

Irrigation Projects Could Mean Increased Productivity

UA Researchers Work With Teams of Experts in
Asia and the Near East



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A storage reservoir and irrigation system near Marrakesh, Morocco. ISPAN is working to help construct the second generation of these types of irrigation projects.

BY
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In some areas of Morocco, the production of oranges, apples and other fruit crops bound for Europe already is high. But if Moroccan farmers could better regulate surface and ground water, they would achieve higher agriculture yields on a more consistent basis. Donald Slack, an agricultural and biosystems engineer at The Univer-

sity of Arizona, joined a team of experts last fall to evaluate the potential for supplemental irrigation projects in Morocco.

The Morocco project is one of several currently sponsored by the Irrigation Support Program for Asia and the Near East (ISPAN), a consortium of organizations that provide technical and managerial expertise

as a resource for the U.S. Agency for International Development in 16 countries. For the irrigation projects, ISPAN assembles teams of experts from around the country, who can consult on the technical, social, institutional and economic aspects of water-resource management. The regional experts provide consultation, trouble-shooting and problem-solving, as well as assist in assessing a country's resources, project planning, design, and implementation.

In countries such as Morocco, where farmers depend on rainfall for a large part of their water requirements, a supplemental irrigation system must be designed for reserving rainfall and delivering water during dry periods, says Gene Nordby, head of the UA department of agricultural and biosystems engineering. Morocco's wheat, barley and corn crops are grown in areas where irrigation systems do not yet exist. Large variations in rainfall can result in reduced yields, and even failure, of these staple crops, says research associate Fred Fox.

Although Morocco has had an extensive irrigation system with elaborate underground tunnels dating back 400 years, some of that system has fallen into disrepair and is no longer used.

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Slack's team went to Morocco to evaluate the potential for supplemental irrigation, making plans for the construction of dams and reservoirs to store water and a system for delivering it to areas that are arid or erratic in their production, Nordby says.

The UA is one of eight organizations that comprise ISPAN. Coordinated by Camp Dresser & McKee International Inc., ISPAN also includes assistance from Cornell University, CARE, Development Alternatives Inc., Harza Engineering Company, International Science and Technology Institute Inc., and Training Resources Group.

Once an irrigation problem is identified, by any group or individual, ISPAN develops a plan of operation, a budget and a schedule, then assigns a team to begin work to resolve the problem. To achieve irrigation improvements effectively, more than technical expertise is needed. Economic analysis and social understanding are also necessary. In addition to the Morocco project, other recent ISPAN projects have been under way in Thailand and Nepal.

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THE MIDDLE EAST CONNECTION

Vast regions of the western desert of Egypt are being transformed into a "Garden of Eden." In the last five years, more than 160,000 acres have been planted in grapes, apples, peaches, plums and even bananas. All are being watered with drip irrigation, using the latest technology of fertilizer injection to produce fruit both for export and domestic consumption.

Coinciding with this phenomenal development, is an integrated agricultural development project where three nations, Egypt, Israel and the United States, are working together to review, demonstrate and train Egyptian farmers in the latest horticultural technologies.

From The University of Arizona, Merle Jensen, College of Agriculture assistant dean for sponsored research, has joined scientists and personnel from

the University of California and San Diego State University to make up the American team. Two nations that were once arch rivals, Egypt and Israel, are today working hand-in-hand in the development of new agricultural programs that it is hoped will pave the way toward food stability in the region and in turn, build on the peace initiative between the two nations.

The UA is playing an advisory role for those programs in protected agriculture, the growing of horticultural crops out of season using agricultural plastics for modification of the microclimate. A number of research programs in the UA College of Agriculture are expected to become increasingly important in the development and transfer of new technology to Egypt, a desert community similar to the Sonoran Desert.