

Jordan

Water Conservation Education



In 1986, Jordan's Royal Society for the Conservation of Nature (RSCN) started environmental conservation clubs in single-sex primary and secondary schools throughout the country. The original focus of these eco-clubs was protection of the country's indigenous animals. In the face of increasing water scarcity and a rapidly growing population, however, RSCN introduced a component on water conservation in the mid-1990s.

USAID/Jordan asked GreenCOM to provide technical assistance to this new program in the areas of formative research, curriculum development and implementation, teacher training, and evaluation.



Formative Research

In 1994, GreenCOM conducted formative qualitative research with a sample of RSCN eco-club representatives from 10 schools in different parts of the country. The research consisted of individual in-depth interviews with principals and teachers who supervised the clubs and focus group discussions with students. The interviews and focus groups covered:

- Knowledge of Jordan's water situation, water shortage, and water pollution
- Attitudes toward water problems and perception of roles and responsibilities in solving those problems

- Water conservation practices at home, in school, and in the community

The initial research found that awareness of water shortage and pollution was high for both teachers and students. Nevertheless, respondents were not convinced that they could take effective action to help ameliorate Jordan's water problems and felt that solutions were the government's responsibility. Researchers also noted that the eco-clubs lacked materials on water conservation.

Curriculum Development and Teacher Training

At a collaborative workshop, GreenCOM and project partners—eco-club leaders, the Ministry of Education, the Water Authority of Jordan, and USAID—used the research results to develop a secondary school water conservation curriculum. The curriculum was divided into five units that covered the water cycle in nature and water sources in Jordan; household water consumption; ground and surface water; pollution; and home gardens and irrigation.

The curriculum emphasized the importance of engaging students in discussions and hands-on experiments to help them understand the relevance of the topic and the need to change their water

consumption habits. For example, one activity required students to take some simple water-saving actions at home. They were asked to compare household water bills received before and after the experiment to observe the reduction in water use and expense.

GreenCOM introduced the new curriculum to eco-clubs by first training RSCN staff, who later held a series of two-day teacher training workshops with 163 leaders from 72 selected clubs. Trainees practiced using the manual and conducting some of the experiments. Many of the teachers reported that it was the first time they had encountered an interactive teaching methodology.

Evaluation

After the trained teachers had used the new materials in their clubs for four months, GreenCOM conducted post-implementation surveys to gauge the impact of the curriculum on both teachers and students. The research was designed to compare an experimental group of participating eco-club teachers and students with a control group of teachers and students from non-participating clubs. Results for teachers and students are summarized on the next page.

Teachers

Use of the curriculum had a strong positive influence on the number and kind of water activities they implemented in their clubs. Most teachers who received the curriculum training implemented almost all of the recommended activities with their students. An overwhelming majority (90 percent) said they would use the curriculum again in the future.



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Implementing the curriculum did little to change teachers' beliefs about the advantages of interactive teaching methods and their confidence in using those methods. Despite this finding, GreenCOM's research suggests that active use of interactive methods could change teachers' preferences over time.

Students

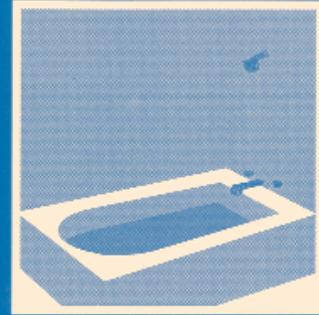
Students from eco-clubs that used the curriculum had more positive scores on knowledge, attitudes, and beliefs about water conservation than students from non-participating clubs.

Students who were exposed to the new curriculum had more positive scores on an aggregate scale of social behaviors than students with no exposure. In particular, the participating group agreed more with statements about their own behavior, such as "I looked for ways to reduce household water consumption," and statements about the actions of other members of their household, such as "I observed someone watering the garden in the daytime" (a non-conserving action). This effect was stronger for boys than for girls.

Results

GreenCOM's work on the water conservation curriculum for secondary school eco-clubs demonstrated several important results:

- **RSCN Professional Development**
Skill building for staff members of RSCN's education department was a major component of this project. GreenCOM helped build their capacity to conduct research, develop curricular materials, and facilitate participatory training workshops. By the end of the project, other departments within RSCN began to contact the education staff for assistance with public surveys. National parks also solicited their help with tourism promotion and materials development. In addition, the World Bank recognized RSCN's increased capacity and pledged to expand its support for the education department. USAID/Jordan later reported that participatory methods introduced by GreenCOM were being copied by other development projects and had become an "industry standard." Furthermore, the RSCN was well-equipped to carry out future longitudinal studies to determine the impact of the curriculum over an extended period of time.



تغبئة حوض الإستحمام
(البانيو) يستهلك ١٣٦ لتراً
بينما في حالة الدوش ٢٠ لتراً

Materials created by GreenCOM illustrated how homeowners could make easy behavior changes for significant water savings.

■ Dialogue About Water Conservation

The new curriculum helped to open a public dialogue on water conservation. It counteracted the apathy reported in GreenCOM's formative research by emphasizing personal responsibility for protecting Jordan's water resources and suggesting simple steps students could take to reduce their consumption and encourage their families to do the same. USAID/Jordan continued to fund projects that addressed water demand management, including the Water Efficiency and Public Information for Action (WEPIA) project, which grew out of GreenCOM's work.

■ Introduction of Interactive Teaching Methods

The curriculum development process introduced Jordanian teachers to interactive teaching, which contrasted sharply with their traditional lecture-based methods. Although the post-implementation evaluation indicated that teachers' beliefs about the value of interactive methods had not changed, they used those methods and witnessed their effectiveness in increasing student knowledge and willingness to change water consumption behavior. Their experience with interactive methods provided encouragement to experiment further with them in the future.

Selected Publications and Products

Evans, Doug, Mona Grieser, Orlando Hernandez, Rebecca Ledsky, Susan Middlestadt, Barbara Rawlins, and Julie Sanchack. *Jordan Water Conservation Education Project: Final Evaluation Report*. Washington, DC: Academy for Educational Development (AED), 1996.

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Grieser, Mona, Rawlins, Barbara, and Khulood Tubaishat. *Water Conservation in Jordan: A Participatory Approach to Curriculum Development*. Washington, DC: AED, 1997.

Middlestadt, Susan, Mona Grieser, Orlando Hernandez, Julie Sanchack, Khulood Tubaishat, Brian Southwell, and Reva Schwartz. "Turning Minds On and Faucets Off: Water Conservation Education in Jordanian Schools." *Journal of Environmental Education* 32, no. 2 (2001): 37–45.



GreenCOM

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