

# Iraq Agricultural Extension Revitalization

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## List of Acronyms

IAER	Iraq Agricultural Extension Revitalization
USDA	United States Department of Agriculture
FAS	Foreign Agriculture Service
NIFA	National Institute of Food and Agriculture
TAMU	Texas A&M University
NMSU	New Mexico State University
UC-Davis	University of California – Davis
USU	Utah State University
WSU	Washington State University
MOA	Ministry of Agriculture – Iraq Central Government
MOAWR	Ministry of Agriculture and Water Resources – Kurdistan Regional Government
MOHE	Ministry of Higher Education
MOWR	Ministry of Water Resources – Iraq Central Government
KRG	Kurdistan Regional Government
DG	Director General
PRT	Provincial Reconstruction Team

## Executive Summary

The Iraq Agricultural Extension Revitalization (IAER) Project, a partnership between United States Department of Agriculture/Foreign Agriculture Service (USDA/FAS) and United States Department of Agriculture/National Institute for Food and Agriculture (USDA/NIFA), was funded by the Department of State (DOS) in 2007. IAER was designed to address the significant lack of new technology and agricultural education available to rural Iraqi communities by strengthening the Iraqi extension system, which struggled with weak institutional capacity and poor collaboration among its stakeholders. In 2007, USDA awarded the project to a consortium of land-grant universities led by the Norman Borlaug Institute for International Agriculture and the Texas AgriLife Extension Service, Texas A&M University System, and its partners New Mexico State University, University of California-Davis, Utah State University and Washington State University. New Mexico State University worked with Diné College, a Tribal school in New Mexico, to demonstrate small scale agri-business projects.

IAER's goal was to facilitate Iraqi rural economic development by revitalizing their agricultural extension system. This goal would be achieved through two objectives: 1) Increase agricultural capacity through science based extension training to Iraqi extension personnel; and 2) Foster effective interagency cooperation and collaboration among Iraqi government agencies to benefit Extension.

To increase agricultural capacity through science based extension training, IAER stakeholders envisioned a cadre of Extension agents with both technical expertise and training in modern extension methodology who would work to expand the benefits of that knowledge throughout Iraq. Train-the-Trainer (ToT) programs offered the best opportunity to meet the goal and objectives, particularly given the volatile security situation. Through these TOT programs, IAER had considerable impact under this objective. Over 720 Iraqi Extension and university professionals significantly increased their knowledge of technical subject matter and extension methodology through IAER training. **The 83 Extension agents who participated in an impact assessment of IAER reported sharing information they learned through IAER with a total of 3,242 colleagues in Iraq.** With approximately 720 Extension professionals trained, the knowledge and information provided was shared with a much broader audience throughout every province in Iraq, from college classrooms to farmer fields to agri-businesses.

IAER's most significant achievement in fostering interagency cooperation came at the request of the Ministry of Agriculture/Baghdad (MOA) and Ministry of Higher Education (MOHE), to collaborate with Baghdad University and Salahaddin University in Erbil to develop a one year diploma program in Agricultural Extension. This year-long program provided a sustainable, long-term local solution for advanced training in Extension. The MOA and Ministry of Agriculture and Water Resources/Kurdish Regional Government (KRG) (MOAWR) have formally agreed to support tuition and other costs for Extension agents to attend the Extension diploma program. IAER invested considerable time and effort toward fostering **effective interagency cooperation and collaboration among Iraqi government agencies**; this Diploma program represents a major investment by all four ministries to enhance the capacity of Extension workers to meet the long-term needs of Iraqi agriculture. Over the life of the project, every effort was made to include personnel from the MOA, Ministry of Water Resources/Baghdad (MOWR), MOAWR and MOHE in training activities. More than 45 faculty members from various Iraqi universities attended IAER training programs or participated as co-teachers in the trainings, helping to break down some barriers at the working level with the forming of relationships with Extension agents for research and continued collaboration.

To monitor progress toward achieving results, the IAER consortium implemented a series of evaluation activities throughout the life of the project, including pre- and post-tests at training courses, customer

satisfaction surveys, an “intention to adopt” survey, and open-ended questionnaires. Additionally, a consultant was hired at the end of the project to conduct an analysis of the impact IAER had on Extension agents and their work through interviews with 82 participants. This impact analysis was structured around IAER’s results-oriented management (ROM) plan. The results framework is a logic model that details objectives that must be achieved to improve Extension in Iraq, and ultimately improve agricultural productivity (see Appendix 2). The following impacts have been documented through these evaluation efforts:

**1) Capacity of higher education institutions to support agricultural extension increased:**

- Cooperation between the MOA and the MOHE has resulted in the creation of a one year diploma program in agricultural extension.
- Adoption of modern teaching methodologies and updated curriculums has improved the quality of training offered at agricultural colleges in Iraq.
- Salahaddin University has begun the process of creating an Extension Department within their College of Agriculture to better support training of Kurdish extension agents.

**2) Knowledge and skills of extension agents increased:**

- 97% of surveyed extension professionals reported learning new knowledge during IAER training events.
- Extension professionals reported using the new skills and knowledge to put on training events for colleagues and clients.

**3) Targeting of extension services and materials to specific audiences improved:**

- Surveyed Extension professionals reported a change in behavior in working with women. There was a 7% increase in the number of Extension professionals who reported they have begun working with women after attending an IAER training event.
- A 13% increase in the number of surveyed Extension professionals who have begun to work with youth after attending an IAER training event.

**4) Quality of extension services improved:**

- 92% of Extension agents surveyed reported that they used the knowledge they learned from IAER training to help their clients.
- Surveyed Extension professionals note that both colleagues and clients are more willing to listen to the information they share and more likely to implement new technologies or methodologies.

**5) Understanding of technologies and methodologies in the agricultural sector increased:**

- 94% of Extension professionals surveyed said clients learned information presented through Extension training programs.

**6) Use of improved agricultural practices by farmers has increased:**

- 90% of Extension professionals surveyed said clients stated that they received a benefit as a result of the knowledge they learned through Extension training programs.

Iraq’s agricultural sector and the institutions tasked with supporting it face considerable challenges. Although there is still room for growth, IAER has made a significant impact by providing an enormous

infusion of new technical knowledge and new institutional capacity. The progress made by extension specialists and agents in Iraq in presenting technical subject matter and improved extension methods to others over the life of the project has been tremendous.

## **Project Background**

Agriculture has a rich history in Iraq and serves as the second largest employer. Instability and conflict in recent years has led to a decline in the agriculture sector, a decline that affects food security, rural livelihoods, resource management, and economic growth. A limiting factor to addressing these challenges is a lack of new technology and agricultural education for the Iraqi farm family and rural communities.

Iraq has a network of agricultural extension offices that are organized by the MOA and spread across the provinces. Extension professionals, however, do not have a formal connection with faculty from agriculture colleges to learn new technology and exchange ideas. Further, the instability of the region presents challenges to the flow of information from the agricultural colleges to extension personnel to Iraqi farmers and rural communities, nor are Extension agents empowered to initiate programs or activities on their own. Generally, agricultural priorities flow from the top administrators to the agents, rather than a grassroots Extension program that addresses needs expressed by the rural population. In addition, Extension agents generally do not have the necessary resources to visit farmers, conduct training programs, or initiate and maintain demonstration plots.

