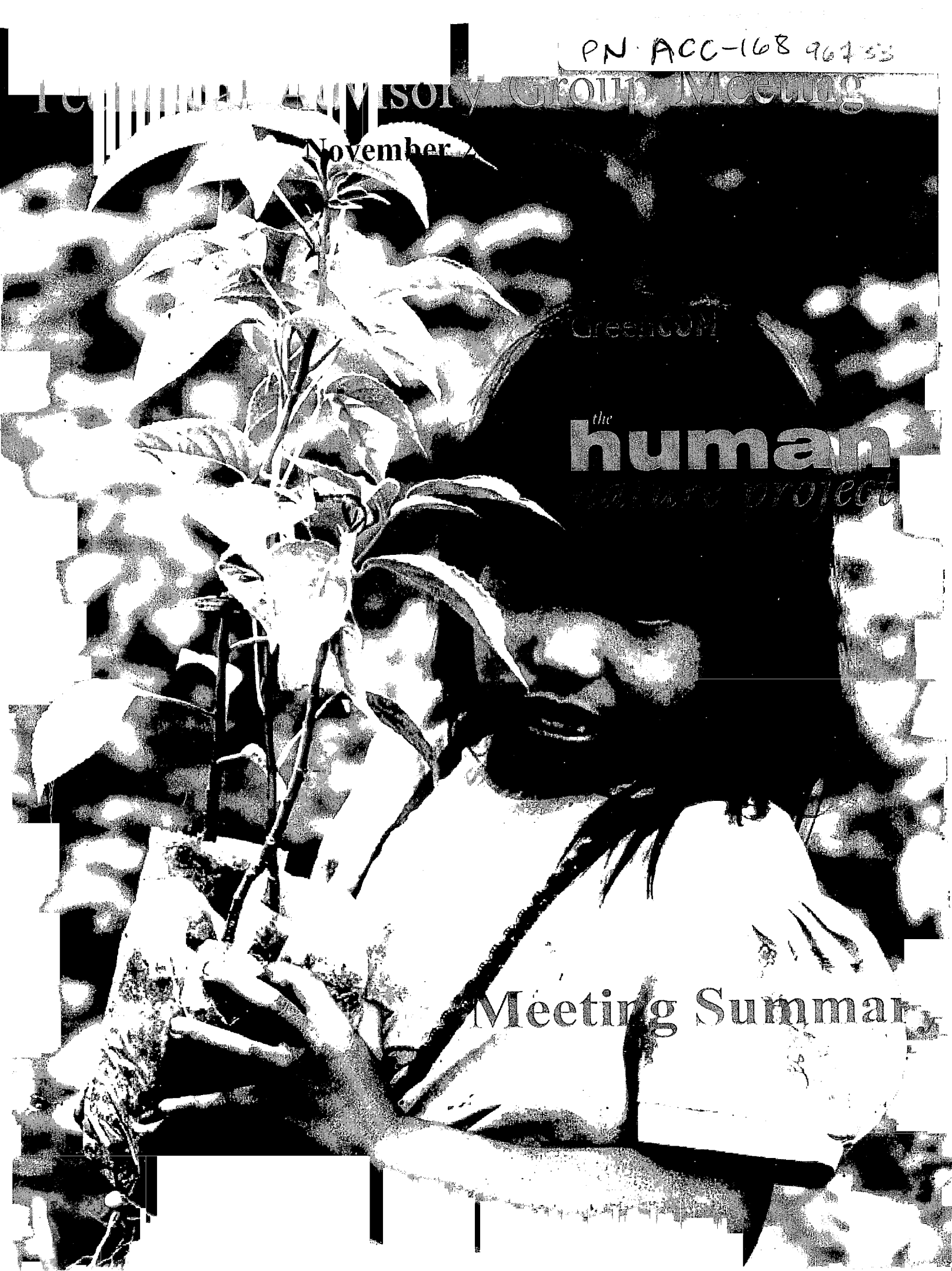
Technical Advisory Group Meeting

November



GreenCOP

the human rights project

Meeting Summary

Technical Advisory Group Meeting

Summary Report

An Applied Research Agenda for GreenCOM,
the Environmental Education and Communication Project

November 2-3, 1995

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EXECUTIVE SUMMARY

The 1995 Technical Advisory Group (TAG) meeting of the Environmental Education and Communication (GreenCOM) Project was held on November 2 and 3 at the Academy for Educational Development in Washington, D.C. The overall purpose of the TAG is to review the project's applied research activities and provide guidance in the dissemination of lessons learned thus far as well as the development of its future applied research agenda. The meetings further assist the project in achieving its goals within the strategic framework of the U.S. Agency for International Development's (USAID) Center for Environment to ensure GreenCOM's applied research activities constitute a valuable contribution to efforts to promote sustainable living resources, sustainable energy use, and sustainable cities. Other objectives include improving basic education and including a gender component for each activity.

The TAG members, GreenCOM team, USAID project officers and invited guests attended the meeting. Participants were asked for their suggestions regarding research design, how to incorporate gender analysis into analytic frameworks, the breadth and scope of future research publications and how best to disseminate relevant research findings to designated audiences. Discussions centered around research methodology, dissemination of lessons learned and issues of concern in the realm of environmental education and communication (EE&C). This report is intended to highlight the meeting proceedings and summarize salient research recommendations contributed by the TAG members.[1]

After reviewing GreenCOM's activities over the past year in such areas as education and communication interventions, mass media, and social marketing campaign development, contests/awards schemes, extension education programs, technology diffusion, participatory approaches and NGO development, the TAG members offered several applied research recommendations for the project. These include the following:

Project Goals and Outputs

- Produce tools for evaluation: indicators, survey instruments, and techniques to measure the success of an intervention.

- Share GreenCOM's "elements of success" with others by disseminating intervention development processes, measurement tools, and evaluation findings.

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[1]For a more complete record of the proceedings, please contact GreenCOM at the address listed on the inside report cover.

- Do not set goals that are unattainable. Behavior change is a relatively slow process. Quantitatively evaluate only those projects that are mature enough to demonstrate results and have adequate sources of hard data.

Research Methodology

- GreenCOM should continue to conduct applied behavioral research in the area of EE &C. There is a need for more information about how people's knowledge, attitudes, beliefs and behaviors interact and impact the environment. GreenCOM fills this gap in environmental research and has the potential to make important contributions to the environmental community.

- GreenCOM should incorporate gender analysis into all phases of an intended intervention. It is important to examine differences in socially ascribed roles within each culturally unique context, as well as potential secondary effects of an intervention, by gender.

- GreenCOM should tailor indicators/measures used in impact evaluations to the desired outcomes (e.g influencing a single behavior vs. having a general impact on attitudes and beliefs).

- USAID should continue to provide funding and support for GreenCOM to conduct quantitative impact evaluations of interventions that have the potential to produce measurable results. In this manner, GreenCOM is better able to document success stories and share information with others in the EE&C field. As this type of research is relatively expensive to perform, funds earmarked for this task should be set aside at the inception of an intervention.

- GreenCOM should consider exporting some data analysis work to developing country counterparts.

Getting the Message Out

- When writing general articles, think of themes that tie different studies together in order to integrate the lessons learned by the project in the field in various countries.

- Examine how the research conducted by GreenCOM fits into the policy process. Make sure policy papers describe actual case studies.

- Use developing country authors.

- Suggested target audiences:
  - engineers
  - policy makers/planners
  - educators/practitioners
  - communicators

- Publication formats to be considered:
  - articles
  - case studies
  - policy briefs
  - fact sheets
  - regional papers

- Recommended Fora for Publication:
  - peer-reviewed journals
  - radio
  - non-peer reviewed magazines
  - international Journals
  - newspapers (developing country)
  - CD ROM
  - video
  - news wire services
  - Worldwide WEB page

This report summarizes the presentations and discussions conducted at the 1995 TAG meeting. The report is organized to follow the session's agenda, which is reprinted as Annex A.

BACKGROUND

The GreenCOM Project was initiated in October 1993 and has a five-to-seven year contract with the United States Agency for International Development, Bureau for Global Programs, Field Support and Research. The prime contractor is the Academy for Educational Development. Sub-contractors include: Chemonics, Global Vision, Inc., and the North American Association for Environmental Education. Other collaborators include: the Futures Group, PRC Environmental Management, Inc., Porter/Novelli and the Kingsbury Group.

GreenCOM's mission is to understand and influence people as they act in their environment. Thus far, the project has been asked by USAID and host countries to address a wide range of environmental concerns, including biodiversity conservation, solid waste disposal, water conservation, coastal resource management, and public policy and awareness. Currently, long-term education and communication activities have been completed, or are currently underway, in twelve countries. Four of these are "emphasis" countries: El Salvador, Egypt, the Gambia, and the Philippines. Activities have also been initiated in Jordan and Ecuador. GreenCOM research activities range from small-scale, operations research studies to larger-scale impact evaluation studies, each with an eye to exploring differential effects by gender. Over the course of the project, shorter term research activities of this nature will be initiated in several additional countries.

The second annual TAG meeting of the GreenCOM project was held on November 2 and 3, 1995, at the offices of the Academy for Educational Development in Washington, D.C. The purpose of the annual TAG meeting is to review and critique applied research activities completed by GreenCOM during the past year and provide expert recommendations regarding the project's future applied research agenda. Four primary objectives of the meeting were to:

- familiarize TAG members with applied research activities conducted since the first TAG meeting convened on June 9-10, 1994
- conduct a peer review of the analytic frameworks/research methodologies used in both formative and evaluative research activities conducted by the project
- determine how best to disseminate research results and lessons learned to target audiences in an accessible format; and
- solicit suggestions regarding appropriate environmental journals and other publications where research results could be submitted.

Recommendations provided by TAG members will be used by GreenCOM to improve the design of its research studies, more effectively meet project objectives and make the most

efficient use of available resources and skills. In a broader sense, guidance given by TAG members will assist GreenCOM in contributing innovative research tools and valuable information to the burgeoning field of EE&C, ultimately leading to more sustainable use of natural resources.

I. Sharing Our Experience: GreenCOM's Contribution to Helping Achieve USAID's Strategic Objectives

Chair: Brian Day, GreenCOM Project Director

Opening Remarks

A short welcoming speech was given by Mr. Stephen Moseley, President of the Academy for Educational Development. Other opening remarks were made by David Hales, Deputy Assistant Administrator, Center for Environment, and Emily Vargas-Baron, Deputy Assistant Administrator, Center for Human Capacity Development of the U.S. Agency for International Development (USAID).

Mr. Moseley pointed out the multi-disciplinary, multi-organizational nature of the GreenCOM project, which includes core staff from AED and its partners, Chemonics and NAAEE, as well as collaborators within USAID.

David Hales stressed the importance of creating sustainable change in behaviors that impact the environment through small-scale activities that produce long-term effects. He further asserted that being able to see the consequences of actions taken now helps reinforce the need to promote change to benefit all in the future.

Emily Vargas-Baron described how GreenCOM's work in the countries of Jordan, El Salvador, and Ecuador has had resonance beyond those borders, influencing neighboring countries as well. Ms. Vargas-Baron emphasized that teaching lessons learned and sharing successful models, as GreenCOM strives to do, are vital to promoting environmental behavior change.

Purpose of this TAG Meeting

Presenter: Anthony Meyer, USAID GreenCOM Project Officer

First, the purpose of the TAG and the role of the interdisciplinary TAG members in this meeting were summarized. The TAG should serve as the shaping force behind GreenCOM's EE&C activities. Also stressed was the need to measure the impact of interventions and get the word out world-wide about EE&C lessons learned in the field by GreenCOM. This includes what worked and what did not, presented in various formats accessible to a wide range of audiences so that they, in turn, can put these lessons into practice. Distributing summary papers, training

manuals, handbooks, etc. to reach USAID missions and beyond was suggested. The TAG should assist GreenCOM by examining how data are collected, thinking through field experiences, and translating lessons learned into usable products.

The Unique Contribution of Education and Communication to USAID's Strategic Objectives for Sustainable Living Resources; Sustainable Cities; and the Improvement and Expansion of Basic Education

Presenter: Brian Day, GreenCOM Project Director

The importance of "listening to people" is the overarching theme of the 1995 TAG meeting. In order to design successful projects, it is first necessary to listen to the target audience's concerns and ideas. Inevitably, the question of "what's in it for me" arises. Successful interventions must be relevant to people's lives in order to penetrate through the multitude of messages with which people are bombarded every day. Behavior change strategies that have been successfully applied in public health, nutrition and AIDS education, may be transferable to the environmental field. Yet transferring techniques is not an easy task. It is necessary to identify, modify and replicate results in order to make generalizations.

Moreover, there is a need to modify environmental development activities so that they are designed in a gender-sensitive fashion. Project evaluations, in turn, must investigate any differential impacts of an intervention by gender. GreenCOM is committed to documenting these difference as well as measuring the overall impact of a project.

Highlights of What We Have Learned from Listening to People

Presenter: Susan Middlestadt, GreenCOM Senior Research Advisor

Each of the six presentations to be given in the morning were designed to answer one question, how GreenCOM's EE&C activities can contribute to USAID's strategic objectives in the areas of environment, basic education, and women in development. The GreenCOM "Human Nature Project" is focusing on behavioral aspects of a problem, by creating tools to listen to people through its programs and applied research activities. This includes both quantitative and qualitative tools; tools that look like programs and tools that look more like research. But as social scientists, the GreenCOM team makes its best contribution when environmental issues demand an understanding of the human dimension through **listening to people**.

The six presentations which follow, presented by members of the GreenCOM team, are brief summaries of completed and ongoing research activities that illustrate the value of listening to people when designing programs which address four critical environmental areas:

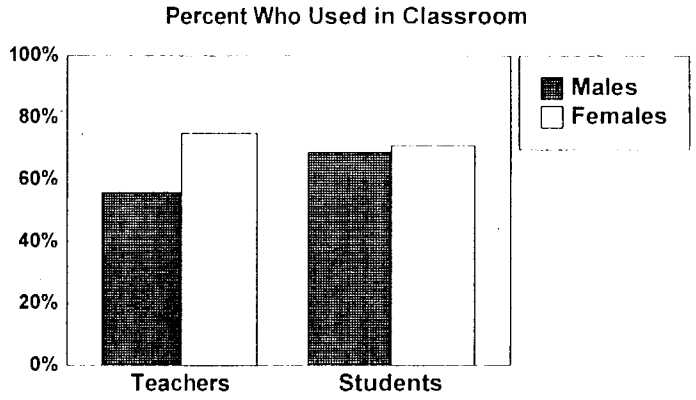
- Biodiversity
- Policy and Public Awareness
- Sustainable Urbanization
- Water Conservation

These presentations are meant to serve two purposes:

- to update TAG members regarding GreenCOM's field activities since the last TAG meeting, and
- to prepare TAG members for the general discussion and recommendation session to be held the next day.

GreenCOM

Environmental Supplement

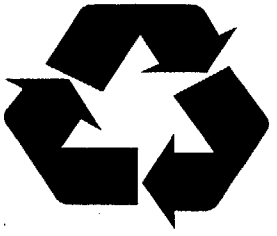


Solid Waste

Everybody wants to sell it

Who should get the money?

- **Men or women?**
- **Formal or informal?**
- **Municipal or household?**



Using Farmer Input to Help Select Behaviors to Reduce Biodiversity Loss (Ecuador)

Presenters: *Rick Bossi, GreenCOM Operations Support Manager*
Elizabeth Mills Booth, Resident Advisor, Philippines

GreenCOM was asked by the USAID Mission to develop projects to assist in efforts to reduce biodiversity loss around protected areas by involving local farmers in the process. The concept of biodiversity, or "we are one of the species", should be oriented to the field practitioner, project manager, technicians and farmers. Two questions arose during the program development process:

- What actions do we want people to take?
- Which practices are people willing to follow?

Listening to the people — local farmers — helped with selecting and defining the behaviors to be addressed by the program.

A guide, developed by GreenCOM member Elizabeth Mills Booth in Ecuador with AID's SUBIR Project, was used in the behavior selection process. In order to conserve biodiversity, the SUBIR project is seeking to limit the expansion of agricultural activity into protected areas through more intensive use of existing plots. The guide illustrates a participatory process to accomplish the task of selecting and defining environmental behaviors, and is designed for use by local natural resource managers. It shows them how to bring together technical experts, education and communication specialists and people from the affected communities. The goal of the guide is to show how to select behaviors which, if performed, will not only have a positive impact on the environment, but are feasible from the point of view of the affected community. An example of one behavior with a positive impact on biodiversity conservation that was considered feasible by local Ecuadoran farmers was "cultivating at least three ecologically compatible crops in each plot" of land they worked.

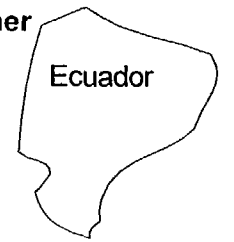
Using Farmer Input to Help Select Behaviors to Reduce Biodiversity Loss

Cuellaje, Ecuador

GreenCOM

GreenCOM Activity

- Develop a process to identify, select, measure and analyze key behaviors that will contribute to biodiversity conservation
- Ensure that the process is participatory, efficient, low-cost and oriented to the field practitioner



Sustainable Uses for Biological Resources (SUBIR) Project

Purpose: To identify, test, and develop economically, ecologically, and socially sustainable resource use models in protected areas & buffer zones

SUBIR-CARE Project

Components:

- INSTITUTIONAL DEVELOPMENT & ORGANIZATION STRENGTHENING
- SUSTAINABLE LAND USE MANAGEMENT
  Improve land use management practices
- COMMERCIALIZATION & MARKETING
- POLICY AND LEGAL ISSUES
- BIODIVERSITY INVESTIGATIONS

Answer this Question:

What do we want people to do to "improve" land use management?

Behavioral Practice vs. Behavior

	Definition	Example
Behavioral practices:	A series of related behaviors, taken together, that can have an impact on a particular environmental problem	Soil Conservation
Behavior:	A single, observable action that a person takes under specific circumstances	▪ Plant on contour ▪ Establish live fence on contour

The Behavioral Analysis Process

Step 1.

