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Clean, Reliable Water: A Gift from the Ancients

by
Judith Cochran with Drs. Øystein LaBianca and Dorothy Irvin

For 3,000 years Jordan's ancestors collected the rain water that transformed their desert into a garden, and gave rise to great civilizations. But, in the last 30 years the age-old tradition of household cisterns has dramatically decreased because of a growing dependence on government water supplies. This huge demand for tapwater has created a crisis which is expected to get worse. Unless new sources of water are found, stricter forms of rationing will have to be enforced.

"There is no water in this area," says Sheikh Jazaa el Noufal of Howarah. "We will die of thirst." He points to a huge ancient cistern restored 60 years ago which provided water to many families in the area. It was used until last year when the top collapsed, killing one person and denying water to its many users. Sadly, there is no money to repair it. When asked where the families now get their water, the sheikh shrugs, "From the government, of course."

The sheikh's dilemma is a common one. Though hundreds of ancient cisterns honeycomb the area, few are put into use because of limited funds, and the commonly accepted practice of using government water.

Nearby, Salim Halil (Abu Nahar) built his own cistern to supply his family with much of the water they need. Proudly, he shows off his innovative catchment system (see sidebar). "I learned about cisterns in the Jordanian army," he says. Once stationed in the desert to restore ancient cisterns for Bedouin families, he now applies what he learned to his own home. Salim is one of a small, but growing, number of Jordanians who are harvesting their own water.

In the same area, Halil's uncle discovered an ancient cistern just meters away from the new reservoir he had built. Had he known about the cistern, said Halil, it would have cost less to restore than the reservoir. And the cistern would also have had the advantage of collecting free rainwater, whereas the reservoir could only be filled with purchased water.

"Cisterns usually fill up and spill over with more water than they can hold," says Dr. Dorothy Irvin of the Madaba Plains Project, an archaeological consortium centered just out of Amman. "There's a lot of water out there, and once a cistern is restored, its free water. Everyone thinks its a terrific idea."

An ancient cistern was restored for Sheikh Jarmaan through the combined

efforts of Mr. Basim Aziz from the Adventist Development and Relief Agency and Project Rainkeep, a subsidiary of the Madaba Plains Project. "This cistern has changed my whole life," says Sheikh Jarmaan. "Now, I can give water to the poor, and wash clothes for two large families. It is the cistern that has allowed me to do this."

Sheikh Jazaa el Noufal, Salim Halil and Sheikh Jarmaan all understand how ancient cisterns provide new sources of water. They also know the cost of restoring a cistern soon pays for itself in saved water fees.

"Thousands of ancient cisterns are just waiting to be used," says Dr. Øystein LaBianca of the Madaba Plains Project. "As we became aware of their numbers, we felt duty-bound to join with other Jordanians and tell people about them." To that end, Project Rainkeep was created to demonstrate how existing cisterns, many of them built in antiquity, can help deal with Jordan's water shortage.

Project Rainkeep grew out of an archaeological survey conducted by the Madaba Plains Project in concert with the Department of Antiquities over five seasons of field work. After finding many cisterns and staging interviews with over 75 families, Dr. Dorothy Irvin learned that water usage has increased dramatically in the last two generations due to the introduction of new agricultural crops, animal needs and increased bathing and laundering practices. She also learned how municipal water supplies in rural areas are often turned off for months at a time. When this happens, people are forced to buy water which is expensive. And those who need it most are the ones who can least afford it.

"Poor people are the ones who suffer most from the lack of cisterns," says Irvin. "Money that would otherwise go for food is spent on water, every drop they drink." Coupling this information with the overwhelmingly positive reaction to the idea of returning to the use of household cisterns, Drs. Oystein LaBianca and Dorothy Irvin set their research findings to work and developed Project Rainkeep in association with Dr. Safwan Tell, Director of the Jordanian Department of Antiquities. Both Mr. Qusai Quteishat, Secretary General of the Jordan Water Authority and Ms. Malaka Abu Azzan of the Ministry of Social Development have expressed great interest in the project as well.

Project Rainkeep is a pilot project centered in the Madaba Plains area where it can meet the present-day needs of those interviewed with ancient technology.

The Madaba Plains area was chosen because hundred of cisterns have already been identified there. Its proximity to Amman also gives the project good visibility. And, once ancient cisterns are proven to adequately supplement municipal water supplies, it is hoped other families will use them, too.

The pilot phase of Project Rainkeep will enter into partnership with a number of selected households, each representing a different restoration situation. "We're trying to get a range of cases from which to learn," says LaBianca. An agreement will be drawn up with each household outlining how Rainkeep will bear the cost of materials in exchange for the family providing labor. Project materials will include: cement to seal the cistern; a new cap and screen to protect against debris, children or animals falling in; and (in some cases) a pump to provide convenient access to the water. The

family, in turn, will clear out their abandoned cistern, restore the catchment/collection system, and seal the inside with cement.

Dr. LaBianca estimates the cost of each restoration to be about 350 dinars, or \$500 U.S. Once the cisterns are restored, Project Rainkeep will follow up on their interviews to evaluate the cistern's impact on each household. The families will be educated about water safety by the Adventist Development and Relief Project, and water quality will be monitored to eliminate the cisterns becoming a breeding place for mosquitoes and disease. Dr. Elias Salameh, irrigation expert at the University of Jordan, has agreed to participate in evaluating the project.

The ultimate benefits are many. It will return the control of water security to the household, and lessen pressure on the existing government water network.

Dr. LaBianca continues, "Municipal water supplies have only a few collection points like dams and underground aquifers. But, when everyone takes responsibility for their water, there are suddenly thousands of supply points."

When Jordanians take responsibility for their personal water supply as their ancestors did, they will significantly reduce water shutdowns and the need for rationing. They will also provide jobs for the experienced cistern builders who now live in many of the villages. Best of all, they will insure better health and hygiene for everyone, especially poor families who won't have to spend their limited funds on water.

Project Rainkeep is unique in that it is the first modern-day project spawned from archaeological research. It illustrates perfectly how the past can provide clues to solving Jordan's present water problems. Rainkeep's success will be a testament to the ingenuity of modern Jordanians and their ancestors who brought flower to the desert with cistern water.

The projected cost of Project Rainkeep is 8,000 dinars (\$12,000 U.S.). The funds are in hand for the pilot project with the hope of attracting future funding sources to expand its scope.

For more information about Project Rainkeep, contact Dr. Øystein LaBianca, c/o Madaba Plains Project, *Project Rainkeep*, ACOR, P.O. Box 2470, Jebel Amman, Amman, JORDAN; phone: 846-117; FAX: 844-181.

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