USDA's objective in IAER was to improve Iraqi agriculture by addressing weaknesses in their extension service. Initiated in 2006 with an initial funding of \$7.8 million from the US Department of State, total funding for IAER over the life of the project was \$12.2 million. USDA/FAS and USDA/NIFA collaborated with the MOA and MOHE in both the central Iraq Government and the Kurdistan Regional Government. USDA established a consortium of land-grant universities who could best make available US agricultural extension knowledge and resources to the Iraq agricultural community. The project grant was awarded following a nationwide, competitive process to the Norman Borlaug Institute for International Agriculture and the Texas AgriLife Extension Service of the Texas A&M University System and consortium partners New Mexico State University, University of California-Davis, Utah State University, and Washington State University.

The IAER consortium established a primary goal at the beginning of the project to facilitate Iraqi rural economic development and build capacity by revitalizing the Iraqi agricultural extension system. This goal would be achieved through several objectives:

- Increase agricultural capacity through science based extension training to Iraqi extension personnel.
- Create effective interagency cooperation and collaboration among Iraqi government agencies.

Throughout the life of the IAER Project, a wide range of training programs and activities were carried out with flexibility to meet the project goals and objectives. Strategies used to achieve the objectives include the following:

- Conduct a systematic and comprehensive training program in the methodology and application of agricultural extension.
- Provide a series of technical training sessions to equip Iraqi agricultural professionals for development of the agricultural sector.

- Provide a responsive and flexible curriculum that meets the needs of Iraqi agriculture.
- Conduct continuous evaluation to determine effectiveness of the program and to demonstrate effective extension methods.
- Coordinate with USDA Provincial Reconstruction Teams (PRTs), Civil Affairs Teams, DOS and Iraq Reconstruction Management officials to provide resources for Iraqi partners.
- Coordinate the provision of long-term agricultural educational opportunities for Iraqis – both in the United States and in other regions.
- Provide distance education and alternative learning resources for delivery in Iraqi universities and to Iraqi extension professionals.

## Summary of Major Activities

To achieve the goal and objectives of IAER, stakeholders set out to create a pool of Extension agents with both technical expertise and knowledge of modern extension methodology who would return to Iraq and expand the impacts of that knowledge. US partners met with relevant Iraqi ministries and universities, Iraqi agricultural NGOs and agricultural associations, and Jordanian universities and agricultural organizations in Amman, Jordan, in March 2007 for a preliminary stakeholder conference.

### General Extension Training

IAER hosted its first training program at the American University of Cairo Desert Development Center (DDC) in Egypt in July 2007. Using the “train the trainer” model, 22 Iraqi faculty members and 20 US faculty members organized themselves into five teaching teams to develop two-day curriculums for training MOA extension personnel. Agricultural topics covered included: soil and field crops, livestock, irrigation, extension, and horticulture. Both the American and Iraqi trainers were well prepared and enthusiastic, several of them making use of the DDC farm for practical hands-on learning. Feedback from the needs assessment conducted at this first training session indicated the extension workers wanted more in-depth training focused on their area of responsibility.



Extension professionals demonstrate a farm visit.

### Specialized Training Courses

To address this need, IAER trained 500 individual participants through 20 specialized courses from October 2007 through July 2008. Offered at various venues in the Middle East, the specialized courses afforded smaller groups of 20-30 participants a week long course in specific subject areas. These courses targeted extension professionals who spent the majority of their time in a particular discipline, such as water and irrigation, horticulture, agronomy, agribusiness or livestock. Participants were engaged in the training through classroom discussion, lecture, field trips and hands-on activities. Additionally, NMSU led a series of three training events for a group of agricultural communicators. The

communicators were equipped with laptop computers and cameras to create new media for agricultural Extension.

### **Extension Demonstration Projects**

To facilitate community-based extension work, IAER established a grant program for small-scale demonstration projects that Iraqi extension professionals and university faculty could apply for funding. The extension projects served a threefold purpose: 1) facilitate technology and information transfer from extension professionals to their constituents; 2) facilitate cooperation between extension professionals and university faculty; and 3) provide a practical learning experience in project proposal writing. The first projects were awarded in July 2007, with more projects awarded throughout the next six months. Activities under these projects continued through 2009.

A total of 25 projects were funded to Extension agents and university faculty, covering a range of subject areas such as: beekeeping, greenhouse production, composting, sheep and calf fattening, poultry and pest management in small grains. Many of the projects targeted rural women and small business owners as a means of encouraging local economies.

### **Phase Two Stakeholder Meeting**

IAER stakeholders convened at the US Embassy in Baghdad, Iraq, in December 2008 to initiate phase two of the IAER Project. USDA officials and consortium partners met with Iraqi MOA and MOHE to report on phase one activities and successes and plan phase two activities. A major point of discussion in the meeting was the selection process for Iraqi Extension specialists who would attend US-based training at consortium universities. The MOA and MOAWR committed to selecting qualified Extension personnel for training activities in phase two.

In the planning stages for phase two, consortium universities and USDA partners developed a results-oriented management (ROM) plan to monitor and evaluate IAER (see Appendix 2). This results framework corresponds to a broader framework for USDA/FAS Extension programs. The results framework is a logic model that details objectives that must be achieved to improve Extension in Iraq, and ultimately improve agricultural productivity. The framework was used in developing phase two activities to ensure they supported these results.

### **US-based Specialized Extension and Subject Matter Training**

Phase Two of IAER focused on developing a core group of Iraqi Extension professionals who would lead Extension activities in Iraq. Using a “train-the-trainer” format, US consortium universities each trained a group of 12 Extension professionals selected from the MOA, MOWR, MOAWR and agricultural colleges. The six-week US training programs used a variety of learning activities such as seminars, discussions, field days, hands-on experiences, and tours for both technical subject matter and extension methodology. The training programs ran from April 2009 through November 2009. At the completion of the course, each participant developed an implementation plan for extension training programs in Iraq for both farmers and fellow Extension agents.

### **Technical Agriculture and Extension Training in Iraq**

Following Phase Two, the MOA and MOAWR developed a list of five priority trainings. Two Extension specialists from the US-based training groups were selected to help develop the curriculum and co-teach the course with US faculty; the training courses were held in Erbil beginning December 2010 through July 2011. Each training event was held at MOAWR facilities for approximately 30 trainees from the

MOA and MOAWR with lectures, field trips and hand-on activities. Each of the courses focused on technical agricultural subject matter as a way to teach extension methodology.

### **Advanced Extension Methodology Training**

The MOAWR in Kurdistan requested training in Extension methodology for three provincial teams of Extension agents. This innovative program, initiated by the MOAWR, targets Extension efforts at the farm level. Each province has a team of 6-10 Extension agents specializing in different technical areas who visit farmers and provide community agricultural training. Teams of three US Extension agents spent two weeks with each Iraqi team in June 2011. Training courses were held at each provincial Extension office with visits to research and demonstration facilities and local producers. Training topics covered program development, needs assessment, agricultural communication, and evaluation.