Assemble Multidisciplinary Team

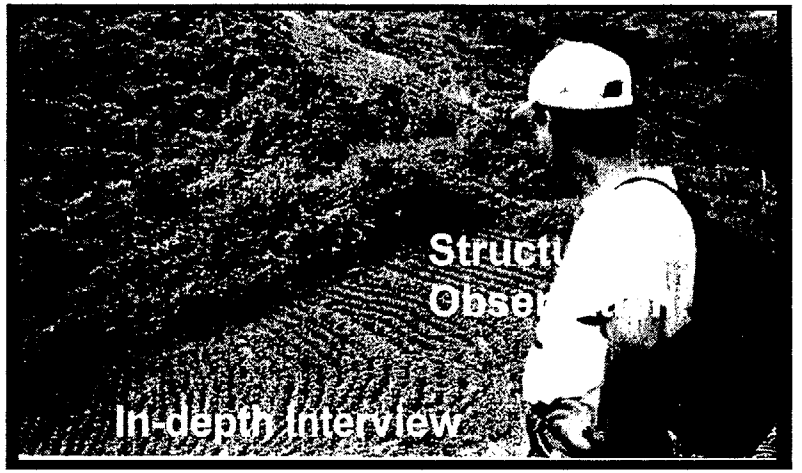
- Define Overall Goal of Project
- Define Objectives
- Identify Preliminary Behavioral Practices & Ideal Behaviors: "*What do we want farmers to do?*"

Preliminary List

Behavioral Practices :	*Behaviors :*
▪ Integrated pest management ▪ Crop diversification ▪ Crop association ▪ Correct use of fertilizers ▪ Soil quality maintenance ▪ Multiple use forest mgt. ▪ Soil conservation ▪ Water resources conservation	▸ Use Organic Fertilizers ▸ Use *Chemical* Fertilizers only: * after a soil analysis * in recommended quantities * mixed with organic fertilizers

Step 2.

Conduct Research with Project Participants & Non-participants



Step 3.

Analyze Results

Behaviors Adopted:

- Plant crops on contour
- Plant trees around plot (wind break)

Behaviors Not Adopted:

- Burn only land to be cultivated
- Do not cut vegetation within 10m of rivers/streams

Inappropriate Behavior:

- Use of toxic pesticides and fungicides

Unexpected Consequence:

- Women opposed: takes men away from farm/household

Step 4.

Select & Negotiate Target Behaviors

- Reassemble Multidisciplinary Team
- Rank Ideal Behaviors by:
  - Potential Impact on Biodiversity
  - Farmer Feasibility (Complexity & Cost)
- Negotiate & Revise List of Priority Behavioral Practices & Behaviors

Lessons Learned from Listening to (*and Watching*) Farmers

- Stakeholder perceptions of problems, benefits, consequences & solutions differ
- What farmers say and do are not always the same
- Project activities sometimes cause unexpected consequences and/or negative impacts on Biodiversity
- Project activities result in both positive and negative impacts on gender and family

How Can Behavioral Analysis Help Project Managers?

- Helps to focus/refocus limited project resources
- Considers farmer feasibility and impacts on Biodiversity
- Helps determine if gender inequities are being promoted

Using Farmer Input to Help Select Behaviors to Reduce Biodiversity Loss

Cuellaje, Ecuador

GreenCOM

Developing Mechanisms for Coordinating Participation in the Policy Process: Across Sectors, Across Levels (The Gambia)

Presenter: Irma Allen, Former GreenCOM Resident Advisor, The Gambia

Despite the fact that it was not in initial GreenCOM planning, what the country really wanted when Dr. Allen arrived was an environmental awareness campaign. Thus, she set about helping to launch an environmental awards scheme.

Dr. Allen listened to her counterparts and assisted them in setting up structures and processes for them to communicate with each other. A steering committee for the Awards Scheme, which needed to represent all participants, across sectors and across levels, was formed. The Committee was responsible for:

- holding a contest for environmental conservation ideas
- accepting entries from individuals and organizations
- judging different categories of ideas
- announcing and giving prizes to the winners
- describing winning ideas and incorporating winners into the policy process

This same committee, in turn, subsequently served as the foundation for building a committee to design a National Environmental Education Strategy (NEES).

This organizational approach was new to many. At one regional meeting, where chiefs of some of the many different tribes and the military attended, a military representative asked Dr. Allen to take a picture since it was the first time this group of influential persons had ever come together in one place.

In sum, in The Gambia, an awards scheme afforded lessons in forging a policy dialogue between different members and levels of the community. GreenCOM listened to counterparts and helped them listen to each other: not just top-down and bottom up, but across sectors at each level and across levels within each sector. This resulted in a policy process that began with the environment but has larger implications.

Strengthening Public and Private Sector Linkages: Using Newspaper Supplements to Teach Children about the Environment (El Salvador)

Presenter: José Ignacio Mata, GreenCOM Resident Advisor, El Salvador

In El Salvador, GreenCOM was able to find a relatively low cost, yet far-reaching, communication channel to promote environmental awareness. A newspaper owner expressed the willingness and had the in-house publishing expertise to develop and distribute a monthly environmental supplement in his newspaper, one of the largest dailies in El Salvador, *Diario de Hoy*. After three months of discussions between GreenCOM and the newspapers' editors, the editors decided to publish an environmental supplement, *El Guanaquin*, and are currently very supportive of the supplement.

Eventually, a public-private partnership was successfully created between the newspaper and the schools, an important accomplishment in a time of scarce resources. This partnership continues to thrive. A midweek teacher supplement is also publlished and a nationwide contest, attracting 5500 applicants, was recently held. GreenCOM is providing the paper with ideas for the content of the supplement. The newspaper is implementing the ideas, printing the supplement, and distributing it nationwide.

However, the subject matter of the *Guanaquin* environmental supplement has not been well coordinated with the formal education curriculum in the schools. Students and teachers have indicated that it would be more useful to them in the classroom if the supplement reflected topics being addressed concurrently in the classroom. This will be a future emphasis.

Results: Who Used the Supplement and How

Presenter: Reynaldo Pareja, GreenCOM Research Consultant

A study had recently been completed to evaluate the reach of the *Guanaquin*, and whether or not it is used, not just by the general public, but by teachers in the schools. The study was also meant to help identify ways to improve the *Guanaquin* and produce a more effective environmental education instrument for Salvadoran citizens.

Surveys were administered to both teachers and students in an effort to better understand their level of readership; current uses of the supplement; and ideas and suggestions for making it more relevant to their lives. Preliminary results indicate that the supplement is widely read by both teachers and students in both the metropolitan area of San Salvador as well as in several regional capitals.

Evaluation Recommendations:

- work on persuading parents to buy the supplement for their children

- work on teachers, especially males
- work on motivating children to talk to their parents
- coordinate the supplement with the curriculum
- insert teachers notes into the supplements for use in the classroom

Discussion

The Gambia

TAG members asked whether the Gambia had completed doing a National Environmental Education Strategy. The plan has only recently been completed. Moreover, the committee in charge of producing the plan was largely derived from the committees formed during the awards scheme project. It was further pointed out that each developing country is required to turn in a national EE strategy plan for sustainability to the U.N. as a result of Agenda 21. GreenCOM is helping several other countries, including El Salvador, begin this process.

El Salvador

TAG members inquired about the status of the environmental curriculum in El Salvador. An introductory 6th grade environmental curriculum is now being developed and will have cross-sectional items. Input will be obtained in the next few years regarding the 7th grade curriculum. The curricula in the higher grades, 10, 11, and 12, are more developed.

Several questions were asked about the *Guanaquin* in general, as well as how the evaluation research was conducted. Subjects of the *Guanaquin* include population, democratization and human rights. GreenCOM became involved in providing technical assistance a year after the supplement started. Newspaper staff have acknowledged that the *Guanaquin*'s themes need to be better coordinated with the lower grades, such as 6th and 7th. Questions asked in the evaluation included "Have you read it ?", "Have you used it ?", "If so, where ?"(home or school). The majority of respondents indicated they used it at home. In general, the *Guanaquin* intervention marks a subtle change in approach for GreenCOM.

This public-private partnership is being refined by the newspaper's owner. The newspaper is trying to cultivate the next generation of readers, a savvy marketing strategy. Furthermore, the paper is shaping the content of the supplements to better coincide with the interests of clients — in this case, teachers and students — by listening to their suggestions for improvement. What are the lessons GreenCOM can show others about working with policy makers and changing the behavior of influential people?

General

General comments ensued regarding the differences between projects and how they pose a

challenge for assessing across them. Each project, in its own unique way, is making changes for the future and changes for policy makers.

The question is whether or not interventions are just generating information or actually having an impact. The process of change is often gradual and many activities mark a first step in the right direction. It takes time to tailor educational components to the audience and educate and familiarize the audience with the educational materials. Most important to bear in mind is that underlying values must be impacted to change behavior. This task may prove even harder to address than health behaviors.

Discussion also revolved around how GreenCOM is planning on integrating all lessons learned from the field in various countries. In part, that is why the TAG members' input is needed, to help GreenCOM develop a process to get an overall picture of the project activities' impact. Disseminating ideas and findings to other countries is essential.

Measuring Behavior Change

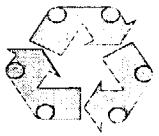
With respect to the *Guanaquin*, what will kids do as a result? What will they know? Is form — for example fancy graphics and complex diagrams — taking precedence over function? Impact evaluations are necessary to explore questions such as these.

The GreenCOM team concurred with the need to measure the impact of interventions. Change can only be measured if there are identifiable underlying determinants of behaviors. An example of this type of measurement is the Jordan evaluation. The hypothesis is that social behaviors underlie environmental behaviors. One determinant may cause several behaviors, which can be grouped into a category or scale.

Some questions, such as those pertaining to lifestyle (ex. soil conservation, planting), are difficult to measure. There may be a need to prioritize behaviors or focus on only one behavior. The question is how much to prioritize. There are a number of different ways to scale environmental change behaviors. An instrument may allow the assessment of a multitude of things. It could be a large scale, or it could be broken down (e.g. 20 recycling behaviors). Predictions can be made, or behaviors grouped into subgroups. In terms of results, does GreenCOM want to change people overall to make an environmental impact or change specific behaviors? This decision is very important to measuring what the intervention is designed to change.

Developing Mechanisms for Coordinating Participation in the Policy Process

Across Sectors, Across Levels
The Gambia



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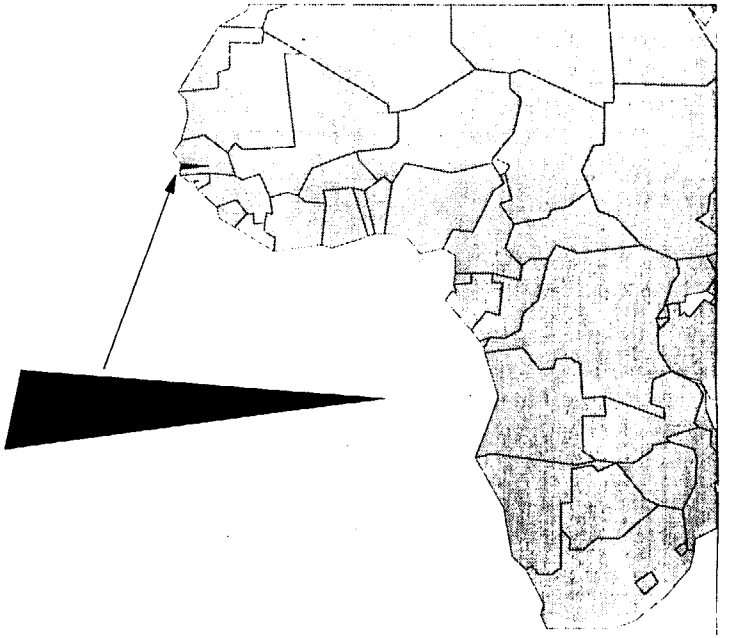

Award Scheme Objectives

- Increase awareness of the environment
- Promote public participation in environment management
- Promote the use of environment-friendly technologies
- Given recognition to individual/community endeavors in environmental management

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Award Scheme Steps

- Clearly define the goal(s) and objectives
- Determine the target audience
- Design a feasible plan
- Publicize widely
- Sensitize the community
- Judge the entries
- Award prizes
- Evaluate

GreenCOM

- Clean schools, Clean surroundings
- Enhanced surroundings
- Women and environment
- Community sustainable development
- Appropriate technology
- Clean and safe business and/or industry
- Clean and safe enterprise
- Advocacy, promotion

GreenCOM

You can help improve your environment and win prizes !

Join the

NATIONAL ENVIRONMENT AWARD SCHEME

Competitions NOW!

Enter the competitions below as individuals, educational and vocational institutions women's groups, community based groups (farmers, indigenous/local non-governmental organisations, private sector (businesses / industries):

Winners will be announced on June 5, 1994

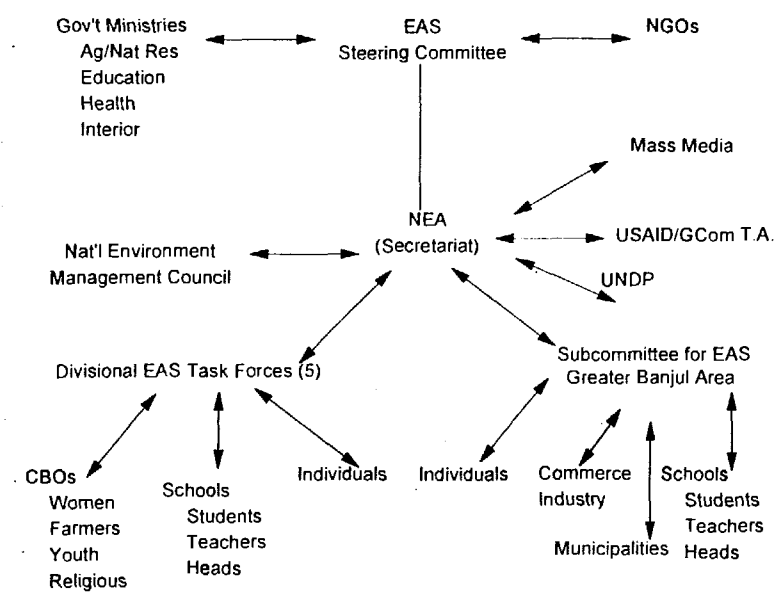
WORLD ENVIRONMENT DAY

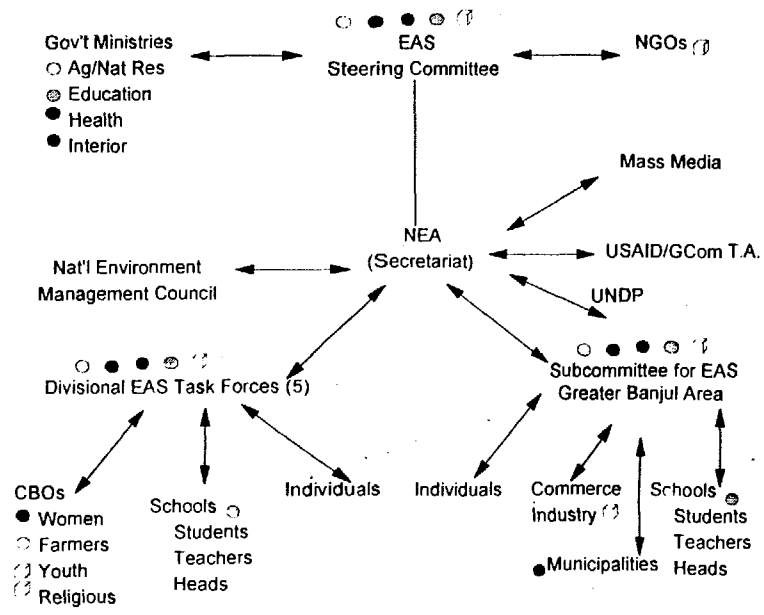
COMPETITIONS

1. ENHANCED SCHOOL SURROUNDINGS
2. ENHANCED SURROUND INGS (CLEAN WARD KMC / BCC)
3. WOMEN AND ENVIRON MENT
4. COMMUNITY SUSTAIN ABLE DEVELOPMENT
5. APPROPRIATE TECHNOLOGY
6. CLEAN and SAFE BUSINESS AND/OR INDUSTRY
7. CLEAN and SAFE ENTERPRISE
8. ADVOCACY PROMOTION

Entry forms for this competition are available at offices o Divisional Commisioners and NEA.

