Water Management and Conservation in Rural Morocco
A Follow-up Study to AUI Pilot Implementation of Drip Irrigation

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Completed at Al Akhawayn University with the Assistance of Maha Laziri
Moroccan Water Crisis

- Decreased Rainfall in the past 10 years
- Average temperature has increased by 1° C over the past 40 years
- Population growth is also a contributing factor
Saiss Basin

- Provides 1.8 million Moroccans with water
- 82% of the Saiss Basin water supply is used for agriculture
- Decreasing supply due to climate change
Saiss Basin

- Water table in the Basin decreased by 70 meters in the past 27 years having severe and direct effects on area
- Increasing demand for water due to crops requiring heavy irrigation
Mission Statement

To perform a follow up study to “Using Demand Side Management to Adapt to Water Scarcity and Climate Change in the Saïss Basin, Morocco” to determine if the study was successful in its objectives, and if the results are still applicable.
Demand Side Management

Focus on reducing demand for water rather than increasing supply
AUI “Using DSM” Project

- Started in early 2011 by AUI faculty
  - Dr. Ahmed Legrouri
  - Dr. Jack Kalpakian
  - Dr. Driss Kettani

- Funded by Canada’s International Development Research Center (IDRC)
AUI “Using DSM” Project

- Aimed to reduce demand on water supply through farmers using less water
- Two main actions:
  - Install drip irrigation systems on two pilot farms
  - Develop Technology Center for use by farmers
Research Questions

- What were the effects of the pilot farms and seminars, if any, on local attitudes and actions regarding drip irrigation and farming?

- What local and ministry policy changes occurred as a result of AUI's project, if any?

- How have farmers’ interactions with the government regarding water policy changed?
Methodology – Data Source

- Main source of data was a series of personal interviews with:
  - Pilot Farmers
  - Authors of AUI Demand Side Management Report
  - Officials at the Technology Center
  - Officials at the ABHS in Fes
- Pre-written and follow-up questions specific to each group were asked in Arabic or French
- On-site observations were a secondary source of data
Methodology - Sample

- The sample of people interviewed were all directly involved in the project or had knowledge about the project.
- Interviewees were all male aside from one woman at the ABHS.
- Level of education and profession varied widely.
Methodology - Measures

Each group interviewed was asked questions specific to their role in the project

- **Farmers**
  - Actual experience with drip irrigation
  - Interactions with the government

- **Government officials**
  - Position and Responsibility
  - Interactions with farmers
  - Any change in these interactions since completion of the pilot study

- **Authors of the study**
  - Express their opinions about the successes and difficulties within the project
Findings

- Interest in drip irrigation is very high
  - Awareness of benefits of drip irrigation is increasing

- Actual implementation of the system on small farms is minimal but growing
  - Requires large amount of money upfront to purchase the system
  - Process for reimbursement is long and complicated

- Technology Center is not being used often
  - There is limited publicity regarding the center
  - It was reported that attendance is low and inconsistent
Findings

- Process for reimbursement was eased slightly
- Many flaws still exist in the process
  - Inefficient processing
  - Widespread community perception of corruption in the application process
  - Minimal availability of money up front; farmers must pay and then wait for reimbursement
- Government officials are focusing on the technical aspects of the project not the social-cultural obstacles to change
- Farmers conveyed distrust of the government
Conclusions

- Neighbors of the pilot farmers recognized the success of drip irrigation
- The program helped increase local interest in drip irrigation
- The project has not yet fulfilled its other objectives
  - Obstacles stand in the way of immediate success
  - Inefficient and inconsistent governmental practices deter farmers from applying
  - Reported lack of ease in communication between farmers and officials
Recommendations

- Better publicity for the technology center
- Open a similar center in a town located in a more predominant agricultural area
- Allow for collection of reimbursement forms at the technology center
- Consider online application for reimbursement
Questions

For any additional information or a copy of our full report, please feel free to contact us at: waterteam@wpi.edu