### **Extension Diploma Program**

In late 2010, the MOA in Baghdad approached IAER about creating a one year diploma program in Agricultural Extension for current extension agents at the College of Agriculture, Baghdad University. Recognizing an opportunity to support long-term advanced training in extension while fostering stronger collaboration between the two Ministries, IAER collaborated with Baghdad University and Salahaddin University in Erbil to develop an Extension diploma program at each university. The Extension diploma program provides advanced training in Extension methodology and some technical subject matter to better prepare future Extension agents and build on the knowledge and experience of current Extension agents. IAER invited five faculty members from the Extension Department at Baghdad University and three faculty members from the Colleges of Agriculture at Salahaddin University and Dohuk University to Texas A&M University and New Mexico State University for a four-week fellowship program to update and enhance Extension curriculum for their universities. By the end of the fellowship, the faculty developed an outline of the diploma program with course syllabi. The MOA and MOAWR have agreed to support tuition and other costs for Extension agents to attend the Extension diploma program. Classes have begun at Baghdad University. Salahaddin University has accepted 25 applicants, 11 of which are women.

### **Major Outcomes**

To monitor progress toward achieving results, the IAER consortium conducted a series of evaluation activities throughout the life of the project, including pre- and post-tests at training courses, customer satisfaction surveys, an "intention to adopt" survey, and open-ended questionnaires. At the end of the project, IAER conducted a survey to better understand the impact of IAER on Extension agents and their work. 84 Iraqi Extension agents and university faculty were interviewed in person or by phone with Arabic translation. A wide range of participants from each level of IAER training were interviewed.

### **Result 1: Increased Capacity of Higher Education Institutions to Support Agricultural Extension**

Over 45 university professors participated in IAER activities, some as co-teachers others as trainees, all serving to strengthen ties between research and extension. University professors advised on extension demonstration projects and formed informal working relationships with extension agents. **Select university professors became recognized experts within their technical field in Iraq.** For example, one professor from the Baghdad University now provides technical assistance and training to two animal health associations in Iraq (Iraqi Red Meats Association and the Iraq Veterinary Association).

UC Davis reported that Dr. Bayan Hamzaa Majeed from the University of Baghdad was very well prepared for a training he co-taught on horticulture and post-harvest loss. He had good slides in English/Arabic, and excellent visual aids for demonstration. The presentation was particularly good in that Dr. Bayan incorporated slides from a wholesale market trip the day before into the presentation.

IAER made great strides in encouraging the adoption of modern teaching methods and updated curriculums, improvements ably demonstrated by the professors who co-taught the final series of trainings in Erbil. The professionalism and quality of teaching methodology and technical information of these IAER participants was very impressive. They had all adopted the participatory method learned in association with previous IAER activities and received high marks from workshop participants.

The greatest strides in supporting agricultural extension by higher education have come with the creation of the one-year Diploma in Agricultural Extension program. As the brainchild of the Government of Iraq (GOI), this shows that the MOA has come to appreciate the role that higher educational institutions can play in supporting extension. The MOA's willingness to support tuition, fees and living expenses for extension agents that complete the program shows they understand the vital role that well-trained extension agents can play in improving the Iraqi agricultural sector.

As a result of increased coordination and collaboration between the College of Agriculture at Salahaddin University and the Extension Department at the MOAWR, the College of Agriculture at Salahaddin University has begun the process of developing an Agricultural Extension Department. This is a huge step for the future of Extension training and professional development in Iraq. Extension and the Colleges of Agriculture are housed within separate ministries in Iraq with very little, if any, professional interaction. This formalized partnership for the Extension diploma program will increase collaboration between agricultural faculty at the university and Extension agents in the field for future joint research projects and information sharing.

## **Result 2: Increased Knowledge and Skills of Extension Agents**

Through a wide variety of 44 training activities IAER trained **1,046** Extension Agents and university faculty participants. Approximately 720 unique individual Iraqi Extension agents and university faculty were trained.

Training course outcomes:

1. 44% overall increase in knowledge from Phase One courses. 85% overall satisfaction with all aspects of Phase One courses.
2. 76 out of 84, or 92% of Extension agents surveyed reported that they used the knowledge they learned from IAER training to help their clients.

3. **The 84 Extension agents surveyed shared information they learned through IAER with a total of 3,242 colleagues in Iraq through group and one-on-one training events.** With approximately 720 Extension agents trained at IAER courses, we can assume the information was shared with an even broader audience.

Extension agents who attended training at NMSU in October 2009 worked in teams to develop course curriculum, apply for funding and host training events in Erbil and Tikrit. The three day training event in Erbil, fully funded by the MOAWR, trained 20 Extension agents in agribusiness through lectures and field trips. The MOA funded event in Tikrit trained 28 Extension agents from four provinces. Topics covered grant writing, developing and conducting extension training, evaluation, agricultural marketing, and agricultural economics. Using pre and post testing, average trainee scores rose from 33 to 74. The Extension agents demonstrated abilities to:

1. Determine the need for training,
2. Design appropriate curriculum,
3. Apply for and receive funding,
4. Plan and execute an evaluation of the training event, and
5. Present course materials.

One of the most successful activities under IAER was the Extension Demonstration Projects in Phase One. This program funded 21 projects to extension professionals within the MOAWR and four projects to university faculty, training over 942 clients. Many of the projects targeted rural women and small business owners as a means of encouraging local economies. MOAWR submitted a final report to IAER detailing that 873 farmers, women, and youth were trained through these projects. Extension professionals indicated an increased awareness of the value of hands-on work and face-to-face interaction with the farmers. More importantly, the technology transfer projects have inspired and energized extension professionals to dedicate more time to interaction with their farmers and communities.

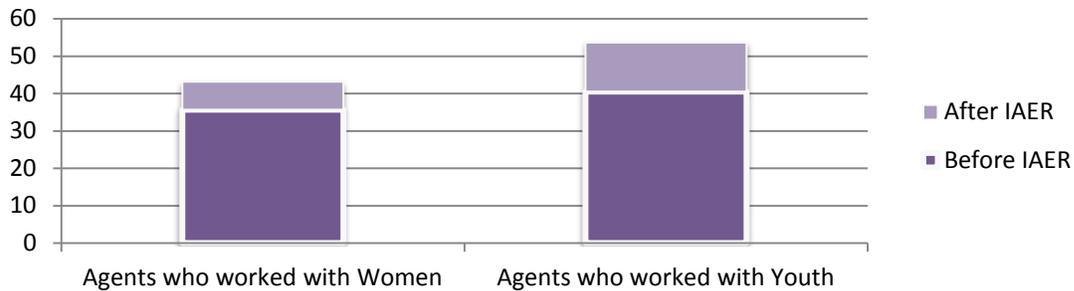
Tarik Kadhum Maie, Missan Agricultural Directorate, used his one week training on animal feed to plant 360 donnums of land to use as field demonstrations to farmers on better ruminant nutrition, as well as conducted field experiments with pistachios, alfalfa, and growing cucumbers and tomatoes in greenhouses. "I can't summarize the change in one page but I can say that the change was great and that farmers are more interested in using my information even if it causes them more time and effort as they were very happy with the increased production."

For many of these agents, there are limited opportunities to engage in the type of outreach activities that are considered a fundamental component of extension. Outcomes include:

1. Extension agents and university professors developed grant-writing and project management skills.
2. Opportunity for young Extension agents to gain practical experience in managing field days and interacting with clients.
3. Increased interaction of Extension agents with clients.

### Result 3: Improved Targeting of Extension Services and Materials

This result specifically targeted women and youth in Iraq. There were two training courses specifically for women Extension agents: one for Women in Agriculture and a second course for Working with Women and Youth.



The impact survey taken at the end of IAER showed a 7% increase in the number of Extension professionals who work with women after IAER training and a 13% increase in the number of Extension professionals who work with youth.