For further information contact
THE NATIONAL ENVIRONMENT AGENCY
5 Fitzgerald Street, Banjul
Tel: 228056 Fax: 229701





Award Scheme Achievements

- Increased participation by government
- Collaboration of government and NGOs
- Development of a sustainable infrastructure
- Increased interest and use of public media for environment
- Pooling of resources, more cost effective
- Capacity building: NEA, NGOs, government

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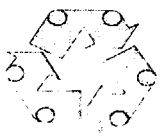
Developing Mechanisms for Coordinating Participation in the Policy Process

Across Sectors, Across Levels
The Gambia



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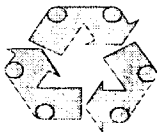
Using Newspaper Supplements to Teach Children About the Environment in El Salvador



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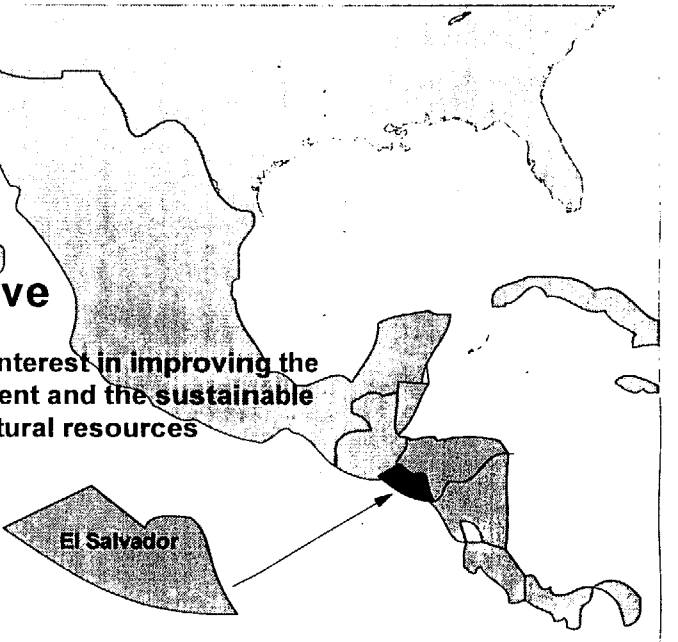
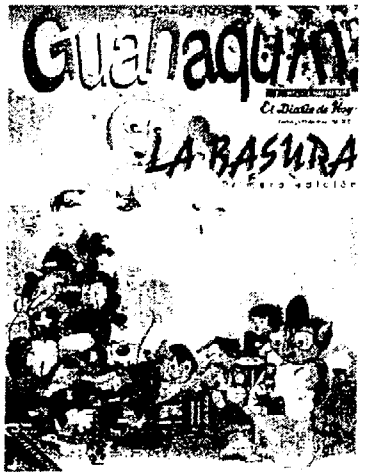
Objective

- Develop interest in improving the environment and the sustainable use of natural resources



The *Guanaquin* Intervention

- *Guanaquin* is part of an integrated environmental education strategy for children and adolescents
- Complements the formal environmental curriculum



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Public/Private Partnership

- *Guanaquin* represents a private sector contribution to the environmental consciousness of the nation

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Learning Approach

- encourages creative problem-solving among readers

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Themes of the *Guanaquin*

- Garbage
- Water
- Trees
- Reforestation
- Pollution
- Energy
- Plants and animals
- Eco-systems
- Recycling

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GreenCOM's Role

- Provide technical information that the newspaper can adapt to suit the style of the

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Improving the *Guanaquin*

- Suggestions solicited from students and teachers will help have a greater impact in the coming year

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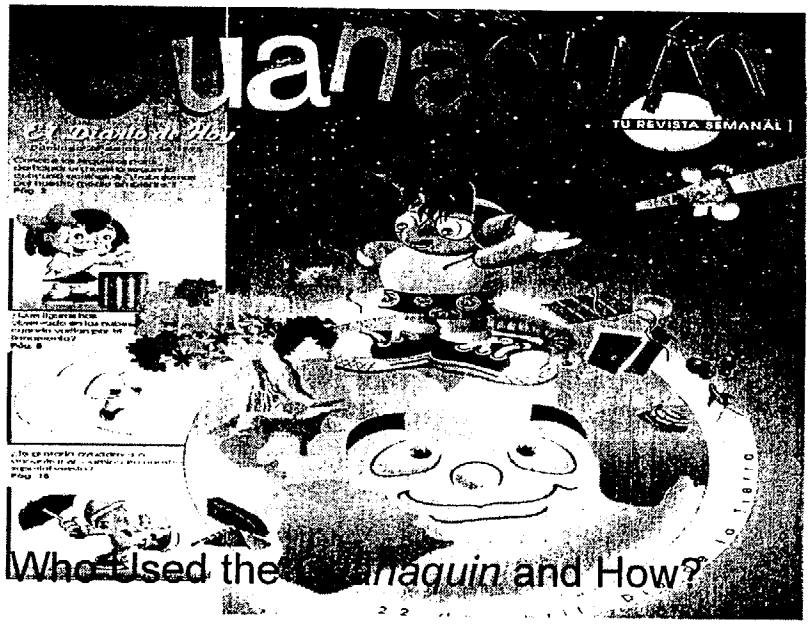


Who Used the Guanaquin and How?

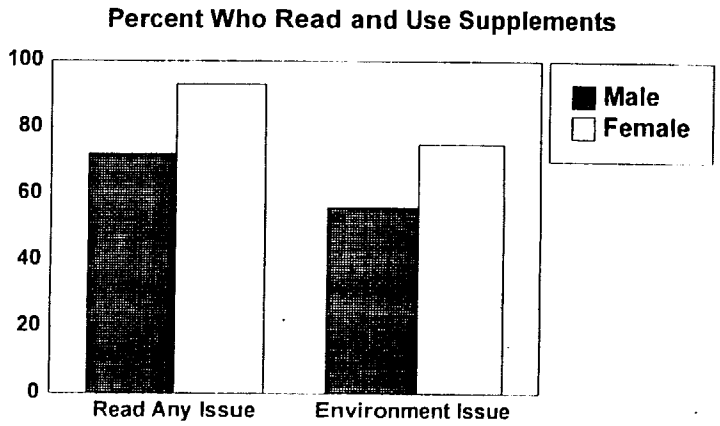
Purpose of the Evaluation

- Determine level of coverage of the Guanaquin
- Develop a clearer definition of the educational objectives of the [illegible]
- Recommend ways to improve Guanaquin's effectiveness as a non-formal environmental education channel for students

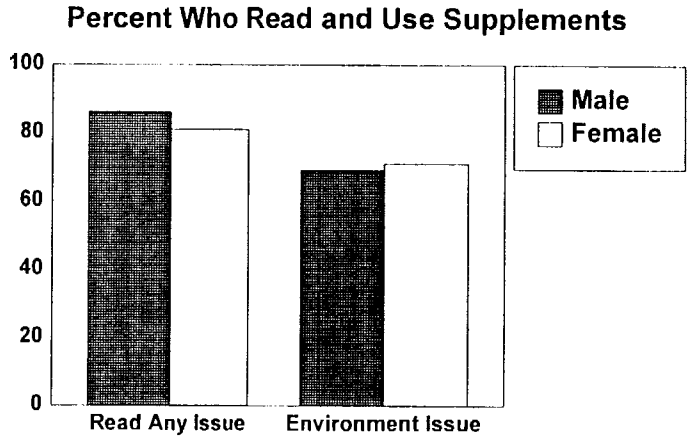
Evaluation Methodology

- In-depth discussions with *Diario de Hoy* staff
- Review of circulation data and other documentation with newspaper staff
- Surveys of randomly selected teachers and their students from 4 provincial capitals plus San Salvador
  - 58 second to sixth grade teachers
  - 267 second to sixth grade students
- Surveys conducted in public and private schools

Teachers' Readership and Use of Supplement



Students' Readership and Use of Supplement



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Program Implications

- Promotional campaign targeting
  - teachers
  - students
  - parents
- Coordinate *Guanaquin's* content with the subject schedule of the curriculum

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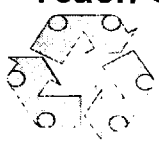
Using Newspaper Supplements to Teach Children About the Environment in El Salvador



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Why Has Recycling Fallen Off in Quito, Ecuador?

Presenter: Marco Encalada, General Manager, Corporacion OIKOS

GreenCOM assists OIKOS with its consulting work for the government of Ecuador. Concrete benefits are desired in order to make a measurable contribution to the country's environmental problems.

One main principle of state-of-the art education and communication is to develop programs based on formative research, applied research during which GreenCOM listens closely to people affected by programs. Solid waste disposal poses serious challenges for building sustainable cities in Ecuador. The strategy in Ecuador is to listen to people and incorporate suggestions into garbage collection and other programs.

A pilot recycling program was implemented by the municipality in several neighborhoods in Quito. Households were asked to separate their garbage; micro-enterprises composed of local residents were sponsored by the municipality to collect and sell the waste, funneling profits back into their neighborhoods. However, recently, compliance with the program guidelines has fallen. Why? A study was conducted to answer this question.

Results: Understanding the Perceptions and Roles of Men and Women in Improving Solid Waste Disposal in Quito, Ecuador

Presenter: Orlando Hernández, GreenCOM Applied Research Director

The primary question addressed in the study was why recycling has fallen off in the pilot municipal recycling program. Household members in pilot neighborhoods were interviewed and asked questions pertaining to their knowledge, attitudes, beliefs and practices with respect to recycling of waste.

Preliminary results suggest that garbage is now valuable, perhaps as a result of the recycling program. Now "everyone wants the money." The next question for program managers to determine is who should receive the money.

Understanding Perceptions and Roles of Men and Women in Improving Solid Waste Disposal in Quito, Ecuador

Marco Encalada
General Manager, Corporación OIKOS
Orlando Hernández
GreenCOM Applied Research Director

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Program Characteristics

- Organic waste → Composted
  Recyclables → Stored/sold
- Collection by neighborhood "micro enterprises"
- Funds used for neighborhood improvement projects
- Originally free bags

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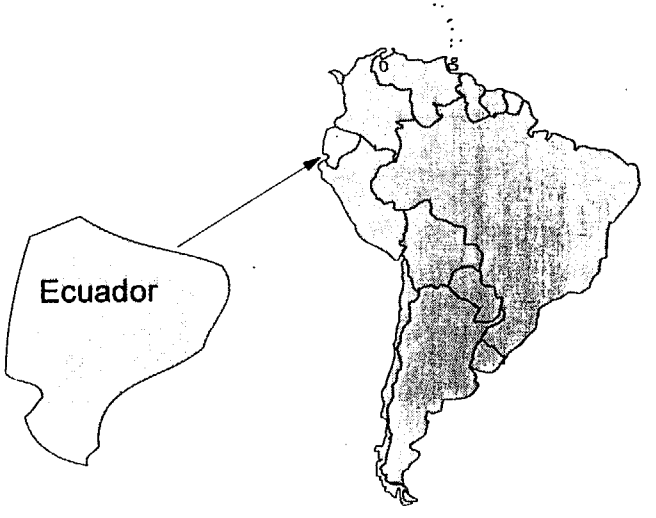
Program Characteristics



Research Objectives

- Understand garbage separation practices, possible determinants and role of gender
- Explain decrease in compliance with pilot program guidelines
- Help develop an educational intervention to improve garbage separation and recycling

Research Methodology

- 4 neighborhoods studied, 3 in program now
- Identification of garbage separators and non-separators
- Focus groups with
  - male and female residents divided into separators and non-separators
  - male and female micro-enterprise managers
  - neighborhood committee members
- In-depth interviews with micro-enterprise managers

Actual Waste Disposal Practices

Raw Organic		
Cooked Organic	R	R
Newspaper	R	R
Cardboard	R	R
Other paper types		
Liquor bottles	R	R
Other bottles	R	R
Cans		
Plastic oil containers		
Other plastic		

Benefits/Drawbacks for Separators

- Creates local development funds
- Others think I collaborate
- Sets a good example for the kids
- I gain knowledge
- I fulfill my household duties better
- Others think I am industrious
- Eliminates mosquitoes and rats
- Eliminates odors
- House looks prettier
- Requires little effort
- Requires no extra time
- Facilitates handling waste

Benefits/Drawbacks for Non-separators

- Others besides me make money
- Others get jobs
- It forces us to buy bags
- It demeans me
- Gets me dirty
- It limits my freedom in my home
- I collaborate with people I dislike
- It's too difficult
- Too time consuming
- Makes waste handling difficult
- Supports national development
- Provides more local raw materials
- Must keep sanitary waste too long

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Why People Drop Out

- No follow-up promotion of the project
- Don't know how are funds invested
- Want to make direct sales to scavengers
- Desire more frequent collection of sanitary waste
- Procurement of garbage bags is too costly

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Implications

- Community must decide how to use profits
- Promote greater participation by men
- On-going promotion of garbage separation and recycling
- Involve garbage collectors in educational and promotional activities
- Develop skills around waste separation
- Incorporate service changes suggested

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Understanding Perceptions and Roles of Men and Women in Improving Solid Waste Disposal in Quito, Ecuador

Marco Encalada
General Manager, Corporación OIKOS
Orlando Hernández
GreenCOM Applied Research Director

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Mobilizing Communities to Clean Irrigation Systems: Listening to Farmers in Egypt

Presenter: John Woods, Senior Technical Advisor

In the Middle East and Northern Africa, water is the most serious environmental issue. In Egypt, one major concern is the quality and quantity of water in the *mesqas*, the community irrigation channels that link the government water supply with farmers' fields. GreenCOM is working with a newly formed communication unit of the Ministry of Public Works and Water Resources (MPWWR). GreenCOM helped them listen to male and female farmers in one village that uses a *mesqa* and videotaped the process.

The community joined forces to clean up their village's *mesqa*. This represented significant progress since everyone, including farmers, attested that community action is rare. Moreover, the cleaning itself was a difficult and dirty process.

A presentation, with video tape viewing, detailing the *mesqa* clean-up activity was made to the USAID mission in Egypt, a group of approximately thirty people trying to introduce policy change in MPWWR. The video tape was also shown to top officials in the MPWWR to give them an idea of the views and perceptions of the community. MPWWR was exposed to the uses of communication to change behavior, a strategy they hope to employ in the future to involve people and facilitate the mobilization of more communities. The strategy used here, as well as the formative research results, are published in a booklet.

For the water policy change team, taking action in the community was key. Locals listened to each other and the Ministry listened to the local people. The activities mobilized the people. The *mesqa* may become dirty again, but the village team changed forever.

The overarching message was that GreenCOM and other EE&C projects must involve the people in the target community when doing formative research and when designing and implementing a program or activity. At the policy level, it is necessary to begin with concrete action that moves people toward the Ministry that creates policies that affect their lives.

Jordan Water Conservation Project: The Value of Including Teachers in the Design of a Water Conservation Curriculum for Eco-clubs in Jordan

Presenters: *Mona Grieser, GreenCOM Senior EE&C Specialist*
Mona Habib, GreenCOM Consultant

GreenCOM worked with the Royal Society for the Conservation of Nature (RSCN) to develop a five-unit water conservation education curriculum for use with high school environmental clubs, or eco-clubs, throughout Jordan.

A participatory curriculum development process was employed. The backgrounds of the participants in the curriculum development workshops were diverse and included environmental experts, teachers, Ministry of Education personnel, and others. The pitch of the curriculum had to be easy and accessible to non-science teachers, as many eco-club teachers did not have science training.

Randomly selected eco-club teachers were invited to attend a two-day "training workshop" where they were provided with a copy of the curriculum, outlining the logic of an interactive teaching approach, and given a chance to try out some of the suggested activities. They were then asked to implement the curriculum during the second semester of the 1994-1995 school year.

Results: Actual Changes in Knowledge, Attitudes, and Practices of Jordanian Teachers and Students

Presenter: *Susan Middlestadt, GreenCOM Senior Research Advisor*

RSCN initially selected a random subset of eco-club teachers to receive the new water conservation education curriculum in January, 1995. Other teachers were scheduled to receive it the following year. This enabled the design of a quantitative experimental evaluation of the impact of the curriculum at the end of the semester in May 1995. The evaluation was conducted jointly by RSCN and GreenCOM. Self-administered surveys were given to participating teachers and their students (experimental group) and non-participating eco-club teachers and their students (control group).

A total of 90 teachers were surveyed: 61 who participated in the project and 29 who did not. Surveys were also obtained from 671 students: 424 students who were exposed to the curriculum, and 247 students who were not. The samples of teachers and students were relatively evenly divided between males and females.

Results of the evaluation indicated that the Water Conservation Education Project:

- changed how teachers conducted eco-clubs, in content, with more activities on water and

format, using more participatory activities;
- increased students' knowledge about water conservation;
- improved students' attitudes and beliefs about water conservation; and
- caused students to perform a greater number of desired household conservation behaviors.

In addition, the Water Conservation Education Project served to enhance RSCN's capacities in the areas of applied research methodology, materials development and ability to design gender sensitive programs

The lesson learned by GreenCOM and RSCN is simple: programs that are based on listening to participants are effective at changing water conservation behaviors.

Discussion

General

The question arose as to how GreenCOM chooses:
- which countries to work in
- which teachers to train or target
- which projects to do

Much of this is determined by USAID policy/foreign assistance, which encompasses a broad range of countries and projects. Lessons learned by GreenCOM should help guide AID missions and change how business is done.

Jordan

The GreenCOM team elaborated upon the curriculum development process in Jordan at the request of TAG members. TAG members also wished to know how to replicate the process. RSCN chose which teachers from their eco-clubs would receive the curriculum, for the most part the most motivated teachers. The sample was stratified by location/socio-economic status. An expert Arabic consultant was brought in to teach principles of pedagogy. Participatory exercises were developed by the group, making sure first that the materials were available. Expert lectures on water were given.

The curriculum methods are spreading: within RSCN and to other ministries, so the process is being replicated. This transference of the participatory methods may be something worth measuring longitudinally, as well as measure gender differences which may emerge over time. In addition, Jordanian teachers are now bringing in students to help design other materials, which they refused to do for the eco-club curriculum. Attitudes are changing. RSCN is a very influential and respected organization. Lastly, the Ministry of Education asked RSCN to assist them. Whether this will happen or not remains uncertain.

Ecuador

In Ecuador, the questions to be asked are: why are some people doing the right thing and separating their garbage, and can we encourage then to keep it up? How much of GreenCOM's effort/investigation goes into reinforcing positive behaviors versus changing negative behaviors? Which behaviors have the most positive and negative impacts? How do we use that information? Looking at impact and borrowed terminology from the health field, this is an epidemiological question: what factors influence the disease?

TAG members raised questions about the problems, costs and length of the project in Quito. They expressed reservations as to whether or not GreenCOM could do all the quantitative behavioral analysis required by the evaluation with the budget allocated for the task.

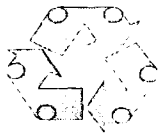
TAG members further stressed that the community ought to get the profits from recycling. How do you choose community benefit if individuals want the garbage for themselves to sell to scavengers? The micro-enterprises do generate jobs for community residents. In addition, the municipality of Quito appears to be benefiting despite the lack of political and economic support at the national level for recycling. Other communities are putting together micro-enterprises, but these are not finalized yet.

The current trend in Latin America for addressing problems with solid wastes is to create small companies to organize collection services. But there is no research to support that this approach is best solution. The GreenCOM Quito evaluation should contribute to the body of evidence.

Local industry involvement in the actual recycling of materials is the next stage of the project.

Mobilizing Communities to Clean Irrigation Systems:

Listening to Farmers (Egypt)



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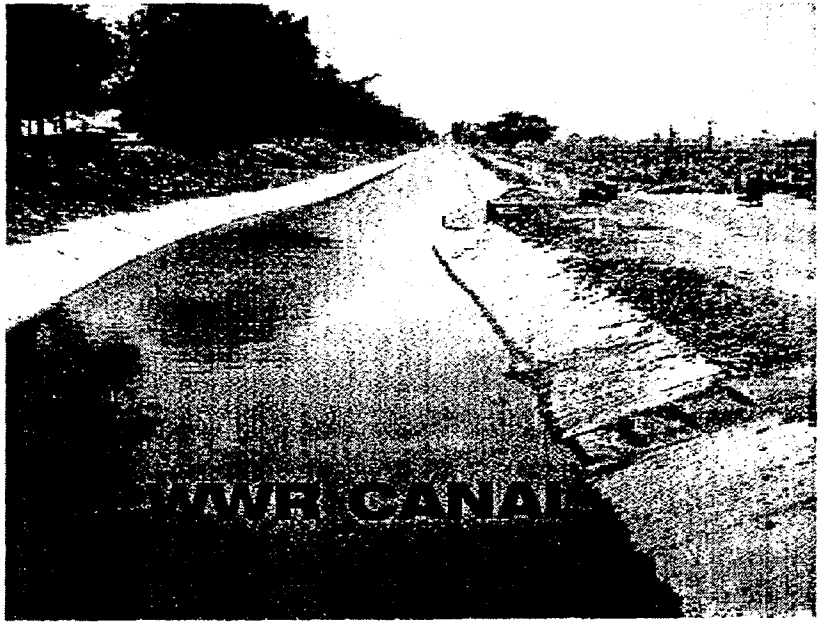

Historically Egypt has had an abundant supply of water.