#### Activity: Extension Demonstration Projects

- Output: Three projects that targeted women.  
Output: Approximately 209 women trained through demonstration projects

Trainees shared anecdotal information about their increased targeting of women as a result of the IAER training. One Extension agent reported that, on average, 30% of trainees who attend his courses are women. Another provided training specifically for his female peers in Extension. One female Extension agent who attended IAER training provides training to women in the rural areas in sewing skills as a way to increase family income through a home-based business. A participant from Al-Muthanna province formed a team of female agricultural engineers and female volunteers to survey women in rural areas on their training needs. The participant is now seeking



funding for a training series on these self-identified needs.

At Salahaddin University in Erbil, of the 25 incoming students in the Agricultural Extension Diploma, 11 are women. IAER had no involvement in the application process, demonstrating the College's internalization of the importance of having well-qualified female extension agents.

#### **Result 4: Improved Quality of Extension Services**

This result refers to the value or worth that producers find in the services offered by Extension. This might be evaluated by the types of services, method of delivery, and accuracy of the information. As educators, Extension agents must use effective outreach strategies to reach producers and deliver accurate agricultural information so that producers can improve their agricultural practices. IAER trainings sought to improve outreach strategies and provide updated technical information to Extension agents. The percentages reported in Appendix 3 reflect an impressive increase in outreach efforts by Extension agents after they attended IAER training.

After a series of Extension methodology training programs in three Kurdish provinces, the KRG Extension Directorate completed a comprehensive issues identification assessment in Kurdistan. Kurdish Extension agents surveyed producers to identify their top agricultural needs, and the information will be used to prioritize Extension programs in the KRG. *This is a valuable step for Extension in the KRG because it represents a change in perception of Extension administrators from a top-down Extension program to a community level needs-driven Extension program.*

Although less quantitative, more telling of improved quality of services is the feedback from IAER trainees to IAER staff through open-ended questionnaires, emails and one-on-one conversations about increased trust and improved relationships with their clients as a result of IAER training. *Historically, Extension does not have a good reputation in Iraq for helping producers to increase production, so the reports of increased trust from clients are a significant step for the future of Extension to effect change in Iraqi agriculture.* The agents note that both their colleagues and clients are more willing to listen to the information they share and more likely to implement new technologies or methodologies.

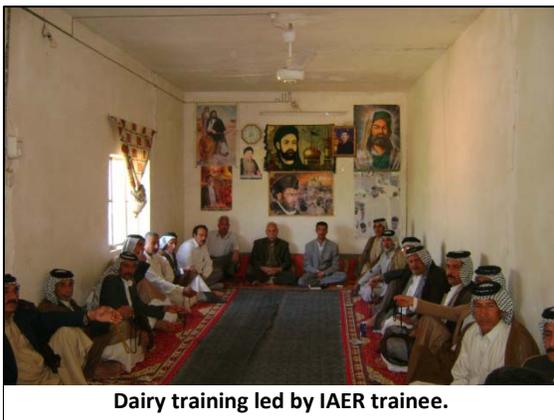
The agricultural communications training programs led by NMSU were particularly successful in equipping Extension agents to increase multi-media outreach efforts. A cadre of 16 Extension communication specialists attended three training courses to learn advanced methods of agricultural communications. Each trainee received an Apple computer, camera and video camera, and they were trained to use the equipment to produce videos, presentations, brochures, and newsletters that are used in Extension outreach efforts. Collectively, the team has created hundreds of training videos that are broadcast on local Iraqi television and YouTube (<http://www.youtube.com/user/handrensardar>), as well as fact sheets, still images, magazines and brochures. Additionally, they are actively sharing information through social media such as Facebook and personal websites. Trainees report that they are now respected as professionals in their field, and they continue to seek opportunities to increase their skills and abilities.

#### **Result 5: Increased Understanding of Technologies and Methodologies in the Agricultural Sector**

56 out of 59, or 94%, of Extension professionals surveyed said clients learned information presented through Extension training programs. Anecdotal information provided by Extension agents via email and conversations indicate that Iraqi producers are learning new information from training programs. One Extension agent reported, *“The farmers keep visiting me for counseling, interviews and visits to solve problems facing the production of field crops and vegetables.”*

## Result 6: Increased Use of Improved Agricultural Practices

- Outcome: 53 out of 59, or 90%, of Extension professionals surveyed said clients stated that they received a benefit as a result of the knowledge they learned through Extension training programs.



Dairy training led by IAER trainee.

Individual Extension agents report to IAER staff through open-ended questionnaires, emails and personal conversations about clients who are adopting new technologies or methodologies that Extension agents share. Because of the security situation and the travel difficulties in Iraq, only anecdotal information about increased use of improved agricultural practices can be collected at this time. One Extension agent reported that he provided training to a group of dairy farmers to teach them techniques to reduce Mastitis in their cows and to increase milk production. He reports that the dairy farmers are adopting these

techniques to improve their farms. Additionally, he collaborated with a professor from the College of Agriculture at Al-Kufa University to offer training to 40 fish farmers.

## Lessons Learned

**Secure input from lower-level offices.** A major challenge faced by IAER in the planning phase was the inability to spend time on the ground in Iraq. This hindered IAER implementers in developing a firsthand understanding of the daily issues facing Iraqi extension workers and of the overall educational needs of the agricultural sector. Because it took over a year for project members to be allowed in country, a majority of the initial planning was unilateral at the central Ministry with limited input from the provincial or village level. This one-sided input resulted in misunderstandings on the part of IAER of local needs and on-the-ground realities.

**US faculty review of training participant selection.** Selection issues stemmed from political constraints and a likely misunderstanding of the project’s goals by those in Iraq helping to select the participants, including the Ministry of Agriculture. In several instances, the Iraqi-chosen participants lacked basic understanding of essential subject matter areas for which they were to receive advanced training. The US faculty were forced to review foundational concepts rather than advanced prepared materials. Under ideal conditions, the consortium recommended that aptitude tests be included as key criteria for participant selection. Given the time and money invested for in-depth training, consortium members believed that US faculty should have had the opportunity to interview potential trainees. It was agreed that CVs of Iraqi Extension employees were not very helpful in the selection process.

**Involve Iraqi university professors as trainers.** The original intent of IAER was to work closely with Iraqi universities as vehicles for providing technical subject matter training to Extension workers. It became apparent early on that the MOA did not view this approach as viable; many Iraqi universities did not have the capacity or desire to send faculty to participate in IAER training courses. The consortium had to be flexible in its planning and willing to change direction quickly when provided with local feedback.

In terms of sustainability, one of the best things IAER did was change policy and use former participants to teach a portion of the final Erbil based trainings. The professionalism and quality of teaching methodology and technical information of these IAER participants was very impressive. They all adopted the participatory method learned in association with previous IAER activities and received an average of 91% satisfaction rate from workshop participants who completed a course survey at the end of the training.

**Understand the organizational culture and reward systems of MOA-Extension.** The organizational structure of MOA-Extension is complex. There are multiple channels of authority and overlapping units. For future work with Extension or other components of the MOA in Iraq, when feasible, visits with Extension workers at multiple levels and locations in the organization would be important early on to fully understand how the Extension system functions in Iraq. The senior administration of Extension in the capital can be unaware of how things really are working at the local level. The governance at the Provincial level can provide important information to future projects and needs.