MPWWR has performed an engineering role in water delivery.

MPWWR must do business in a new way:

they must involve the people.

GreenCOM had 4 months to:

- Help create communication strategy
- Demonstrate community participation
- Help identify and initially train staff
- Draft institutional development plan
- Introduce gender concerns

Milestones:

- May - D.O. signed
- Jun - Briefing on strategy
- Jun - Formative research
- Jul - WCU decree issued
- Aug - Demonstration/video taping
- Sep - Present video to Ministry

Video tape shows

- People want to clean the mesqa.
- Community can be mobilized.
- Ministry relationship with community needs improving.

Mobilizing Communities to Clean Irrigation Systems:

Listening to Farmers (Egypt)

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Jordan Water Conservation Project

The Value of Including Teachers in the Design of a Water Conservation Curriculum for Eco-clubs

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Project Objectives

- Improve the knowledge, attitudes, beliefs and behaviors of students regarding domestic water consumption.
- Persuade teachers to use participatory teaching methodologies.
- Train RSCN in participatory materials development and research methodology.

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Results of Formative Research for Students and Teachers

- They are generally aware of water problems and know they are man-made.
- They believe the State is responsible for alleviating the problem.
- They resent water rationing as they believe it favors the middle class.
- They believe personal water conservation during shortages has no benefit since consumption rises when water is plentiful.

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Gender Differences

- MEN
  - See their role as social promoters of water conservation.
  - Could state only 1 or 2 ways to reduce domestic water use.
  - More frequently mentioned the role of public responsibility.
- WOMEN
  - See their role as implementors of conservation measures.
  - Could state several ways to reduce their domestic water use.
  - Personalize conservation measures.

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Participatory Teaching Approach

- Experiential and competency-based
- Builds on "discovery learning"
- Allows learner to set the pace
- Provides information relevant to learner's life
- Features cooperative methods
- Builds skill confidence
- Is values based

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Teacher's Roles In Participatory Approaches

- Serve as facilitator, not authoritarian figure.
- Create opportunities for learners to gain knowledge through exploration.
- Exhibit enthusiasm for, not necessarily expert knowledge of, a subject.
- Ensure learners are engaged and enjoy the process.

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Materials Development Workshop: Participants' Backgrounds

- RSCN Education staff
  - 2 agriculture
  - 1 biochemistry
  - 1 language arts
- RSCN Parks Program Staff
  - 1 biology
  - 1 high school graduate
- Ministry of Education Staff
  - 1 administrator
- Consultants
  - 1 education/curriculum development
  - 1 EE&C/participation
- Teachers
  - 1 Arabic language
  - 1 history teacher
  - 2 science teachers

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Topics of Water Units

- *Unit 1:*
  The water cycle in nature/water sources
- *Unit 2:*
  Reduction of domestic water usage
- *Unit 3:*
  Ground and surface water sources
- *Unit 4:*
  Ground and surface water pollution
- *Unit 5:*
  Gardening and irrigation

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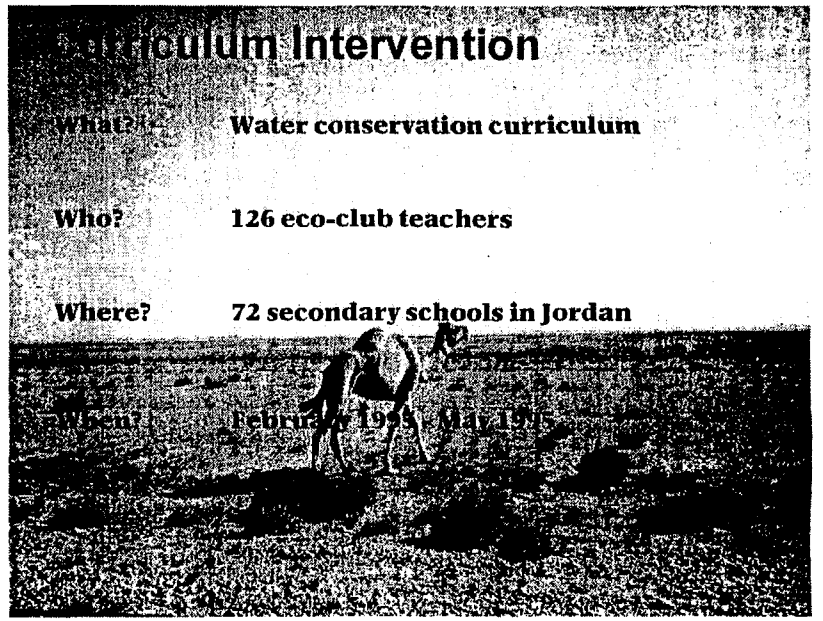

Evaluation Hypotheses

- Overall by gender
- Teachers will implement a greater variety of water activities, as well as interactive water activities.
- Students will have improved knowledge, attitudes, beliefs and practices regarding water conservation at home.

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Evaluation Methodology

- Post-only experimental design
- Sample
  - 90 eco-club teachers
    - 61 participants (experimental group)
    - 29 non-participants (control group)
  - 671 eco-club students from 38 schools in Central Jordan
    - 424 participants (experimental group)
    - 247 non-participants (control group)

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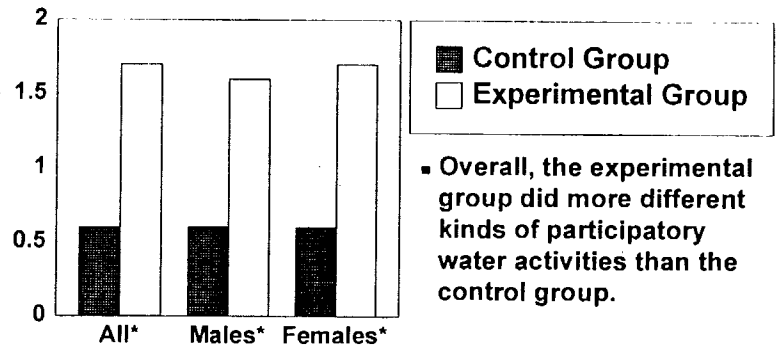
Effects on Teaching: Types of *Participatory* Water Activities

Content Analysis of Activities Performed

Mean Score



- Overall, the experimental group did more different kinds of participatory water activities than the control group.

*p<.05

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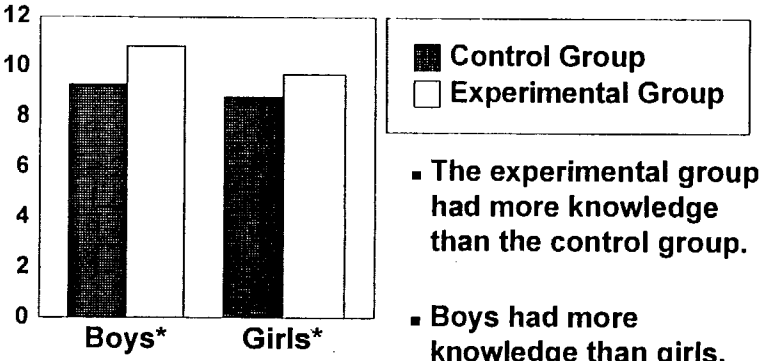
Effects on Student Knowledge

Seven Questions on Water Resources and Conservation

Mean Score (range of 0-18)



- The experimental group had more knowledge than the control group.
- Boys had more knowledge than girls.

*p<.05

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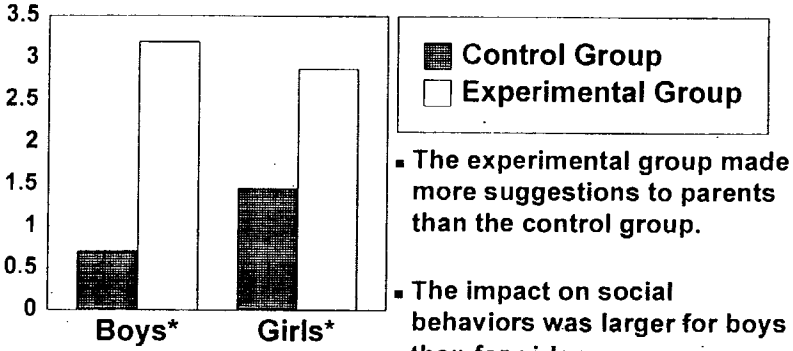
Effects on Student Social Behaviors

Five Questions About Making Suggestions to Parents

Mean Score



- The experimental group made more suggestions to parents than the control group.
- The impact on social behaviors was larger for boys than for girls.

*p<.05

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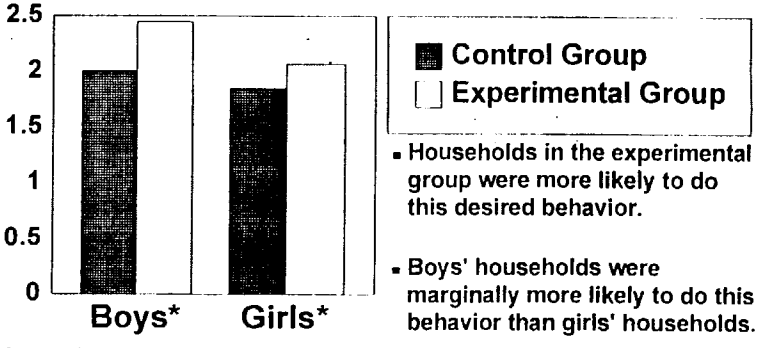
Effects on Household Behavior

In the past week, someone in my house watered the garden in the evening.

Mean Score



- Households in the experimental group were more likely to do this desired behavior.
- Boys' households were marginally more likely to do this behavior than girls' households.

* p<.05

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Conclusions

- Changed how teachers conducted eco-club activities in content and in format.
- Improved student knowledge, attitudes, beliefs, and most importantly, behaviors regarding water conservation.
- Improved RSCN's capacity to develop materials, to conduct applied research and to implement gender-sensitive programs.

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Jordan Water Conservation Project

The Value of Including Teachers in the Design of a Water Conservation Curriculum for Eco-clubs

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II. How Can Innovative EE&C Interventions Help Change Behaviors That Will Contribute to Achieving USAID's Strategic Objectives

Chair: Kate Barba

Obtaining Input on Three Key EE&C Issues

Presenters: Orlando Hernández, GreenCOM Applied Research Director
Susan Middlestadt, GreenCOM Senior Research Advisor

The role of the TAG members is to offer guidance and advice regarding the focus of GreenCOM's future research activities. In order to do this, Dr. Hernández asked the TAG members to review each of the research summaries provided in the briefing books in preparation for a final discussion session planned for the following afternoon to address this issue. The TAG members were also asked to consider what role the three key EE&C issues of gender, site-based communication, and school-community linkages, to be presented that afternoon and the following morning, should play in GreenCOM's future research agenda.

Advice

Advice Being Requested

- Content
- Methodology
- Analytic Framework
- Points to Emphasize in Publications

Advice Being Requested

- Topics
  - Beyond WID and Sex-Disaggregated Analysis
  - Site Interpretation
  - School-Community Linkages
  - Research Publications

Mechanics

- Presentation
- Discussion
- Conclusions

Gender Perspectives

Presenters: *Nancy Diamond, Environment Advisor, USAID/G/WID*
Mona Grieser, GreenCOM Senior EE&C Specialist

The presentation centered around two primary questions:

1. What is gender?
2. Why does gender matter to EE&C?

There is a lack of literature, models and project work to provide guidance in the area of gender analysis. They raised the question as to whether the link between women and environment is by nature or by force, e.g. poverty and other factors. Bettering the environment can help women by assisting them in earning an income and improving their health.

While sex is a biological trait and cannot be changed, gender is a sociological construct, or a set of ascribed roles, and can be changed. From a research standpoint, although it is important to explore potential differential impacts of an intervention by gender, gender does not always stand alone as a unifying factor when comparing different populations. For example, wealthy men and women may have more commonalities between them than wealthy women and low- income women. Moreover, gender operates in different ways in different cultural contexts. For example, in Latin America, boys are more likely to drop out of school, while in the Middle East, girls are more likely to drop out. In general, research studies should consider both the effectiveness and equity of a particular intervention.

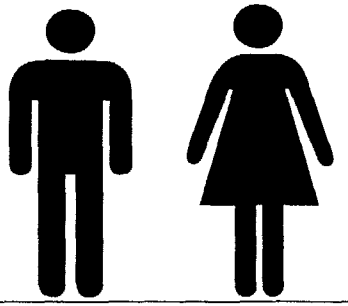
Four sample research questions, based on GreenCOM's research activities, were presented to stimulate discussion among the group about ways of incorporating gender analysis into these studies. In essence, this was a retroactive exercise to determine alternative, and perhaps better methods, GreenCOM could have used to "engender" some of its qualitative and quantitative research activities. The sample cases were:

1. Ecuador Buffer Zone
2. El Salvador Newspaper Supplement
3. Egyptian *Mesqas*
4. Ecuador Garbage Collection

Discussion

Programs need to explore gender differences. For example, a gender question of interest is, when boys and girls have choices in courses and careers, are there differences in what they decide to pursue? Moreover, program issues related to gender include taking into consideration alternative livelihoods and possible secondary effects that may lead to the loss of indirect employment. The overarching question is whether GreenCOM wishes to be involved in social engineering or focus exclusively on environmental changes irrespective of who is involved or adversely affected. Equity versus improvement of the environment, which one is the goal? Are they mutually exclusive?

GreenCOM needs to broadly examine any proposed research and include in the proposal and work plan any perceived limitations, such as being able to solve the problem of garbage in the *mesqa* in Egypt since solid waste is not an MPWWR an issue.



Gender Perspectives

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Before GreenCOM - What did we know about Gender and EE&C - Not much

- Little in Literature
- Little project experience
- Mostly uS-based experience

Literature in other sectors talks about gender

- Some of the gender literature talks about the environment
- Some of the gender literature talks about EE&C

Lots of information on women as resource users or victims

Less information in other areas of environment

- Marine resource links
- Salinization
- Household contamination

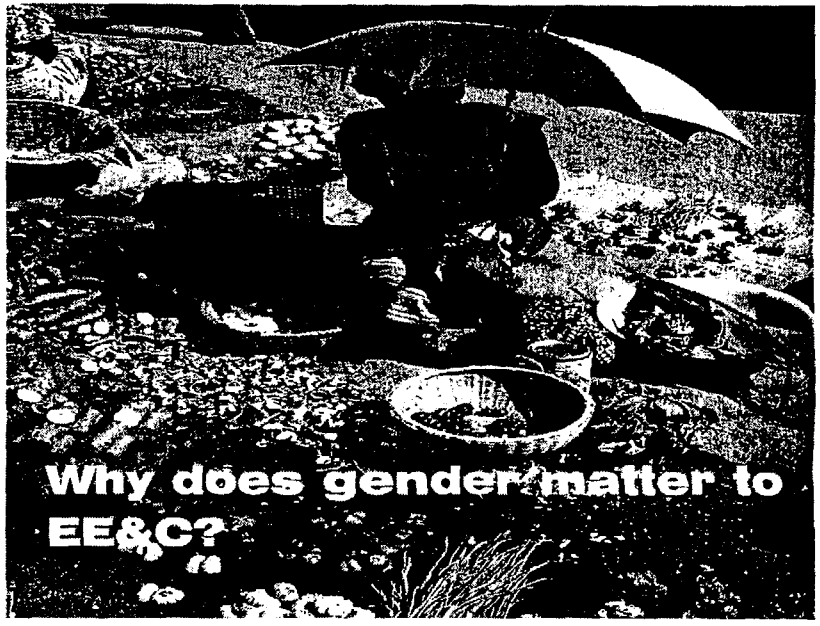
Less information linking environment and women's ability to earn income, maintain a family, and maintain personal health

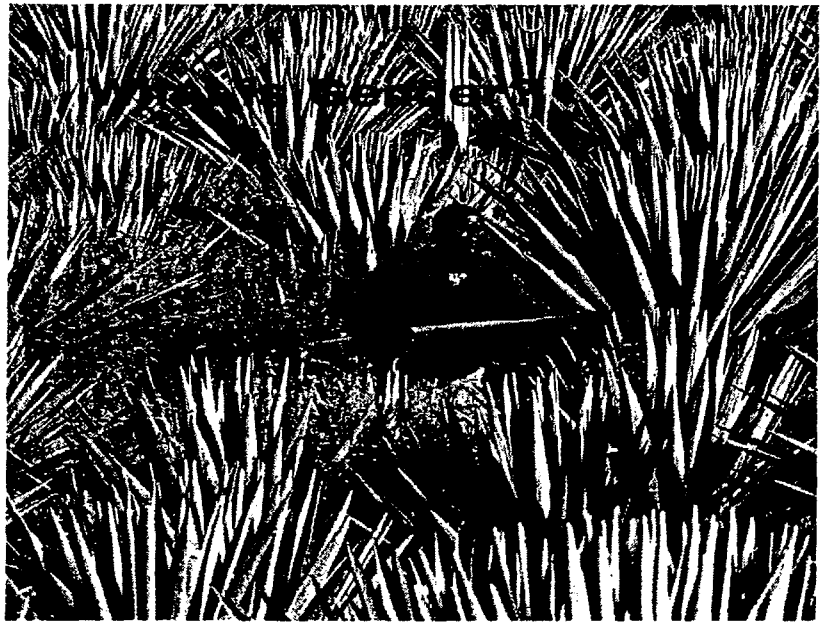
Resource-based income-generation

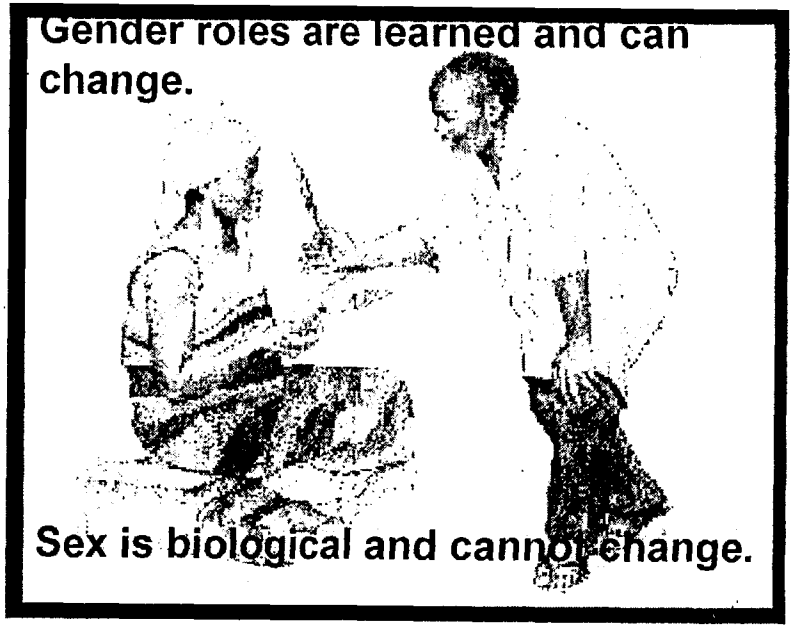
- Often harvest non-timber forest products
- Collect fuelwood for sale and for charcoal
- Active in small-scale fishing industry

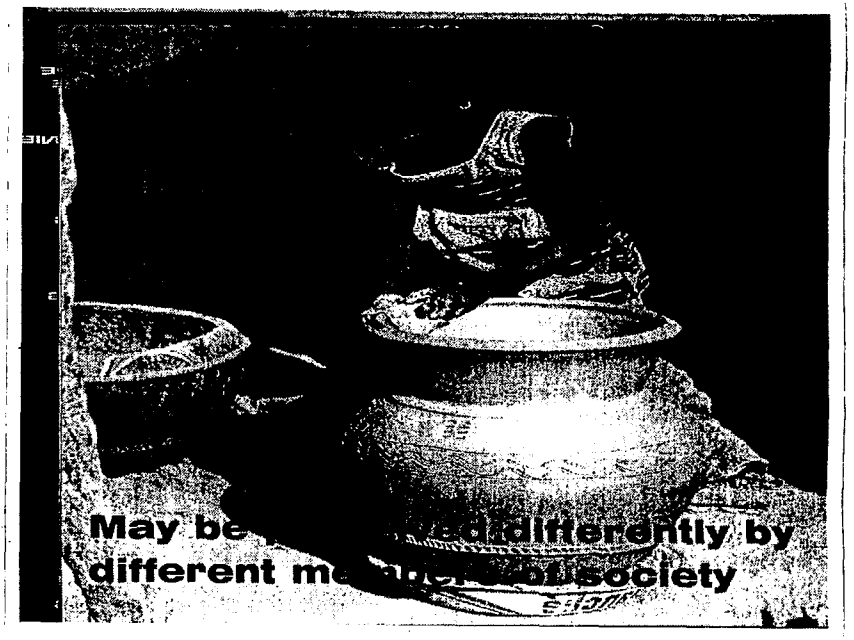
Family, Nutrition, and Health

- Lack of adequate sanitation
- Less time to collect fuel
- Exposure to smoke pollution









- Gender is relational, not causal
- Gender relations are dynamic not static
- Broader social dynamics affect gender

Gender analysis is:

- A toolbox of methods, rapid and conventional
- A conceptual framework (a way of looking at the world)

Gender analysis provides an understanding of:

- Roles
- Responsibilities
- opportunities

of different players

Intra-household and community about natural resource management

Intra-household and community about environmental decision-making

Gender and Environment can be grouped around:

- Effectiveness Issues
- Equity Issues

How can GreenCOM learn and contribute to gender and EE&C literature?

Learning within Projects and specific contexts (Project hypotheses)

Generalizing across projects by types of activity, region, client, etc.
(Program hypotheses)

Sample Research Question No. 1

Ecuador Buffer Zones

What is the difference in beliefs and attitudes between farmers participating in the project and farmers who do not in terms of the farming practices being recommended by the project?

Sample Research Question No. 2

El Salvador Newspaper Supplement

- What is the feasibility of a particular vehicle (newspaper supplement) in reaching teachers and students?
- What is the exposure of students and teachers to the supplement?
- Did teachers and students look at the supplement, did they read the supplement, did they like the supplement?

Sample Research Question No. 3

Egypt Irrigation Canals

- What were the barriers and benefits to farmers cleaning and maintaining the "mesqas"?
- What were the barriers and benefits to organizing a specific community of farmers around the subject of cleaning their "mesqas"?

Sample Research Question No. 4

Ecuador Solid waste disposal

- Do households which separate their garbage differ in their underlying beliefs and attitudes from households which do not separate their garbage?
- Is recycling already taking place in these communities and what kind?

Hypothesis

Jordan School Curriculum

- Teachers will implement a greater variety of water activities, as well as, interactive water activities.
- Students will have improved knowledge, attitudes, beliefs, and practices regarding water conservation at home.

Issue Paper: A Belief Centered Approach to Site-Based Environmental Interpretation for Biodiversity in Central America

Presenters: *Ed Krumpe, Professor, Department of Resource Recreation and Tourism, University of Idaho*
Sam Ham, Professor, Department of Resource Recreation and Tourism, University of Idaho

First, the difference between a site-based intervention and extension work was explained. Site-based communication is linked to a specific site but can be conducted off-site as well. Site-based interpretation interventions broadly consider the history of the area as well as off-site users and influences.

The need to identify both threats to the environment and the causes of those threats, such as naivete, misinformation, ignorance or poaching, was stressed. While the first three may be addressed by interpretation, the latter requires a different approach. Parks can only exist in conjunction with cooperative communities.

Three functions of site-based interpretation were identified:

- Better protect the environment
- Enhance recreation experiences
- Improve public relations

Three target audiences were also identified:

- on-site tourists
- local inhabitants
- remote audiences (i.e., voters)

Site-base interpretation is distinct as an educational medium targeted at a non-captive audience. Thus, messages must engage and retain listeners' attention. Information provided must be relevant and well-organized. Both on-site and off-site activities are recommended to best target and influence beliefs which affect behaviors that impact the environment.

The "Theory of Reasoned Action" and its application to site-interpretation was described next. The theory defines several types of beliefs which have the potential to influence behavior:

- behavioral belief: belief about results
- normative belief: "I should do this because others think I should"
- control belief: individual believes he or she has the resources and skills to perform the behavior

Control beliefs include the perception of both barriers and benefits to performing a behavior.

Finally, several steps to follow in developing a site-based interpretation intervention were outlined:

- identify the problem behavior source
- identify appropriate behavior replacements
- create a communication program with target audience and salient message
- evaluate the impact of the program

Discussion

Site-based interpretation is a new area of interest for GreenCOM. Currently, opportunities are being explored in:

- Ecuador (forests)
- El Salvador (forests)
- the Philippines (forests and coral reefs)

Having the right message and getting the message out are two distinct issues. Evaluation of interventions is important to measure success. Research for evaluative impact of a site-based interpretation program should examine:

- specific performance objectives for biodiversity conservation, rangers and guides, etc.
- knowledge
- skills
- degree to which applies in zone

In addition to determining if a certain behavior is a threat to biodiversity, potential social conflicts should be taken into consideration.

With respect to the information-gathering instruments to be used, there is a need to scale down the questions. In addition, the different items from the instruments must be evaluated and classified into:

- good behavior
- bad behavior
- supportive normative belief
- opposing normative belief
- easy control belief
- hard control belief

One drawback of using focus groups as a research tool is the threat of the "snowball effect". Idiosyncratic beliefs may be given prominence in a particular discussion but may not reflect the views of the population at large.

A good test between good site-based interpretation/communication versus no interpretation is needed. Studies show good interpretation improves the local economy. For example, a survey of people/tourists after canoeing down a river revealed that those who were accompanied by guide outfitters had a more enjoyable visit. They, in turn, were more likely to recommend this activity to friends and relatives and relate what they had learned about the environment during the trip.

Goals of the intervention may vary from changing overall attitudes and beliefs to targeting a specific behavior. An example of site-based communication focusing on one behavior can be found in Botswana. The country is getting the community economically involved to decrease poaching. In order to be successful, it is necessary to make protection of wildlife more valuable to the community than the poaching practiced by a few. In general, with respect to eco-tourism, communities must know how to negotiate for their own best interests.

In the Philippines, Silliman University has been selected to develop an international environmental interpretation center. But the question arises, how do you develop an interpretive center if you do not know who the audience will be? Different nationalities hold diverse cultural and social beliefs that may have important implications for the design of an interpretation intervention. For example, the collectivist culture/beliefs of Japan contrast sharply with the individualistic culture/beliefs of Europe. Different cultures have different perceptions of, and motivations to, "lie, cheat or steal". Japanese tourists may take parts of coral reefs from Australia back to show family members, not for personal gain. As a result, some conservation messages have not worked as well with them as they have with European populations.

TAG members reiterated the difference between behavior-focused interventions and attitude-focused interventions. The choice is GreenCOM's in terms of program and evaluation. The site-based communication presentation was compared with health communication efforts with respect to the importance of reach and frequency, or the need for repeated exposure to the message.

The idea of sequencing resources was proposed: promoting general awareness, then leading to specific actions. Or, the behavior could be targeted first, and general awareness raised later. Irrespectively, it is important to ensure that the message is beneficial to the environment. An example of an extremely effective, yet destructive, message promoted in the United States is Smokey Bear.

A Belief-Centered Approach to Site-Based Environmental Interpretation for Biodiversity Conservation in Central America

Sam H. Ham & Edwin E. Krumpe
Dept. of Resource Recreation & Tourism
College of Forestry, Wildlife & Range Sciences
University of Idaho, Moscow, ID 83844-1139

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Three General Functions of Interpretation

1. Enhancing the protection of resources
2. Enhancing recreation experiences
3. Enhancing public relations

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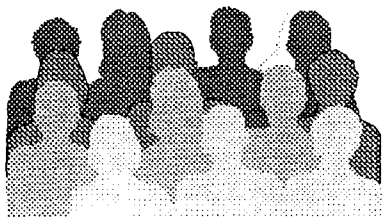
21a

Principle One

- Understanding the functions of interpretation leads to a clearer understanding of target audiences.



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Three General Audiences

1. On-site Tourists
2. Local People
3. Remote Audiences

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Three General Audiences

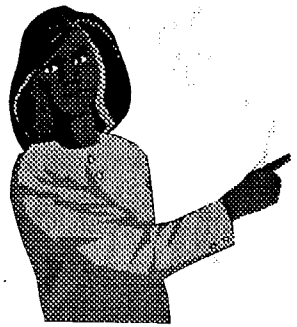
1. On-site Tourists
2. Local People
3. Remote Audiences

Principle Two

- Site-based interpretation must be tailored to the needs of a non-captive audience.
- The audience freely chooses to attend or ignore communication content.
- Messages must be designed to capture and maintain attention.
- Messages must be relevant, clearly organized, and contain a central theme.

21b

Targeting Beliefs with Communication Content



- Behavioral Beliefs
- Normative Beliefs
- Control Beliefs

Example Behavioral Beliefs

- "Buying goods & crafts from local vendors helps strengthen my country's economy."
- "Not contaminating this watershed helps keep my drinking water pure and safe."

Normative Beliefs Focus On:

- The perceived likelihood that important referents either approve or disapprove of performing the behavior in question.

Example Normative Beliefs

- "My kids think it is wrong to throw garbage on the trail."
- "It is OK to kill an animal in the park because Grandpa says we should survive any way we can."

- "Pele would like me to use the new stoves because he wants us to protect our environment."

21c

Control Beliefs Focus On:

- Perceived presence or absence of requisite <u>resources</u> & <u>opportunities.</u>
- Perceived <u>barriers</u> to performing the behavior in question.

Example Control Beliefs

- "I would attend the park naturalist's talk about the forest, but I don't have enough time today."

- "I would vote for the environmental law but I could never take the time off work to go to the polling place."

Designing Effective Interventions

1. Identify priority threats to biodiversity in the protected area.
2. Identify the problem behaviors that give rise to these threats.
3. Identify appropriate behaviors for communication to address.
4. Determine target audiences.
5. Identify *salient* beliefs.

Research for Evaluating the Impact of Interventions

- Clearly articulate the performance objectives for the intervention.
- Determine if target audiences were reached.
- Identify the key dependent variables.
- Did a specific factor intervene?

21d

Research for Evaluating the Impact of Intermediaries

- What are the specific performance objectives for rangers, trail guides, etc.?
- Do they have the requisite knowledge?
- Do they have the requisite skills?
- To what degree do they apply these in their EE & C work?

Overriding Hypothesis

- H1

Interpretive messages that target beliefs *salient* to a target audience about a problem will be more effective than messages that do not target beliefs salient to a particular target audience.

III. Future Challenges for Applied Research Activities

Chair: Susan Middlestadt

Issue Paper: Strengthening Community and School Linkages: How Can School-Based Programs Change Family and Student Environmental Behaviors?

Presenters: Deborah Simmons, Associate Professor, Department of Curriculum, Instruction and Outdoor Education, Northern Illinois University
Irma Allen, GreenCOM Consultant

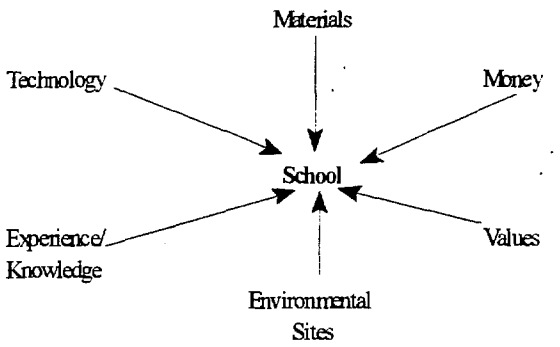
Different models of community-school linkages exist. The school can give to the community and/or the community can invest various resources in the school. Three approaches to environmental education were described:

1. General EE Programs
   - target a particular audience
   - transfer of information to, and involvement by, others is of secondary importance
   - parental information transfer is incidental
   - school affects community

2. Direct Family Involvement Programs
   - specifically designed to involve parents in students' education

3. Issue Oriented Programs
   - include investigation and action projects
   - involve student-community link where community affects the school
   - students research, generate, assess and implement action plans
   - explicitly link students with the community so the community affects the school

The diagram on the next page illustrates the latter model.



For example, in Concepción de Ataco in El Salvador, university students helped younger students investigate garbage collection issues. This lays the foundation for community action. The university, the municipality, homes and enterprises are all linked to the community through this project. In The Gambia, GreenCOM started working with a small group of children and then linked up with a UNICEF well-child monitoring project.

Some problems have been encountered with environmental education in developing countries. Schools can alienate students from the environment, as countries carry on colonial systems. Subjects such as nutrition and home economy are often not linked to local food and technology. With respect to the relevance issue, communities in developing countries, such as Mali, often own their own schools as a result of the economic situation. Communities need to hire teachers and have greater input into the curricula.

In order to reach school-age children who do not attend school, it is necessary to reach out into the community. Some basic guidelines to follow when developing local environmental curricula or community interventions were provided by Dr. Allen. When attempting to identify positive behaviors to promote, it is necessary to ensure they are feasible as well. Behaviors should be:

- discrete
- measurable/observable
- tied directly to the intervention
- repeated at regular intervals
- possible to practice immediately
- not require excessive outside resources
- not be gender specific/biased

To design a good intervention that involves the community, several questions must be asked:

- who attends the school
- what is the community's view of the school
- who controls the curriculum
- how can EE&C behavior adoption be linked to the community
- how effective are local information sources and transfer mechanisms
- what impact do locally ascribed gender roles/biases have on the potential to adopt certain behaviors

Discussion

Indicators need to be developed for the environment. Many children are out of school. Thus, it is necessary to reach out into the community, especially to access girls.

Population growth puts a demand on the environment and must be addressed, in urban areas especially. Urbanization is increasing at 5% per year in Africa, and doubles every 14 years in the cities. Rural areas need to become more economically viable so that people can remain there.

Educators often have a difficult time facilitating action projects. Training them would be a contribution GreenCOM could make. In American schools, as in many developing country schools, teacher turnover is a problem.

Ecuador

Ten years ago, the schools initiated local environmental clubs with community participation. They turned to India as a model since schools there were concerned with local problems and designing their own curricula. The Ministry of Education is trying to institutionalize what was a pilot project. Also, efforts are being made to apply this approach not only to environmental issues, but also health and agriculture.

It is important to note who initiated the process. Some recycling programs want to co-op students to collect garbage to make profits for themselves. It is important to initiate the process from within the school.

Ecuador Teacher training:

1. Awareness of national issues - newspapers just for teachers, 100,000 copies, 3 times/year
2. How to use and produce materials
3. How to implement programs

El Salvador

Three different types of school-community linkages have been tried with three different facilitators:

1. Investigators
2. NGO
3. University

Schools played specific roles, but were not initiators. They had to convince teachers and administrators to participate. Everyone wants to take credit for implementation, and schools are seen only as an instrument. GreenCOM wants to change this to get schools more involved in planning and implementation. However, it is important to remember teachers' time constraints.

El Salvador's rural teachers are very busy, might have a second job, and might live outside the community.

In the African context, in some cases there are problems with absentee teachers waiting to get paid by the community and teachers who must teach all grades in a school. Research associations are now beginning in Africa.

GreenCOM is currently preparing a research agenda for Africa. What do the experiences with school-community linkages from El Salvador and Ecuador imply for other countries? Should GreenCOM document and study the initiation and linkage components of a project? Can GreenCOM justify imposing its projects on developing countries' curricula? Future questions to consider:

- Is the proposed funding amount feasible?
- Will AID fund the project?
- What is the value of a quantitative study?

Should GreenCOM consider exporting some data analysis to developing country collaborators, for example to RSCN in Jordan. Using the existing infrastructure, such as the eco-clubs in Jordan, may facilitate things.

It would be interesting to conduct longitudinal follow-up studies of students who have undergone "action" curricula. There is a lack of hard data to show that participatory/action models of education are better than didactic models with examples.

But the question remains, what information or study is good enough for AID and for publishable articles? How much proof do you need? Anecdotal, process-oriented research impresses people until you step into the "peer reviewed" arena.

How Can School-Based Programs Change Family and Student Environmental Behaviors?