**Include a wide variety of participants from both the MOA and the Universities in the subject matter trainings.** This approach was acceptable to the MOA, and paid great dividends. It fostered networking and gave university faculty a greater appreciation of Extension worker needs as there is normally little coordination between Higher Education and the Ministry of Agriculture-Extension. Training participants reflected the diverse range of extension actors throughout the Iraqi agricultural sector, including ministerial and provincial policy makers, professors and extension agents. This inclusive and broad participant pool increased the scope and reach of impacts from project trainings.

**Better communication between IAER and the MOA.** USDA experienced some difficulties in understanding what was not spoken by the MOA. For example, based upon the success of the first mini-grant program, IAER planned a second phase targeted towards the US-based trainees. The MOA eventually vetoed the idea, but only after a long, drawn out push by FAS/Baghdad during which the MOA danced around approving the project. The idea of the mini-grants should have been dropped sooner. Forcing the US Iraqi trainees to develop mini-grant proposals, when they were already skeptical about receiving any money, damaged the credibility of the consortium with the trainees.

**Broaden the focus to partners besides the MOA.** It is understandable that FAS/Baghdad wanted the IAER project to work mainly with the MOA in Baghdad. However, given the lack of cooperation at times, activities should have been shifted sooner to the MOAWR in the KRG. The KRG was more open to strengthening their Extension service, including making policy changes based upon recommendations from IAER.

**Secure buy-in from the Government of Iraq.** When IAER commenced, the GOI's only contribution was in allowing their citizens to attend training. They had little at stake with much to gain. To get the GOI more vested in the process, two key changes were made. Starting with the US training activity, trainees were expected to share what they had learned with others when they returned to their work positions. Additionally, the GOI was required to cover the costs of hotels, travel and meals for participants to Erbil-

based trainings. This significantly improved the quality and appropriateness of participants. The GOI contribution came to approximately \$85,000 for these trainings.

Although it was important to provide basic training to Extension workers at the provincial level, it would have been beneficial to target senior officials in the MOA and mid-level Extension managers on topics of policy and management. These are the groups that could influence needed changes. IAER's inability to gain traction to affect policy changes with MOA/Baghdad resulted in a cadre of enthusiastic, well-trained extension professionals who report facing great obstacles in implementing what they learned.

**The ministerial advisor for Extension at the Embassy in Baghdad was a key factor in the success of IAER.** Security concerns in Baghdad made it impossible for IAER project leadership to meet with its primary partners, the MOA and University of Baghdad. It was key that the ministerial advisor for Extension was able to make regular contact with the Iraqi stakeholders and administrators to whom IAER trainees reported. The Extension advisor also worked with the MOA to initiate a merit-based trainee selection process to identify appropriate candidates for the US-based training in an attempt to mitigate earlier problems. The one negative was the lack of continuity between advisors, due to extended gaps of time between appointments, delaying some project planning and activity implementation. Nevertheless, having a dedicated contact at the Embassy far outweighed the negatives.

**A mix of both field experts and professors created the most successful learning environment.** The assessment and training that occurred in June 2011 utilized a combination of US subject matter specialists (professors) and county Extension agents to jointly train Iraqi agents as they worked with farmers. This was an excellent model to emphasize Extension methodology training along with subject matter (provided funds are available and security concerns allow such a presence). The US specialists gained greater trust from the Iraqi Extension agents because they were investing time in Iraq, visiting their offices and fields. The specialists taught a very practical approach to Extension, providing real life examples from their experiences as Extension agents.

## Conclusions

The IAER Project was successful in addressing the identified needs of Iraqi Extension workers and university faculty relative to subject matter training and Extension methodology. The train-the-trainer approach created a cadre of well-trained, effective Extension professionals. By the end of the IAER Project, many of the trainees were conducting their own Extension events, including educating their co-workers on what they had learned in the train-the-trainer workshops with US consortium faculty. The enthusiasm of trainees was evident and the camaraderie that developed between consortium faculty members and the trainees was very rewarding. There is no substitute for building trust. It takes time, and cannot be overemphasized. The visit of 61 Iraqi trainees to the US in 2009 was important to developing this trust and contributed significantly to the success of IAER. Including Iraqi university faculty with Extension workers helped to break down some barriers at the working level between the Colleges of Agriculture and MOA-Extension.

Divisions between the Ministry of Higher Education and Ministry of Agriculture hampered initial plans to use Iraqi university faculty to train Extension workers. Fortunately, by the end of the Project in 2011, improved cooperation between the two ministries was more evident. An example of this cooperation is the 2012 plan for the University of Baghdad and Salahaddin University in Erbil to develop and deliver a MOA-funded one-year diploma program for Extension employees in the MOA-central government and

the MOAWR-KRG, respectively. ***This activity represents a major investment by all four ministries to enhance the capacity of Extension workers to meet the long-term needs of Iraqi agriculture.*** Faculty from the two universities spent a month in the US during the summer of 2011 preparing curriculum materials for the diploma programs.

A large repository of curriculum materials in both English and Arabic was developed during the IAER Project and are available for downloading<sup>1</sup>. Continued professional development of those MOA employees involved in Extension outreach is essential to rebuild the reputation of Extension as a relevant agency for assisting the people of Iraq. Extension workers must have the resources to carry out educational events and conduct field demonstrations at the local level, requiring a shift in policy at the central level.

## **Recommendations**

Strengthen links between Extension agents at the MOA and university faculty —particularly in the areas of applied research and technology transfer. Opportunities for Iraqi Extension workers to obtain advanced degrees from institutions outside of Iraq would also be advantageous to building the long-term capacity of MOA-Extension to deliver relevant education to farmers and their families. Improved access to Internet broadband at the Iraqi universities could greatly facilitate US consortium faculty mentoring Iraqi faculty in the diploma program or other academic activities.

**Establish a needs-based approach.** The Iraqi Extension program would be better able to address relevant farm problems with a needs-based approach. The MOA operates in a top-down authority structure with limited feedback from producers or lower-level Extension agents. Extension workers should learn to conduct comprehensive needs assessments in their areas and be authorized to create programs to address those needs using multiple outreach strategies. Not only would this approach allow Extension workers to be more responsive to current farm problems, it would also allow Extension workers to be more visible in local communities and with producers, building trust and good relationships. To be most effective, this approach requires that Extension agents be equipped with the necessary vehicles and resources to maintain community involvement. This will require a changed approach by top MOA officials to allow a needs-based Extension program to drive Extension policy and procedures, rather than the current top-down approach.

**Improve programming for women and youth.** Until recently, women employees in Extension and Extension programs for women at the local level have been limited in Iraq. KRG Extension Leadership recently indicated they were attempting to add women employees. If these opportunities are to be pursued in the future, additional work with the senior management of the MOA would be necessary.

Also, the MOA does not view agricultural youth programs as being significant to their core mission, rather the purview of the Ministry of Youth. Limited youth programs are a missed opportunity for MOA-Extension. While it may be true there is no immediate impact on agricultural productivity from youth programs, it would be building the future of Iraqi agriculture in addition to earning important goodwill from farm families for MOA-Extension. Under other funding mechanisms, FAS has done some work to build the capacity of Iraqi 4-H, which is growing at a staggeringly quick rate. 4-H is a strong locally lead organization creating real change at the community level. Strategic investments strengthening its management capacity will have significant long term benefits for the youth of Iraq.