Borah Simmons, *Department of Curriculum and Intervention, Northern Illinois University*
Irma Allen, *GreenCOM*

GreenCOM

General EE Programs

- Particular audience target age students
- Transfer/involvement mechanisms not built in
- May result in incidental linkages to families

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Direct Family Involvement

- Programs designed to involve families in student's education (e.g., homework)

GreenCOM

Issue Investigation and Action Projects

- Explicitly link students with the community sometimes with action components
- Examples:
  - litter clean-up
  - prairie restoration
  - lobbying for a bottle bill
- Students research, generate, assess and implement action plans

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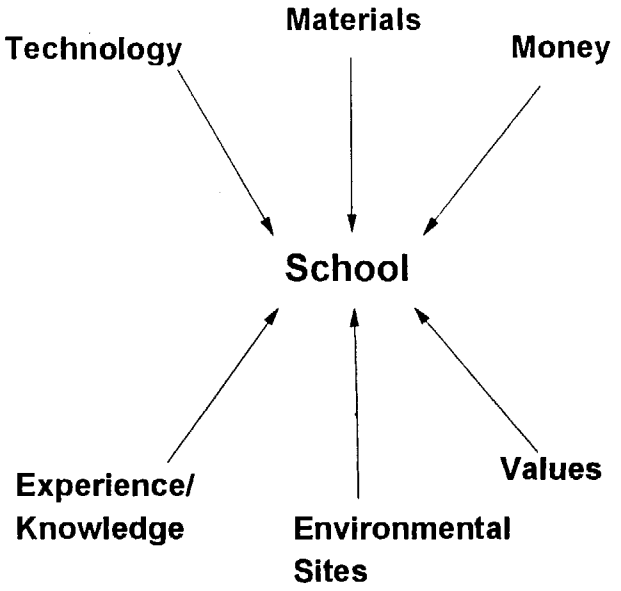
Programmatic Variables

- Explicit/planned vs. Implicit/unplanned
- Where does the impact occur?
- What are the goals of the EE program?
- Is the learning process student directed or teacher/leader directed?
- Is the process based on an experiential or an informational-based model?



Examples

- El Salvador
- Zimbabwe
- India

Selecting Behaviors to be Addressed

- Discrete
- Measurable/observable
- Tied directly to the intervention
- Are repeated at regular intervals
- Can be practiced immediately by target age groups by individuals
- No excessive outside resources required
- Are not gender specific

Research Needs to Design Interventions

- Who controls content, process and access?
- Who attends school?
- How does community view schools and schooling?
- How is the community involved in schools?
- Are schools seen as change agents? As relevant?
- How do gender roles affect learning?
- What is the adult literacy rate?

Issues Research Should Address

- From participation in education program to adoption of behaviors
- Effectiveness of transfer mechanism
- Effectiveness of information sources, such as student versus expert
- Relation of school-community programs to behavior change

Gender Considerations

- Is behavior practiced by males, females or both?
- Do boys and girls attend school on an equal basis?
- How will gender influence reception of messages?
- How will gender influence adoption of behaviors?

Challenges for Future Applied Research Activities

Chairs: *Brian Day, GreenCOM Project Director*
Orlando Hernández, GreenCOM Applied Research Director

The GreenCOM team invited the TAG members to offer their insights and suggestions regarding the research summaries provided in their briefing books. Specifically, TAG members were queried as to which forum for publication would be appropriate for each of the research activities described. TAG members were further asked to indicate any interest they might have in participating in the development of articles for publication.

General Discussion

The TAG group discussed the relative merits of formal articles designed to be published in peer-reviewed journals versus more informal, and less rigorous, case studies, fact sheets and policy briefs. Recommendations by TAG members included sending the publications to a list of 700 people working in the field. Some members emphasized the need to reach the people, not focus on refereed journals. Others cautioned that an article needs to be at a level that is accessible to practitioners. Several members asserted that GreenCOM needs to publish in refereed journals in an accessible format. Fact sheets and policy briefs were mentioned as effective formats for dissemination of information.

There are several different audiences that need to be targeted: academics, practitioners, policy-makers. In reaching people, it is necessary to think of themes that tie things together. Focus on key questions and generalize, e.g. voluntary compliance versus regulation. Examine how the research fit into the policy process. Policy papers need to describe actual cases.

The suggestion was made that GreenCOM write a Jordan "think piece" describing the critical nature of water in the Middle East using photographs and submitting the article to a mainstream publication such as *National Geographic*. Distributing the information is of primary importance. Placing the article on the Internet, without a copyright, in order to distribute it widely was also proposed.

World Resources Institute (WRI) self-publishes and peer reviews itself. Their publication is sent to various people in the field as well. Policy makers do not look at statistics, thus trim the information down to four pages for them. Do case studies. Also try to draw out common elements/themes of successful projects in order to make a list of recommendations for new projects (i.e., make sure you have these eight things).

It is important to make the literature accessible to people by writing a general article with an overarching theme, such as the "listening to the people" theme used for this meeting . Case studies are also effective ways to give people ideas and reinforce the notion that they can do it themselves. The idea is to bank roll success stories and develop "elements of success" that can be replicated by others.

With respect to evaluations addressing gender and culture, publish in *Women and Environment* Journal. The article could highlight differences between countries. Write five or six case studies of successful Environmental Education projects. Include elements of success. For example, a Jordan case study could describe solving a serious problem in the Middle East, i.e. water. Don't be too reductionist.

Write an article with a regional focus. For example, *Technology Review* takes an alternative approach to issues.

Other publications recommended were:

- *Women and Natural Resources*
- *Environment*
- *People and the Planet*
- *Ambio*

In Ecuador, information is tailored to different sectors: policy makers, newspapers, academic circles (high schools and others), and NGOs.

Assistance was offered for preparing publications:

Dr. Baldwin:	Jordan, Egypt
Ms. Braus:	Biodiversity, general "listening to people"
Dr. Hale:	EE&C policy, general "listening to people"

GreenCOM needs to employ developing country authors. It was also suggested that GreenCOM explore working with developing country journalists who might be interested in the project countries, or African communication associations and others Further emphasized was the need to use multiple media sources to get findings out: radio, T.V., and CD-ROM.

How to facilitate technology transfer and how to change people are salient questions. GreenCOM is trying to find new ways to make advances in this area. There is a need to do more applied research. An Internet WEB site would be helpful.

GreenCOM should not set goals that are unattainable. Behavior change doesn't happen overnight. Don't set expectations too high so that all the project can do is fail. GreenCOM has three data sets that are worthwhile for publication in a scientific journal:

- *Guanaquin*, El Salvador: about what people remember
- Quito, Ecuador: stratify by class, district, gender age, household is unit of analysis
- Jordan: impact article

Other countries, such as Egypt and the Gambia, have no real data. They should be used in case studies. Articles for a Latin American audience, such as Quito and El Salvador, could be submitted to the *Inter-American Journal of Psychology*.

Two or three general articles about the role of EE&C in advancing natural resource management would be useful. The case studies available could be published in a bulletin. In general, there is a need for access to tools. Refereed journals are useful for instilling rigor into the anecdotes.

GreenCOM needs to document the participatory process in Jordan, e.g. what teachers learned, not just impact data. Connect this to what the literature shows, for example about discovery learning research.

Project Goals and Outputs

- Produce tools for evaluation: indicators, survey instruments, and techniques to measure the success of an intervention.

- Share GreenCOM's "elements of success" with others by disseminating intervention development processes, measurement tools, and evaluation findings.

- Do not set goals that are unattainable. Behavior change is a relatively slow process. GreenCOM should quantitatively evaluate only those projects that are mature enough to demonstrate results and have adequate sources of hard data.

Research Methodology

- GreenCOM should continue to conduct applied behavioral research in the area of EE &C. There is a need for more information about how people's knowledge, attitudes, beliefs and behaviors interact and impact the environment. GreenCOM fills this gap in environmental research and has the potential to make important contributions to the environmental community.

- GreenCOM should incorporate gender analysis into all phases of an intended intervention. It is important to examine differences in socially ascribed roles within each culturally unique context, as well as potential secondary effects of an intervention, by gender.

- GreenCOM should tailor indicators/measures used in impact evaluations to the desired outcomes (e.g influencing a single behavior vs. having a general impact on attitudes and beliefs).

- USAID should continue to provide funding and support for GreenCOM to conduct quantitative impact evaluations of interventions that have the potential to produce measurable results. In this manner, GreenCOM is better able to document success stories and share information with others in the EE&C field. As this type of research is relatively expensive to perform, funds earmarked for this task should be set aside at the inception of an intervention.

- GreenCOM should consider exporting some data analysis work to developing country counterparts.

Getting the Message Out

- When writing general articles, think of themes that tie different studies together in order to integrate the lessons learned by the project in the field in various countries.

- Examine how the research conducted by GreenCOM fits into the policy process. Make sure policy papers describe actual case studies.

- Use developing country authors.

- Suggested target audiences:
  - Engineers
  - Policy makers/planners
  - Educators/practitioners
  - Communicators

- Publication formats to be considered:
  - Articles
  - Case studies
  - Policy briefs
  - Fact sheets
  - Regional papers

- Recommended Fora for Publication:

  1) Peer reviewed journals
     - *Social Science and Medicine*
     - *Technology Review*
     - *Women and Natural Resources*
     - *Women and Environment*
     - *Ambio*
     - *Journal of the Society for Natural Resource*
     - *Reevolution*
     - *Inter-American Journal of Psychology*

  2) Non-peer reviewed magazines
     - *National Geographic*
     - *People and the Planet*
     - *Environment*
     - *American Forestry*

3) Developing country newspapers

4) Worldwide WEB page

5) Radio

6) CD ROM

7) Video

8) News wire services

Environmental Education and Communication (GreenCOM) Project
Technical Advisory Group (TAG) Meeting
November 2-3, 1995

AGENDA

MORNING SESSION

Sharing Our Experience: GreenCOM's Contribution to Helping Achieve USAID's Strategic Objectives

Chair: Brian Day, Project Director, GreenCOM

Thursday, November 2, 1995

8:00 **Registration and Coffee**

9:00 **Welcome**
Stephen Moseley, President, AED

Introduction of TAG Members

Opening Remarks

David Hales
Deputy Assistant Administrator
Center for the Environment

Emily Vargas-Baron
Deputy Assistant Administrator
Human Capacity Development Center

9:20 **Purpose of this TAG Meeting**
Anthony Meyer
GreenCOM Project Officer

38

LISTENING TO PEOPLE: LESSONS LEARNED AND IMPLICATIONS

9:30	**Introduction**	**The Unique Contribution of Education and Communication to USAID's Strategic Objectives for Sustainable Living Resources; Sustainable Cities; and the Improvement and Expansion of Basic Education** Brian Day, GreenCOM Project Director
9:40		**Highlights of What We Have Learned from Listening to People** Susan Middlestadt, GreenCOM Senior Research Advisor
9:50	**Biodiversity**	**Using Farmer Input to Help Select Behaviors to Reduce Biodiversity Loss (Ecuador)** Rick Bossi, GreenCOM Operations Support Manager Elizabeth Booth, Resident Advisor, Philippines
10:00	**Policy and Public Awareness**	**Developing Mechanisms for Coordinating Participation in the Policy Process: Across Sectors, Across Levels (The Gambia)** Irma Allen, Former GreenCOM Resident Advisor, The Gambia
10:15	**Policy and Public Awareness**	**VIDEO: Fabricio Altamirano, Director General, *El Diario de Hoy*, discusses the objectives of *El Guanaquín*** **Strengthening Public and Private Sector Linkages:** **Using Newspaper Supplements to Teach Children about the Environment (El Salvador)** José Ignacio Mata, GreenCOM Resident Advisor, El Salvador **Results: Who Used the Supplement and How** Reynaldo Pareja, GreenCOM Research Consultant
10:30	**Discussion**	
11:00	**Break**	

LISTENING TO PEOPLE: LESSONS LEARNED AND IMPLICATIONS

11:15	**Sustainable Urbanization**	**VIDEO: "Impact of Gender on Collection and Recycling of Household Waste"**
		Why Has Recycling Fallen Off in Quito? (Ecuador) Marco Encalada, General Manager, Corporación OIKOS
		Results: Understanding the Perceptions and Roles of Men and Women In Improving Solid Waste Disposal in Quito, Ecuador Orlando Hernández, GreenCOM Applied Research Director
11:30	**Water**	**Mobilizing Communities to Clean Irrigation Systems: Listening to Farmers (Egypt)** John Woods, Senior Technical Advisor
		Results: "My Mesqa" **Video Documenting Mobilization Effort in *Manshat Essam*, *Menoufia* Governorate (Egypt)** Anthony Meyer, GreenCOM Project Officer
11:45	**Water**	**Jordan Water Conservation Project: The Value of Including Teachers in the Design of a Water Conservation Curriculum for EcoClubs (Jordan)** Mona Grieser, GreenCOM Senior EE&C Specialist Mona Habib, GreenCOM Consultant
		Results: Actual Changes in Knowledge, Attitudes, and Practices of Jordanian Teachers and Students Susan Middlestadt, GreenCOM Senior Research Advisor
12:00	**Discussion**	
12:30	**Lunch**	

AFTERNOON SESSION

How Can Innovative EE&C Interventions Help Change Behaviors That Will Contribute to Achieving AID's Strategic Objectives?

Chair: Kate Barba

1:30	**Obtaining Input on Three Key EE&C Issues** Orlando Hernández, GreenCOM Applied Research Director Susan Middlestadt, GreenCOM Senior Research Advisor
1:45	**Gender Perspectives** Mona Grieser, GreenCOM Senior EE&C Specialist Nancy Diamond, Environment Advisor, USAID/G/WID
2:00	**Discussion**
3:15	**Break**
3:30	**Issue Paper: A Belief-Centered Approach to Site-Based Environmental Interpretation for Biodiversity in Central America** Sam Ham, Professor, Department of Resource Recreation & Tourism, University of Idaho Ed Krumpe, Professor, Department of Resource Recreation & Tourism, University of Idaho
3:45	**Discussion**
5:00	**Adjourn**
5:00-6:00	**RECEPTION**

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Friday, November 3, 1995

Future Challenges for Applied Research Activities

Chair: Susan Middlestadt

8:30	Coffee
9:00	**Issue Paper: Strengthening Community and School Linkages: How Can School-Based Programs Change Family and Student Environmental Behaviors?** Deborah Simmons, Associate Professor, Department of Curriculum and Instruction Outdoor Education, Northern Illinois University Irma Allen, GreenCOM Consultant
9:15	**Discussion**
10:00	**Break**
10:15	**Challenges for Future Applied Research Activities** Brian Day, GreenCOM Project Director Orlando Hernández, GreenCOM Applied Research Director
10:45	**Discussion**
11:15	**General Discussion** TAG Members
12:00	**Adjourn** Anthony Meyer, GreenCOM Project Officer

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For the past six years, Mr. Arensberg has served as the deputy director of the World Resources Institute's (WRI) Center for International Development and Environment. In this role, he oversees the USAID-funded Environmental Planning and Management Project, which provides technical support services in strategic planning for resources management, environmental monitoring, and information systems, and training for community organizations throughout Africa, Asia, Central and South America, and the Caribbean. Prior to joining WRI, Mr. Arensberg was a consultant to the International Institute for Environment and Development, where he evaluated various programs implemented by non-governmental organizations (NGOs). He also was a general partner in the urban planning firm of Skidmore, Owings, & Merrill for 14 years, where he managed domestic and international land use, transportation and urban redevelopment projects, as well as conducted environmental impact assessments and policy analysis. From 1966 to 1968, Mr. Arensberg served as evaluation officer for the U.S. Peace Corps. Mr. Arensberg has a M.A. in city planning from Harvard University.

JOHN BALDWIN

Dr. Baldwin is an accomplished environmental scientist and educator. Currently, he is head of the Institute for a Sustainable Environment, at the University of Oregon. In 1993, he served as president of the North American Association for Environmental Education (NAAEE), the largest professional organization of its kind in the world. He has extensive domestic and international experience on a range of environmental issues, but is especially well recognized for his work on the effects of pollution on humans. For NAAEE, he is working with colleagues in Kiev, Ukraine to establish an environmental education center in that city. Dr. Baldwin was also the principal investigator of a project entitled "Chernobyl: Applied Information for Education and Decision-Making" and continues to serve as a visiting associate professor of the environmental science program at the International University in Moscow. He has a Ph.D. in Zoology and Wildlife Ecology from the University of Wisconsin.

JUDY BRAUS

A leading environmental educator in the U.S. and internationally, Ms. Braus is currently the director of environmental education for the World Wildlife Fund (WWF). Supported by a $2.5 million grant from Eastman Kodak, she is developing and implementing a national biodiversity environmental education program for the U.S. Prior to joining WWF, she spent two years as Program Manager for Environmental Education with the U.S. Peace Corps where she: helped

develop long-term objectives and plans for new environmental initiatives in several countries; developed model workshops to link environmental education with English and science teaching; and designed an agency-wide strategy for incorporating environmental content into pre-service training for all Peace Corps volunteers. From 1987 to 1991, she served as the National Wildlife Federation's director of environmental education, and also was senior editor of the children's magazine, *Ranger Rick*. Ms. Braus is co-author of *Environmental Education: Creating a Program That Works!*, a 200-page book for national and international audiences. She has a B.S. in environmental science from the University of Maryland.

MARTIN FISHBEIN

Dr. Fishbein is a preeminent behavioral scientist and creator of the *Theory of Research Action*. At present, he is professor of psychology and research professor at the Institute of Communications Research, University of Illinois. He is also a consultant to the National Institute of Mental Health's AIDS Research Program and serves on several NIMH advisory committees. Dr. Fishbein has been honored by the American Marketing Association for his contributions to marketing research. He holds a B.A. degree in psychology and economics from Reed College and a Ph.D. degree in psychology from the University of California, Los Angeles.

JOANNE FOX-PRZEWORSKI

Dr. Fox-Przeworski is the Director of the Regional Office for North America of the United Nations Environment Programme (UNEP). Prior to assuming this position in spring 1995, she worked with the Organisation for Economic Cooperation and Development (OECD). There, she served as Coordinator for Sustainable Development and Advisor to the Deputy Secretary-General on the agreements reached at the UN Conference on Environment and Development and on liaison with the UN. Previously, she was Head of the Development Assistance and Environment Section in the Development Co-operation Directorate. From 1991-92, she also served as special assistant to the Deputy Secretary-General on the first OECD joint meeting of Ministers of Environment and of Development Co-operation and on preparations for the United Nations Conference on Environment and Development. She has also been principal consultant to the Urban Affairs Division, Environment Directorate, OECD, for projects on urban impacts of technological and socio-demographic change and on urban economic development. Before joining the OECD staff, she conducted policy research and fora on the role of community-based organizations, corporations, and foundations in urban development as project director at TRUST, Inc. in Chicago. Dr. Fox- Przeworski received a doctorate in economic history from Washington University and her M.A. from Harvard University.