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<sup>1</sup> Texas A&M Is in the process of moving the documents to a new website. Requests for information should be directed to Kate Whitney, IAER Program Manager, at [kwhitney@borlaug.us](mailto:kwhitney@borlaug.us).

**Involve senior officials and particularly mid-level managers on discovery visits to the US or other countries with emphasis on topics of policy and management.** These are the groups that could positively influence needed changes. An additional approach would be to embed a ministerial advisor with Extension management experience in the MOA or MOAWR (were security is less of an issue) to assist them in identifying and evaluating policy alternatives for the operation of extension/research in the MOA or addressing broader agricultural issues.

**Make available resources for Extension workers to develop farmer field demonstrations.** During Phase One of IAER, mini-grants were provided to several Extension workers in the KRG who had been to IAER trainings in Egypt and Jordan. For relatively little cost, Extension agents trained 942 producers and built trust in their communities through these demonstration projects and training events. If funds were available in the future, developing a cost-share mini-grant program for Extension workers with project selection and mentoring support provided by U.S. faculty could be very supportive of sustainable Extension education. IAER attempted to work with the MOA to design a grants program (funded with MOA money), to which Iraqi extension agents could apply for demonstration projects, but was not successful. However, there is different leadership at the MOA now, and this could be revisited.

**Continue training in farm management, marketing, and agribusiness development and stronger links with agri-businesses.** These were difficult subject matters for Iraqi trainees to grasp. Decades old government systems for agricultural enterprises and distribution channels made it difficult for trainees to grasp the transition to a market based economy. Both Extension and Research in Iraq will need further assistance to move forward on these topic areas. Given the number of small farmers, assistance with establishing cooperatives for handling and marketing Iraqi products could be useful. Linking extension agents to Inma projects would increase their opportunities to understand agri-business while potentially widening the impact of Inma's agri-business mandate through training events put on by extension agents.

**Continue capacity building within the MOAWR.** Institutional changes at the policy level in Agricultural Extension programming were limited to the KRG. Impressed with the skills exhibited by IAER trained extension agents, the MOAWR Director of Extension and Research plans to increase resources committed to agricultural extension:

- Within the institutional structure of the MOAWR, Extension will be on the same level as the provincial Director Generals (DG) of Agriculture. This action prevents the DG from reallocating Extension funding and supplies to other areas.
- The Director funded an innovative pilot program for multi-disciplinary Extension teams in each province. Each 4-8 person team visits several villages daily to identify problems, lead training courses, and visit farmers one-on-one. If successful, the director indicated that he would create more teams to cover the entire Kurdish region.
- The KRG Extension Directorate completed a comprehensive issues identification assessment in Kurdistan. Kurdish Extension agents surveyed producers to identify their top agricultural needs, and the information will be used to prioritize Extension programs in Kurdistan.

The KRG remains open to improving the functionality of its agricultural extension program. Continued capacity building within the MOAWR could result in further improvements to their program, such as designing programs based upon their recently completed needs assessment. The MOAWR would benefit from having consistent access to an experienced extension professional who could assist them with designing and implementing an appropriate, long-term strategy for extension in the KRG.

## Appendix 1: Monitoring and Evaluation Results

To monitor progress toward achieving results, the IAER consortium conducted a series of evaluation activities throughout the life of the project, including pre- and post-tests at training courses, customer satisfaction surveys, an “intention to adopt” survey, and open-ended questionnaires. At the end of the project, IAER conducted a survey to better understand the impact of IAER on Extension agents and their work. Eighty-four Iraqi Extension agents and university faculty were interviewed in person or by phone with Arabic translation. A wide range of participants from each level of IAER training were interviewed.

### Result 1: Increased Capacity of Higher Education Institutions to Support Agricultural Extension

Activity: General Training, Specialized Training Courses, and Technical Agriculture and Extension Training in Iraq

- Outputs:
  1. 28 Iraqi professors co-taught at IAER courses in Phase One.
  2. Seven Iraqi professors co-taught Agricultural and Extension Training courses in Erbil, Iraq.

Activity: Extension Demonstration Projects

- Outputs:
  1. Four Extension Demonstration Projects completed by Iraqi university professors.
  2. 25 Iraqi faculty advised on Extension Demonstration Projects.

Activity: US-based Specialized Extension and Subject Matter Training

- Outputs:
  1. 12 University professors attended the US-based training during Phase Two.
- Outcomes:
  1. University professors adopted modernized teaching methods and updated curriculum.
  2. Informal working relationships formed between Iraqi professors and Extension agents.
  3. Select university professors became recognized experts within their technical field in Iraq. For example, one professor from the Baghdad University now provides technical assistance and training to two animal health associations in Iraq (Iraqi Red Meats Association and the Iraq Veterinary Association).

Activity: Extension Diploma Program

- Outputs:
  1. Eight Iraqi professors attended a one month fellowship for curriculum development. The professors developed an outline for the Extension Diploma Program and course syllabi.
  2. Two US professors completed a Departmental Review of the Agricultural Extension Department at Baghdad University.
- Outcomes:
  1. Increased coordination and collaboration between the College of Agriculture at Salahaddin University and the Extension Department at the MOAWR. The MOAWR agreed to support tuition, fees and living expenses for Extension agents who complete the diploma program.

2. The College of Agriculture at Salahaddin University has begun the process of developing an Agricultural Extension Department.
3. Updated curriculum and teaching methods for Extension courses at Baghdad University and Salahaddin University.

## **Result 2: Increased Knowledge and Skills of Extension Agents**

Activity: General Training, Specialized Training Courses, US-based Specialized Extension and Subject Matter Training, Advanced Extension Methodology Training, and Technical Agriculture and Extension Training in Iraq

- Outputs:
  1. 44 training courses.
  2. 1,046 Extension Agents and university faculty participants at training events. Approximately 720 unique individual Iraqi Extension agents and university faculty were trained.
- Outcomes:
  1. 44% overall increase in knowledge from Phase One courses. 85% overall satisfaction with all aspects of Phase One courses.
  2. 76 out of 84 or 91.6% of Extension agents surveyed reported that they used the knowledge they learned from IAER training to help their clients.
  3. The 83 Extension agents surveyed shared information they learned through IAER with a total of 3,242 colleagues in Iraq through group and one-on-one training events. With approximately 720 Extension agents trained at IAER courses, we can assume the information was shared with an even broader audience.
  4. Extension agents who attended training at NMSU in October 2009 developed work plans for training Extension colleagues upon their return to Iraq. The agents worked in teams to develop course curriculum, apply for funding and host training events in Erbil and Tikrit. The event in Erbil was fully funded by the MOAWR to train 20 Extension agents in agribusiness during a three day training event that included lectures and field trips. The event in Tikrit was also funded from the MOA to train 30 Extension agents from four provinces Ninevah, Kirkuk, Diyala and Salah ad Din. Topics covered grant writing, developing and conducting extension training, evaluation, agricultural marketing, and agricultural economics. The Extension agents demonstrated abilities to determine the need for training, design appropriate curriculum, apply for and receive funding, plan and execute an evaluation of the training event, and present course materials.

Activity: Extension Demonstration Projects

- Output:
  1. 942 clients trained by Extension agents through demonstration training events.
- Outcomes:
  1. Extension agents and university professors developed grant-writing and project management skills.
  2. Opportunity for young Extension agents to gain practical experience in managing field days and interacting with clients.
  3. Increased interaction of Extension agents with clients.

## **Result 3: Improved Targeting of Extension Services and Materials**

This result specifically targeted women and youth in Iraq.

Activity: General Training, Specialized Training Courses, US-based Specialized Extension and Subject Matter Training, Advanced Extension Methodology Training, and Technical Agriculture and Extension Training in Iraq

- Output:
  1. Two training courses specifically for women Extension agents: one for Women in Agriculture and a second course for Working with Women and Youth.
- Outcomes:
  1. 35.7% of respondents indicated that they worked with women before IAER training, and 42.9% said they worked with women after IAER training. This is a 7% increase in the number of Extension professionals who work with women.
  2. 40.5% of Extension professionals reported that they worked with youth before IAER training, and 53.6% indicated that they worked with youth after IAER training. This is a 13% increase in the number of Extension professionals who work with youth.
  3. Trainees have shared anecdotal information about their increased targeting of women as a result of the IAER training. One Extension agent reported averages of 30% of trainees who attend his courses are women. Another provides training specifically for his female peers in Extension. One female Extension agent who attended IAER training is providing training to women in the rural areas in sewing skills as a way to increase family income through a home-based business.

Activity: Extension Demonstration Projects

- Outputs:
  1. Three projects that targeted women.
  2. Approximately 209 women trained through demonstration projects.

#### **Result 4: Improved Quality of Extension Services**

This result refers to the value or worth that producers find in the services offered by Extension. This might be evaluated by the types of services, method of delivery, and accuracy of the information. As educators, Extension agents should deliver accurate agricultural information using effective outreach strategies to reach producers so that producers can improve their agricultural practices. IAER trainings sought to improve both outreach strategies and provide updated technical information to Extension agents. The percentages reported in the following outcomes reflect an increase in outreach efforts by Extension agents after they attended IAER training.

- Outcomes:
  1. Extension uses a variety of methods to share information with clients such as classroom training, field days, farm tours or demonstration projects. Through IAER training, Extension agents were encouraged to use these methods to provide multiple learning opportunities for their clients. The impact evaluation surveyed Extension agents on the types of training events they used to share information they learned through IAER:
    - 66 out of 84 or 78.6% shared information through *individual visits* with clients.
    - 53 out of 59 or 89.8% presented new technologies or methodologies to clients in a *lecture or seminar*.

- 44 out of 59 or 74.6% hosted a client *field day*.
  - 44 out of 59 or 74.6% led a *farm tour*.
  - 41 out of 59 or 69.5% used a *demonstration project* to share results of new technologies or methodologies.
2. Through IAER training, Extension agents were encouraged to share information through a variety of media outlets to reach a wider audience. The impact evaluation surveyed Extension agents on what forms of media they used to share information they learned through IAER:
    - 48 out of 84 or 57.1% reported that they shared the information with the *Media Department* within Extension. The media department is responsible for daily cable television programs, brochures and magazines.
    - 40 out of 84 or 47.6% created *brochures or publications*.
    - 13 out of 84 or 15.7% shared the information through *radio programs*.
    - 31 out of 84 or 36.9% produced a *television program*.
    - 30 out of 84 or 35.7% posted the information *online* or created a *web page*.
    - 64 out of 84 or 76.2% created *power point presentations*.
  3. IAER trainees report to IAER staff through open-ended questionnaires, emails and one-on-one conversations about increased trust and improved relationships with their clients as a result of IAER training. The agents note that both their colleagues and clients are more willing to listen to the information they share and more likely to implement new technologies or methodologies. *Historically, Extension does not have a good reputation in Iraq for helping producers to increase production, so the reports of increased trust from clients are a significant step for the future of Extension to effect change in Iraqi agriculture.*
  4. After a series of Extension methodology training programs in three Kurdish provinces, the KRG Extension Directorate completed a comprehensive issues identification assessment in Kurdistan. Kurdish Extension agents surveyed producers to identify their top agricultural needs, and the information will be used to prioritize Extension programs in Kurdistan. *This is a valuable step for Extension in the KRG because it represents a change in perception of Extension administrators from a top-down Extension program to a community level needs-driven Extension program.*

#### **Result 5: Increased Understanding of Technologies and Methodologies in the Agricultural Sector**

- Outcomes:
  1. 56 out of 59 or 94% of Extension professionals surveyed said clients learned information presented through Extension training programs.
  2. Anecdotal information provided by Extension agents via email and conversations indicate that Iraqi producers are learning new information from training programs. One Extension agent reported, “The farmers keep visiting me for counseling, interviews and visits to solve problems facing the production of field crops and vegetables.”

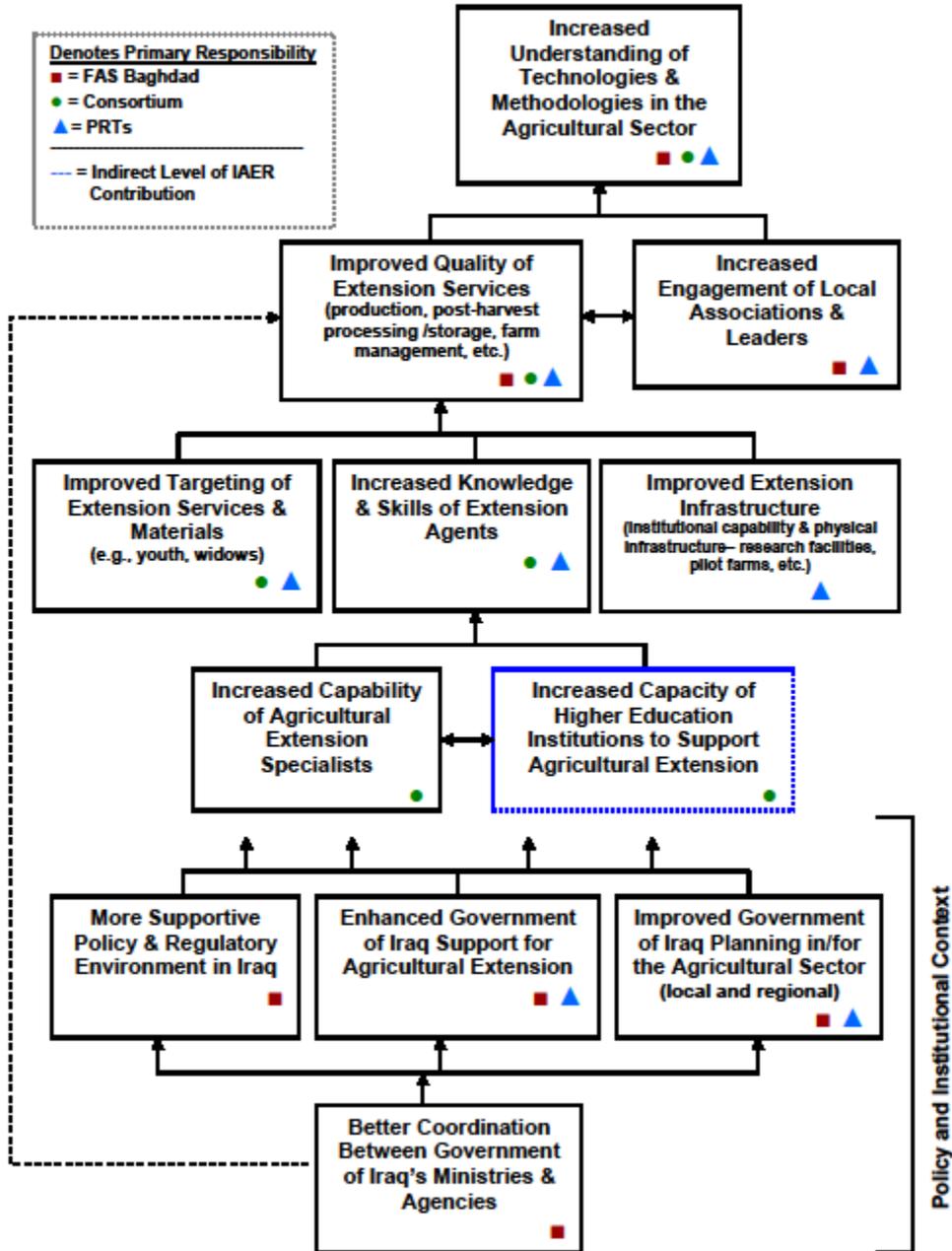
#### **Result 6: Increased Use of Improved Agricultural Practices**