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Ms. Hale is associate director of the Coastal Resources Center (CRC) at the University of Rhode Island (URI), an organization dedicated to developing strategies for the effective management of coastal environments in the U.S. and worldwide. She is a specialist in the design and management of coastal ecosystem management programs with more than 20 years of domestic and international experience in public education, participation, training, and outreach activities. Concurrently, she is assistant director of the USAID-funded Coastal Resource Management Project, a ten year cooperative program with major pilot programs in Ecuador, Sri Lanka and Thailand. Since 1977, she has worked intermittently on coastal and marine resource issues that impact native Alaskan communities. In addition to her position with CRC, she is an adjunct assistant professor in URI's Department of Marine Affairs. Ms. Hale has a M.S. in biological oceanography from the University of Rhode Island.

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Dr. Hornik is an expert in development communications, evaluation design and analysis. He is professor of communications at the Annenberg School of Communications and director of the Center for International Health and Development Communication. His research has been instrumental in helping program and field practitioners develop a better understanding about the factors that influence people to change their health and nutrition behaviors. Dr. Hornik has served as principal investigator or co-principal investigator on five A.I.D.-funded research projects including HEALTHCOM and AIDSCOM evaluation subcontracts, and has participated in several prestigious committees, including the National Academy of Sciences' Committee on International Nutrition Programs, and the WHO/Global Program on AIDS' Steering Committees on Behavioral Research and Evaluation. Among his numerous publications on development communication is *Development Communication: Information, Agriculture, and Nutrition in the Third World.* He has a Ph.D. in communication research from Stanford University.

PAUL NOWAK

Paul Nowak has been associated with the School of Natural Resources and the Environment at the University of Michigan for more than two decades. Among his responsibilities, he has been director of the National Consortium for Environmental Education and Training; director of Professional Education; and Director of the Wildland Management Center. He serves as a member of the Education Committee of the President's Council for Sustainable Development and on the Global Rivers Environmental Education Advisory Committee. Dr. Nowak also spent five years teaching in the College of Education at Southern Illinois University from 1969 through 1974, and was a science teacher in two Detroit public elementary schools. He has written books, articles, and training materials on solid and hazardous waste, watershed

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TIAHOGA RUGE

Ms. Ruge has extensive international experience in promoting the environment through television, films, and other communication vehicles. She is currently director of the North American Center for Environmental Information and Communication, headquartered in Mexico. She has produced and directed films and documentaries on social and environmental issues, including a five-part series on the Biosphere 2 project. She was Science and Culture Counselor for the Embassy in Mexico in India from 1984 through 1988. From 1988 through 1991, back in Mexico, she designed and directed the "Mass Media and Environment: A National Call for Environmental Awareness" project. In 1991, Ms. Ruge received the UNEP Global 500 Roll of Honor award. Ms. Ruge has an M.S. degree in biology from the University of Houston and an M.A. in film direction from Cinecitta in Rome, Italy, where she also worked as an assistant to the film director Federico Fellini.

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An environmental engineer and pollution prevention specialist with 25 years of professional experience, Mr. Zosel is one of the nation's foremost experts and promoters of industrial waste reduction. Currently, he is manager and one of three initiators of 3M's renowned pollution reduction program, "Pollution Prevention Pays" -3P. Mr. Zosel has been at the forefront of developing corporate and industry strategies for promoting and adopting waste reduction technologies in advance of new, more stringent environmental regulations. A nationally recognized authority on the Clean Air Act, regulatory reform, emission trading, and implementation pollution prevention technology, he is a member of EPA's Clean Air Act Advisory Committee and co-chair of the Subcommittee on Pollution Prevention and Early Reduction, and chair of the American Institute of Chemical Engineers Center for Waste Reduction Technologies. Mr. Zosel has a B.S. in Chemical Engineering from the University of Wisconsin.

GREENCOM

APPLIED RESEARCH SUMMARY

ECUADOR
FORMATIVE RESEARCH TO SELECT BEHAVIORS FOR A BIODIVERSITY CONSERVATION PROGRAM

November 1995

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PURPOSE

In support of USAID's strategic objective to conserve sustainable living resources:

- To select and define, through a participatory process, a set of ideal practices that will have a positive impact on the biodiversity of the area and will be feasible from the point of view of the farmers.
- To identify strategies that can be used to modify these practices.

BACKGROUND

USAID is currently funding the Sustainable Uses for Biological Resources Project (SUBIR). The project's objective is to identify, test and develop economically, ecologically and socially sustainable resource use models in Ecuadoran parks and reserves and buffer zones. Now in Phase II, SUBIR has focused its activities on two areas of the buffer zone of the Cotacachi-Cayapas Ecological Reserve: Borbon and Cuellaje. With the overall goal of conserving biodiversity of the protected area and its buffer zones through the creation of incentives and economic alternatives for local populations, one of the major thrusts of the current phase is to limit agricultural expansion into the reserve through intensive use of existing plots. Eight sets of practices were identified: pest and disease control, fertilizer use, diversification of crops, soil conservation, soil quality maintenance, multiple use forest management, water resources conservation, and small animal management. However, input was needed to help define the ideal behaviors in each set, to refine or specify them and to explore their feasibility from the perspective of actual farmers.

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RESEARCH METHOD

- Multi-sector, multi-level participatory team created to help define the purpose and interpret the results of the research; subset of team used as research team. The team included project staff, NGO personnel, community leaders, extensionists, government-assisted technicians and villagers.

- Purposive selection of two of the six communities in the project area at two different altitudes and two different lengths of involvement in project activities.

- Random selection of 18 families, 9 participating with the project and 9 not participating in project activities. These families represented about one third of the farmers in the communities. Five study participants were female and 13 were male.

- Use of a behavior observation guide and in-depth interviews to determine adoption levels and reasons for adoption, non-adoption or modification of ideal behaviors.

- Workshop analysis of results by comparing practices of participants to non-participants; by rating each behavior in terms of potential impact on the environment and of feasibility; by identifying potential factors of influence to be used to design behavior change strategies.

VALUE

- Demonstrates a participatory process by which technical experts, education and communication specialists and people who will be affected by programs can jointly identify and select target behaviors or practices that need to be changed in order to improve the environment.

- Illustrates a process of gathering data to identify which behaviors were easily adopted, which were negatively modified, and which were rejected by farmers, to select a smaller set of well-defined practices as the focus of future programs and to determine potential strategies to influence these practices.

STATUS

- Completed.

KEY FINDINGS

- The comparison of participating to non-participating families revealed some positive

impacts of the project (e.g., use of income generating crops, composting, planting on the contour), some negative impacts (e.g., use of inappropriate pesticides and fungicides) and some behaviors for which there was little or no difference.

- Farmers generally tended to adopt behaviors for reasons of short-term, immediate consequences rather than because of their abstract or long-term consequences for sustainable land-use production. In some cases, the search for immediate gains made farmers adopt non-desirable practices.

- Women may be opposed to involvement in the project because it takes men away from the farm and household to participate in site visit and training activities, thereby increasing their work both at the farm and in the home.

PROGRAM IMPLICATIONS

- For the time being, the following behaviors should be *dropped* from the list of ideal behaviors because they are not feasible: use of "green" pesticides/fungicides during January to May, cultivate on slopes of less than 45%, cultivate existing fallow chaparral land, and do not wash sisal in rivers and streams.

- Two sets of practices should be modified. Controlled burning should be defined as "opening fire breaks" and "burning against or into the wind." Add the behavior "do not burn stubble."

- Use strategies that remove skill deficits, increase positive consequences, increase access to technologies, promote changes in policy, identify new technologies and decrease negative consequences in order to influence to the list of 30 behaviors. Some examples might be:

  - To develop training courses, demonstrations or print materials to teach farmers how to cultivate at least three ecologically compatible crops.

  - To promote visits to "best" local farmers so that others may see and learn production benefits.

  - To identify and train local merchant willing to sell appropriate agro-chemicals.

  - To identify crops than can provide increased agricultural production and income for farmers in higher altitudes.

  - To develop supplementary activities from which women may obtain direct benefits.

APPLIED RESEARCH SUMMARY

MACHALA, ECUADOR
FORMATIVE RESEARCH STUDY

November 1995

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PURPOSE

In support of USAID's strategic objective of sustainable urbanization:

- To understand solid waste disposal practices, garbage collection service preferences and media use at the household level, overall and by gender.

- To assist with the design of a municipal garbage collection system and with the development of a plan for promotional and public relations program to support the system.

BACKGROUND

Machala is the fourth largest city in Ecuador with about 180,000 inhabitants, located on the southern coast near Peru. Only 82 out of the 127 tons of solid waste produced daily in the city are collected. In December 1994, the Municipality of Machala initiated a pilot collection system based on the use of tricycles. Three months later, the system covered six neighborhoods, including areas previously served by trucks. The system provides curbside pick-up services twice a week and requires participants to leave the waste in plastic bags. The original plan called for a para-municipal entity, based on commercial management principles, to coordinate solid waste collection. This para-municipal entity would in turn contract with neighborhood micro-enterprises to provide the tricycle collection services. This study was conducted in April 1995 to provide decision makers with information on the garbage disposal attitudes and practices of clients served by the pilot program, as well as those of potential clients in new expansion areas. Information was also gathered to develop a promotional plan in support of the new services.

RESEARCH METHOD

- Multi-stage selection of neighborhoods, blocks and households in three lower and three middle-class neighborhoods with different levels of garbage collection services, for a

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total of 300 participants distributed equally by gender.

- Survey administered face-to-face using pre-tested questionnaire dealing with saliency of solid waste as a neighborhood problem; understanding of present collection services; solid waste disposal practices at household level and roles played by males, females and children in the process; opinions about new garbage collection plan; media preferences; and socio-demographics.

VALUE

- Provides a systematic understanding of waste disposal attitudes and practices among middle class and lower class residents.

- Provides recommendations as to message content and channels for promotional plan as pilot program expands to most of the city.

STATUS

- Completed.

KEY FINDINGS

Concerns about Waste and Waste Disposal Practices:

- Greatest concern about garbage is its potential to cause illness.

- Leftovers are used to give to the needy or to feed animals. In the absence of a collection service, paper and plastic are often burned, while glass is thrown out in empty lots or in the estuary.

- Whereas women oversee disposal of organic waste, men oversee disposal of non-organic waste. When there is no garbage collection, men generally take waste to disposal sites outside of the household. This is particularly true among lower class respondents. Men also report traveling longer distances and spending more time disposing of waste than women do.

- Middle class respondents more often use plastic bags, while lower class respondents use reusable cloth bags of cotton or burlap.

Perceived Advantages and Disadvantages of the Pilot System:

- The pilot program is well received. However, there is a general preference for daily curbside pickup, even in areas newly served by the pilot program, where pick-up occurs

twice a week.

- Pilot program requirement that plastic bags be used is viewed as a limitation to compliance with program guidelines. The cost of plastic bags is of concern, especially among lower class respondents.

- Most people know they are charged for collection services through an electric bill surtax. Men more often pay this bill, however middle class women help pay for it.

- Respondents are willing to pay for garbage collection services. Those with no service are willing to pay more than those already covered. Women and respondents with permanent service express less willingness to pay.

PROGRAM IMPLICATIONS

- Communicate the message that the new service will contribute to people's health and save them time and effort. Because participants are paying for the service, they have the right to complain if the services are not provided.

- Allow participants to dispose of garbage in different types of containers, plastic or otherwise.

- Suggest that participants keep garbage until the next collection day if service is not provided when expected. This will prevent participants from reverting to previous disposal practices.

- Suggest that participants take waste out of household the morning of the pick-up, rather than the prior evening.

- Build intervention upon garbage separation and recycling practices of current and potential participants. Promote advantages already viewed by followers. Include children as source of social pressure.

GREENCOM

APPLIED RESEARCH SUMMARY

QUITO, ECUADOR
GENDER AND RECYCLING,
QUALITATIVE FORMATIVE STUDY

November 1995

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PURPOSE

In support of USAID's strategic objective of sustainable urbanization:

- To understand attitudes, beliefs and practices of participants in pilot recycling program in inner city neighborhoods.
- To understand the role that gender has on participation in the pilot program and on garbage separation and disposal practices.
- To design instrument for quantitative study.
- To help formulate a gender-sensitive educational intervention to improve separation, recycling and disposal of garbage at the household level.

BACKGROUND

The pilot program was initiated by the Municipality of Quito in 11 inner-city neighborhoods in 1993. The program required participants to separate garbage into: organic, recyclable (paper, plastic, glass and metal) and unusable. Different types of garbage were collected on specific days. Neighborhood micro-enterprises are responsible for collecting and disposing of garbage. This reduces the cost of transporting the waste to a landfill outside of Quito. Some micro-enterprise use organic waste to produce compost and sell recyclable waste to intermediaries. Originally, the program distributed plastic bags to promote garbage separation. Garbage recycling rates have dropped over time in the neighborhoods that have participated the longest in the program. The Municipality wants recycling rates to rise. One purpose of the study was to determine how to improve deteriorating recycling rates.

RESEARCH METHOD

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- Selection of four neighborhoods: three neighborhoods currently in the program and one neighborhood soon to be covered by the program. Selection criteria included lower vs. lower middle class; low vs high access to alternative garbage collection systems; low vs. high population density.

- Qualitative data gathered separately by gender with three types of populations: focus group discussions with neighborhood committee members; in-depth interviews with micro-enterprise (pilot program) managers; and focus group discussions with household program participants and non-participants.

- Pilot program participants were divided into two subcategories: followers and non-followers, identified by garbage collectors and verified by research team by examining content of curbside garbage. Followers were those who separated garbage as outlined by the pilot program.

VALUE

- Explores the impact of gender on pilot program promotion, garbage collection services provided, and garbage separation practices at the household level.

- Identifies knowledge, skills and psycho-social factors that influence garbage separation at the household level as well as potential channels for eventual educational strategy.

- Determines the level of satisfaction residents have with pilot garbage collection program, and elicits preferences and suggestions to improve the program.

STATUS

- Completed.

KEY FINDINGS

Neighborhood Organizations:

- Solid waste disposal has secondary importance in organizations. Specialized committees may have to be formed to increase its perceived importance.

- Men hold the highest ranking positions in organizations, yet women have been more active in mobilizing neighborhood support for pilot program.

- Females have a greater awareness than males of existing local problems, have more ideas regarding potential solutions to these problems, and more often serve as liaisons with other institutions to resolve various neighborhood concerns.

- Members of the neighborhood organizations are not well-informed about how micro-enterprises operate and what obstacles they confront.

Micro-Enterprises:

- Micro-enterprise managers are generally ill-informed about the potential uses of organic and recyclable garbage and thus do not pass information on to collectors or households.

- Since they are available for part-time jobs, women and youth serve as more reliable collectors than men who prefer full-time employment.

Pilot Garbage Collection Program Participants:

- The concept of non-follower or non-doers needs to be redefined. Often non-doer families recycle some of their solid waste, but their recycling practices do not strictly follow pilot program guidelines.

- Drops in compliance with recycling program guidelines may be partially due to the interest some families have in selling recyclables regularly instead of giving them to micro-enterprises. A common theme among non-doers is that recycling benefits micro-enterprise staff but not necessarily participants or the neighborhoods. Lack of involvement of program participants in deciding how to spend the proceeds from the sale of recyclable waste may have contributed to this perception.

- Drops may be further explained by the fact that non-doers believe that unusable waste, mainly sanitary waste, needs to be picked up more often than currently practiced. The program collects this type of waste only once a week, and families tend to dispose of it more frequently, mixing it with organic waste. Accumulation of sanitary waste for up to seven days is perceived to be unhealthy.

- Male non-doers tend to believe that garbage separation associated with recycling must be performed after the garbage has been collected in the household. This has led to the perception that garbage separation is a dirty task, beneath program participants, and consequently the responsibility of scavengers.

- More recently, drops may have occurred when the free distribution of garbage bags stopped.

- Males are generally concerned about the profits that can be made from recycling and particularly about who controls their use and how they are being used.

- Females express a concern for the development of the neighborhood, a concern generally absent among males.

- Female doers believe that garbage separation keeps wet and dry garbage apart, thus reducing flies, rodents and associated health risks. In addition, separation prevents garbage bags from ripping due to the added weight of wet garbage.

- Female doers in general perceive that garbage separation permits personal development as one learns new habits and presents an industrious image to children and neighbors.

- Doers and non-doers alike think that separation and recycling contribute to household order and cleanliness. The pollution implications of solid waste, however, are rarely mentioned. Non-doer males argue that pollution derives from industrial and medical waste, not domestic refuse.

PROGRAM IMPLICATIONS

- Train micro-enterprise personnel in garbage reuse and recycling and develop their skills to communicate with customers.

- Increase community involvement in deciding how to use profits from the sale of recyclables.

- Reinforce the concept of usable waste.

- Develop skills about how to separate garbage for recycling purposes.

- Promote health implications of recycling program to get men to provide funds for the purchase of plastic bags.

- Explore customer preferences about service regularity and adjust service accordingly.

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GREENCOM

APPLIED RESEARCH SUMMARY

QUITO, ECUADOR
GENDER AND RECYCLING,
QUANTITATIVE FORMATIVE STUDY

November 1995

1255 23rd Street NW, Suite 400, Washington, DC 20037 USA
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PURPOSE

In support of USAID's strategic objective of sustainable urbanization:

- To identify determinants of garbage separation practices and to understand garbage disposal practices in inner city neighborhoods participating in pilot recycling program, at the household level overall and by gender.

- To contribute to the development of a gender sensitive educational intervention in support of garbage separation and recycling practices.

BACKGROUND

The pilot program was initiated by the Municipality of Quito in 11 inner city neighborhoods in 1993. The program required participants to separate garbage into: organic, recyclable (paper, plastic, glass and metal) and sanitary. Different types of garbage are collected on specific days. Neighborhood micro-enterprises are responsible for collecting and disposing of the garbage collected. This reduces the cost of transporting the waste to a landfill outside of Quito. Organic garbage may be used by micro-enterprises to produce compost. Recyclable waste is sold to nearby intermediaries. Originally, the program distributed plastic bags to promote garbage separation. Garbage recycling rates have dropped over time in the neighborhoods that have participated the longest in the program. The Municipality wishes recycling rates to go up again. This study was preceded by a qualitative phase. During the qualitative phase, focus groups and in-depth discussions were held with service providers and neighborhood residents to identify major perceived benefits and drawbacks of garbage separation at the household level. The uses and destination of different types of garbage were also explored. This information was used to refine the research methodology for the quantitative study here described.

RESEARCH METHOD

- Random selection of blocks and households in four inner city neighborhoods for a total sample of 400 male and female heads of households.

- Survey using pre-tested questionnaire based on qualitative study that investigates knowledge of pilot programs characteristics; attitudes, beliefs and behavior about garbage separation and garbage disposal; roles of men and women in household; media preferences; community organization involvement and socio-demographics.

VALUE

- Contributes to the expansion and improvement of basic services in urban settings, helps to reduce urban pollution, and helps to make inner city neighborhoods more livable by reducing the threat of disease.

- Permits the application of social marketing and behavior change principles to the development of educational intervention in support of garbage separation and recycling.

- Introduces behavior change theory to leading NGO that specializes in environmental education and communication.

- Helps collaborating NGO, municipality and local governments organizations develop educational programs for areas where recycling programs may be expanded or initiated.

STATUS

- Data collected and entered. Analysis to be conducted.

APPLIED RESEARCH SUMMARY

EL SALVADOR
ANALYSIS OF GALLUP SURVEY DATA

November 1995

1255 23rd Street NW, Suite 400, Washington, DC 20037 USA
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PURPOSE

In support of USAID's strategic objectives to conserve sustainable living resources and promote *Sustainable Cities*:

- To examine data from two nationwide omnibus surveys conducted by Gallup/El Salvador in 1993 and 1994 in order to assess the feasibility of this approach as a method to evaluate national campaigns and other national public awareness efforts.

BACKGROUND

El Salvador is an "emphasis country" for the GreenCOM Project. GreenCOM has been charged with implementing the education and communication component of a USAID-funded project: the Salvadoran Environmental Protection Project (PROMESA). The educational activities of PROMESA include national communication campaigns to generate broad-based support for policy reform and to change behaviors that harm the environment. Furthermore, GreenCOM is contractually required to monitor changes occurring in environmental awareness in the country, potentially resulting from the activities it supports. The local Gallup organization under funding from USAID has included several questions assessing beliefs about the environment. This analysis of the data collected by the local Gallup organization was undertaken in order to determine its feasibility as an evaluation tool for public programs in El Salvador.

RESEARCH METHOD

- Secondary analysis of raw data obtained from the local Gallup organization.
- National random samples generated from updated census data base.
  - 1260 respondents in 1993
  - 1568 respondents in 1994

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- Segments were selected in urban and rural areas and a mean of 15 households per segment were visited. One adult over 18, whomever had the most recent birthday, was interviewed in each household.

- Six questions were asked in 1993; two of these five questions were repeated in 1994: what is the degree of seriousness of 7 problems, including the environment and what is the "most serious environmental problem?"

VALUE

- Identify possible evaluation methodology.

- Identify possible changes over time and by gender in opinions on the environment.

STATUS

- Analysis of first data sets completed. Corrected data set requested and received, but not yet analyzed.

KEY FINDINGS

- The two samples are not comparable because:

  - Data on primary occupation varied greatly between the two years. The 1993 occupation data exhibits a possible bias towards urban professionals.

  - Data on income varied greatly between 1993 and 1994. Only 3 out of 10 possible categories of income were reported in 1993. The 1994 data show a more predictable distribution of income.

- Changes between 1993 and 1994 were observed in respondents' perceptions of the seriousness of each of the seven problems. Of the seven problems, the increase in severity was greatest for the environment and second for crime and violence. The severity of medical care, cost of living, discrimination and education all decreased. The issue of comparability of samples makes this finding difficult to interpret. However, it is likely that even with the corrected data set an increase in the perceived severity of environmental problems from 1993 to 1994.

- In both 1993 and 1994, men rated the environment as a more serious problem than did the women. Across all seven problems, gender differences in perceived severity were larger in 1993 than in 1994.

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GREENCOM

APPLIED RESEARCH SUMMARY

EL SALVADOR
FORMATIVE EVALUATION OF *GUANAQUIN* ENVIRONMENTAL NEWSPAPER SUPPLEMENT

November 1995

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PURPOSE

In support of USAID's strategic objectives to conserve sustainable living resources:

- To evaluate the content, quality and acceptance of *Guanaquin*, an environmental newspaper supplement for children.
- To determine the feasibility of the newspaper supplement as a channel to reach children with environmental messages in the formal school setting.

BACKGROUND

Due mainly to the war of the 80's and 90's, El Salvador lacks educational materials of all types. Thus, the facilitation of the productive of high-quality materials is an important opportunity for increasing public awareness of environmental concerns. *El Diario de Hoy*, the newspaper with the largest national circulation, produces a weekly supplement for children. Through a GreenCOM initiative and since early 1995, the supplement has dealt with an environmental topic for one issue each month. Anecdotal evidence suggests that newspaper sales go up when the supplement covers an environmental topic. The increase in sales may be in part attributed to the use teachers make of the supplement with their students. This research investigates the use made of the supplement in public and private elementary schools, and explores potential use of the supplement in the future.

RESEARCH METHOD

- In-depth discussions with staff of the *El Diario de Hoy* involved in the production of environmental supplement for children to determine the processes by which the staff selects topics and designs the supplement.
- Review with the newspaper staff of circulation data and other documentation.

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- Face-to-face interviews with students and teachers from about 25 public and private elementary schools selected at random from the list of all elementary schools in five urban communities of El Salvador. Representation of gender was proportionate.

  - Surveys of 58 second to sixth grade teachers, 18 male and 40 female asking questions about exposure to, current use and potential use of the environmental supplement as well as of two other sections of the newspaper.

  - Surveys of 267 students, 125 boys and 142 girls asking questions about exposure to the supplement in the household and in the classroom as well as reactions to one specific issue to determine its readability and attractiveness.

VALUE

- Determine the usefulness of a newspaper supplement produced by the private sector as a source of instructional materials for use in the classroom to complement national and/or formal environmental educational programs.

- Provide recommendations as to format and content to the supplement to improve its use and effectiveness.

STATUS

- Data collected and under analysis.

GREENCOM

APPLIED RESEARCH SUMMARY

EL SALVADOR
QUALITATIVE FORMATIVE RESEARCH TO SELECT BEHAVIORS FOR "RELEVANCE CAMPAIGN"

November 1995

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PURPOSE

In support of USAID's strategic objectives to conserve sustainable living resources and make cities sustainable :

- To identify and study the viability of environmentally sound behaviors to be promoted in nationwide campaign for urban and rural male and female residents.

BACKGROUND

El Salvador is an "emphasis country" for the GreenCOM Project. GreenCOM has been charged with implementing the education and communication component of a USAID-funded project: the Salvadoran Environmental Protection Project (PROMESA). The educational activities of PROMESA include national communication campaigns to generate broad-based support for policy reform and to change behaviors that harm the environment. Research to test the concepts for the first of these campaigns suggested that the campaign promote specific behaviors that Salvadorans could do to help save their country's environment. Additional research was needed to select the behaviors to be promoted. A team of technical specialists selected the behaviors. Focus group discussions were conducted to determine the feasibility of these behaviors for different segments of the Salvadoran population.

RESEARCH METHOD

- One group discussion of technical experts from different public and private sector institutions participating in the implementation of PROMESA was conducted to identify a list of 46 potential behaviors for the national campaign, 17 for urban populations, 17 for rural populations and 12 for both types.

- Focus group discussion with four male and four female focus groups of 25-to-40 year old adults selected from: (a) middle class areas of metropolitan San Salvador, and (b)

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farming towns of less than 5,000 inhabitants from two environmentally distinct regions of the country (western and eastern).

- Individual ranking of proposed behaviors by focus groups participants into three categories ("easy to do," "not so easy," and "difficult") was followed by collective discussions of justifications for easy-to-do behaviors.

- An analysis of personal benefit, time requirements, habits, effort required, commonality of the practice and cost was made of each of the behaviors.

VALUE

- Provides a list of potential environmental behaviors to pretest with rural and urban residents and helps identify those actions that are concrete and feasible and thus can be promoted among rural and urban populations in a national campaign.

- Illustrates a research process by which members of the general population can be consulted to select behaviors for an environmental campaign at a national level.

STATUS

- Completed.

KEY FINDINGS

- Twenty behaviors of the 46 behaviors generated by the technical experts were classified as "viable" easy to do. These viable actions fall into three groups: four general actions appropriate for all, nine actions for use in urban areas, and seven in rural areas.

- The four viable general actions, in descending order, are:

    - save electricity by turning off lights you don't need.
    - take care and protect the tree you planted.
    - don't buy wild animals for pets.
    - carry a plastic bag for trash and empty it in a gas station.

- The nine viable urban actions, in descending order, are:

    - save water by turning off faucets.
    - save water by sweeping, not washing your floors.
    - take out the garbage on the day and hour that the garbage truck comes.
    - when eating snacks in public, discard the wrapper in a trash bin.
    - put trash in the bins and cans provided in public areas.

- iron only twice a week to save electricity.
- don't start your car until everybody is seated, to save gas.
- when you buy gas, check the tire pressure to save gas.
- tune up your car periodically.

- The seven viable actions for the rural areas, in descending order, are:

  - learn to trim trees for firewood.
  - extinguish the fire after cooking.
  - use crop debris instead of wood for fires.
  - bury garbage instead of burning it.
  - wash fumigation tanks away from the river to avoid contamination.
  - take soap wrappings back home after washing in the river.
  - bury your garbage instead of throwing it in the river.

APPLIED RESEARCH SUMMARY

JORDAN
QUALITATIVE FORMATIVE RESEARCH FOR WATER CONSERVATION EDUCATION PROJECT

November 1995

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PURPOSE

In support of USAID's strategic objective to conserve sustainable living resources:

- To understand the knowledge, attitudes, beliefs and practices of teacher and student members of school environmental clubs with respect to water conservation.
- To examine the impact of gender and location in rural vs. urban setting as factors influencing knowledge, attitude, beliefs and practices with respect to water conservation.
- To assist in the design of water conservation education curriculum and materials for use in secondary school eco-clubs.

BACKGROUND

Jordan's Royal Society for the Conservation of Nature (RSCN), an NGO endowed with royal patronage, initiated a school-based environmental conservation club system several years ago. The clubs are located in primary and secondary single-sex schools, are loosely structured, and have focused primarily on animal conservation. In the face of growing concern over the problem of water scarcity in Jordan and the fact that the water supply is no longer sufficient to meet the needs of the population without rationing, RSCN decided to promote water conservation using their environmental clubs (eco-clubs) as the point of intervention. USAID, through GreenCOM, is providing technical assistance to RSCN in the areas of formative research, participatory curriculum development, materials development, teacher training, curriculum implementation and evaluation research.

RESEARCH METHOD

Sample of representatives from RSCN environmental clubs from 10 schools, five male and five female schools distributed as follows: four urban middle, two urban poor and four rural.

- Individual intensive interviews with principals and teachers supervising the clubs; focus group discussions with students, 5 to 10 students per school for a total of 80 students.

- Interviews and discussions covered knowledge of water situation in Jordan, water shortage and water pollution; attitudes towards water problems in Jordan and the perception of roles and responsibilities with respect to solving the problems; water conservation practices at home, in school and in the community.

VALUE

- Provides information as to knowledge, attitudes, and beliefs of teachers and students for use in the design of water conservation education materials, overall and by gender.

- Illustrates use of formative research techniques in the development of materials and programs.

- Demonstrates how differences by gender, by role (principal, teacher, student) and by location (rural vs. urban) can be examined.

STATUS

- Completed.

KEY FINDINGS

- Awareness of water shortage and pollution is high for both teachers and students. Several factors, such as waste, mismanagement, population growth, lack of economization, development and rain scarcity were mentioned as reasons for water shortage and pollution. Principals, teachers and students differed in the relative weight of these factors.

- While knowledge and awareness are relatively high, attitudes and practices are not. Specifically, the participants are not convinced that actions that they might take to economize will be effective.

- Many teachers and students believe that they, as private citizens, have no control over resolution of the problem and that part of the problem is caused by political action on the part of Jordan's neighboring countries and that the state is responsible for solutions.

- While the sample is too small to allow for analysis of gender differences, three possible differences are suggested:

- Men seem to perceive their role to be as promoters, whereas women emphasize actual conservation practices.

- Women are more involved with practices at home, whereas men refer more to their public roles.

- In the household, men and women deal with water shortage and water pollution differently. For example, women conserve by reorganizing the household and men conserve through their improved bathing practices; women boil water to clean it, men clean water tanks.

- School clubs have access to few materials on the subject of water conservation.

PROGRAM IMPLICATIONS

- Build RSCN's skills in participatory materials design.

- Begin to develop a resource bank of water conservation materials, including a teaching manual, curriculum, posters, and newsletters, for teachers and students.

- Educational interventions to influence water conservation practices should attempt to improve student knowledge about water issues, to influence their attitudes and beliefs about their sense of personal responsibility and to suggest water conservation practices that can be applied by themselves and their parents in each household.

GREENCOM

APPLIED RESEARCH SUMMARY

JORDAN
EVALUATION OF THE IMPACT OF WATER CONSERVATION EDUCATION PROJECT

November 1995

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PURPOSE

In support of USAID's strategic objective to conserve sustainable living resources:

- To evaluate the success of a water conservation education project implemented in secondary school environmental clubs (eco-clubs).
- To determine the impact of the water conservation education project on the teaching beliefs and practices used by teachers in supervising eco-clubs.
- To determine the impact of water conservation education project on student knowledge, attitudes, beliefs, and practices with respect to water conservation.

BACKGROUND

Jordan's Royal Society for the Conservation of Nature (RSCN), an NGO endowed with royal patronage, initiated a school-based environmental conservation club system several years ago. The clubs are located in primary and secondary single-sex schools, are loosely structured, and have focused primarily on animal conservation. In the face of growing concern over the problem of water scarcity in Jordan and the fact that the water supply is no longer sufficient to meet the needs of the population without rationing, RSCN decided to promote water conservation using their environmental clubs (eco-clubs) as the point of intervention. USAID, through GreenCOM, has provided technical assistance to RSCN in the areas of formative research, participatory curriculum development, materials development, teacher training, curriculum implementation and evaluation research. With this assistance, RSCN developed a five-unit water conservation education curriculum for use by eco-club teachers in single sex boys' and girls' secondary school clubs. The curriculum was developed by RSCN following participatory methods in conjunction with teachers, the Ministry of Education, the Water Authority, USAID, and GreenCOM. Participatory teaching methods were advocated in the curriculum to promote a sense of personal control over water usage among students

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and parents, and thus lead to reductions in household water consumption. During January, RSCN conducted regional orientations to train teachers and to distribute the curriculum materials. From February through May 1995, these teachers implemented the curriculum.

RESEARCH METHOD

- Post-only experimental comparison of knowledge, attitude, belief and practices surveys of eco-club teachers and students.

- Surveys of 90 eco-club teachers throughout Jordan:

  - 61 participants in the curriculum (experimental group)
  - 29 non-participants in the curriculum (control group)

- Surveys of 671 eco-club students from 38 schools in central Jordan:

  - 424 participants in curriculum (experimental group)
  - 247 non-participants in the curriculum (control group)

- Surveys were self-completion instruments developed in collaboration between GreenCOM and RSCN. Teams of two RSCN staff administered the survey during the eco-club session the last sessions of the semester.

- The teacher survey assessed basic demographics, beliefs about teaching philosophy, attitudes, beliefs and practices with respect to one personal conservation behavior, description of activities conducted during the club sessions that semester as well as ratings of 21 of the activities of the five unit water conservation curriculum. The student instrument assessed basic demographics, 7 knowledge items, attitudes about three behaviors (one personal conservation behavior and two social behaviors), normative beliefs from seven referents, five social behaviors and 15 household conservation behaviors.

VALUE

- Demonstrates the effectiveness of eco-clubs as an intervention point for environmental programs in Jordan, including the value of participatory curriculum development methods, the power of interactive or participatory approaches to teaching in eco-clubs, the role of materials in influencing how teaching occurs, the potential role of an eco-clubs for impacting household water conservation behaviors.

- Explores gender differences in knowledge, attitudes, beliefs and practices and in the relative effectiveness of a curriculum to improve knowledge, attitudes, beliefs and practices about water conservation.

- Develops and demonstrates RSCN's skills in quantitative data collection, analysis and interpretation.

STATUS

- Data collected and first-level impact analysis completed.

KEY FINDINGS

- Sixty percent of teachers who received the curriculum implemented the majority of activities from all five units. There was only one gender difference: more female teachers implemented the unit on reduction of household water use than male teachers. Despite time constraints imposed by the initiation of the project during the second semester, by and large, the teachers reacted positively to the curriculum materials, found them easy to use and intend to use them more fully during the next year.

- Participation in the program changed the quantity and time of water activities conducted by teachers during the club sessions:

  - Among females, participating teachers used a greater number of different activities devoted to water use, conservation, and pollution than non-participating teachers.

  - Among both males and females, participating teachers implemented more water activities that use an *interactive teaching* approach than non-participating teachers.

  - The curriculum had no measurable impact on participating teachers' beliefs about the value of interactive teaching methods or on their self-competency to implement these methods.

- Participation in the curriculum had positive impacts on the knowledge, attitudes, beliefs and practices of student eco-club members:

  - Participating students had more positive scores on a scale of knowledge than non-participating students. Boys showed higher knowledge than girls and marginal evidence of a greater impact of the curriculum than girls.

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- Participating students had a slightly higher score on a scale of attitudes and outcome beliefs pertaining to water conservation than non-participating students.

- Participating students perceived more social pressure than non-participating students.

- Participating students had a higher score than non-participating students on a scale of social behaviors, which included making suggestions about household water conservation to their parents. The impact was greater for boys than for girls.

- Participating students had a more positive score on a scale of several household water conservation behaviors than non-participating students.

PROGRAM IMPLICATIONS

- Apply RSCN's newly developed environmental communication and research methodology skills in the design and evaluation of new gender sensitive environmental interventions.

- Use the curriculum with its participatory development process as well as its participatory, interactive approach to teaching as a model for the design of other curricula on environmental issues in Jordan and in other countries.

- Use eco-club activities to reach the home and the community with environmental concerns.