- Outcomes:
  1. 53 out of 59 or 89.8% of Extension professionals surveyed said clients stated that they received a benefit as a result of the knowledge they learned through Extension training programs.
  2. Individual Extension agents report to IAER staff through open-ended questionnaires, emails and personal conversations about clients who are adopting new technologies or

methodologies that Extension agents share. Because of the security situation and the travel difficulties in Iraq, only anecdotal information about increased use of improved agricultural practices can be collected at this time. One Extension agent reported that he provided training to a group of dairy farmers to teach them techniques to reduce Mastitis in their cows and to increase milk production. He reports that the dairy farmers are adopting these techniques to improve their farms. Additionally, he collaborated with a professor from the College of Agriculture at Al-Kufa University to offer training to 40 fish farmers.

Appendix 2: Results Oriented Management Framework

Fig. 2: IAER Results Framework



### Appendix 3: Needs Assessment

At each Phase One course, a five page needs assessment was completed by each participant about agriculture in Iraq. Each subject area included in the needs assessment corresponded to topics taught by consortium partners including dryland farming, extension methodology, horticulture, irrigation and livestock. The needs assessment form also included a page of demographics for each participant to complete. 693 needs assessment forms were completed out of 737 distributed at training courses, resulting in a completion rate of 94%.

Each page of the needs assessment held a table of statements about a particular subject matter. Participants were asked to circle the number beside each statement to denote the level of importance it held in their region with one being not important and five being very important. When results were averaged, each statement in the subject areas was ranked on level of importance.

Results from the needs assessments provide important information about Iraqi agricultural issues from the grassroots level. It allows stakeholders to recognize important issues for Iraqi farmers and rural communities. From these results, consortium universities can see the top issues that need to be addressed in future courses.

The top six issues for dryland crops occurred on 73% of all needs assessment forms:

1. Knowledge of alternative crops more adapted to arid areas;
2. Importance of weed control for crop yield and water conservation;
3. Using manures and organic wastes for fertilizer;
4. Dryland crop disease diagnosis and treatment;
5. Importance of seeding rates and seed placement in the soil;
6. Use of storage and marketing of products to improve income.

The top six issues for extension methodology occurred on 89% of all needs assessment forms:

1. The amount of work experience and extension employee has;
2. The level of an extension worker's education;
3. Attending extension seminars, workshops or field days;
4. Making a personal farm visit or responding to a phone call or email;
5. Knowing the programs and services extension delivers;
6. Extension involvement in community development issues.

The top six issues for horticulture occurred on 82% of all needs assessment forms:

1. Propagation of trees and vegetables for production;
2. Greenhouse production;
3. Water requirements of horticulture crops;
4. Using manures or organic residues for fertilizer;
5. Learning to scout for insects of horticulture crops;
6. Learning to diagnose diseases of horticulture crops.

The top six issues for irrigation occurred on 90% of all needs assessment forms:

1. Irrigation technologies for improved water delivery to meet plant needs;
2. Improved maintenance of canals and laterals;
3. Complete rehabilitation of canals and laterals;

4. Water saving technologies to decrease on-farm water use;
5. Research on alternative irrigation methods;
6. More reliable canal water supplies.

The top six issues for livestock occurred on 78% of all needs assessment forms:

1. Learning the major livestock diseases and their treatments;
2. Improving livestock through breeding and selection;
3. Developing feedlot, dairy, poultry or other intensive livestock production practices;
4. Importance of nutrition in reproduction;
5. The nutrient requirements of grazing animals in a grazing system;
6. Participation in area-wide disease eradication programs.

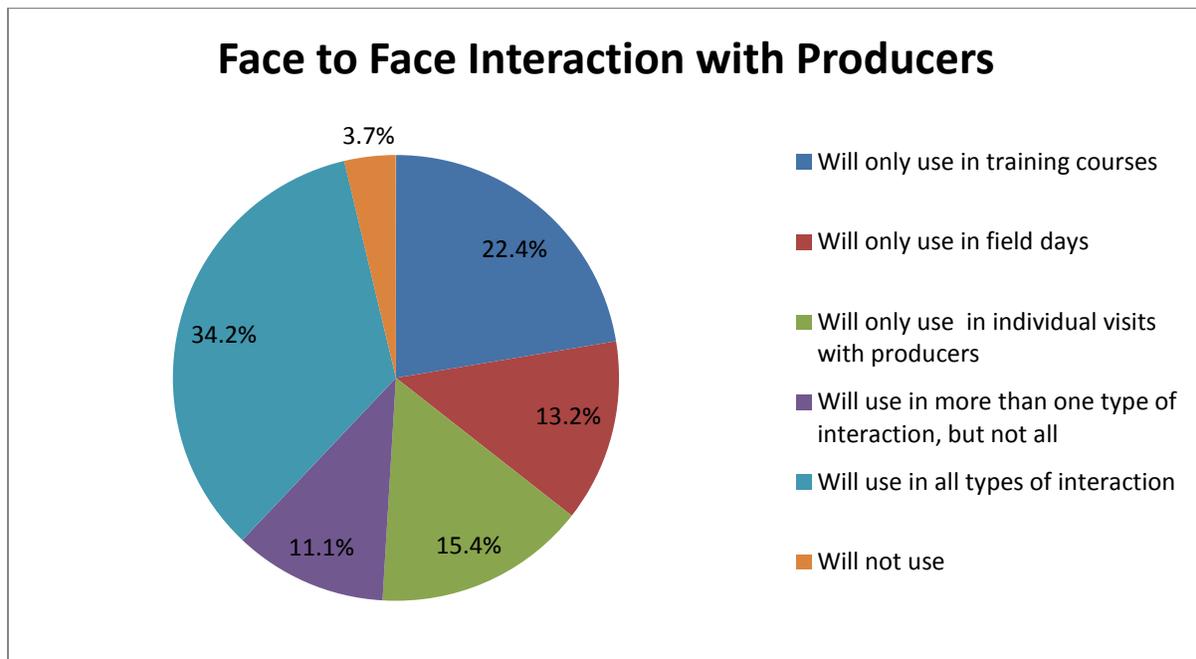
A sample of the needs assessment form (in English and Arabic) and complete evaluation results are available upon request.

## Appendix 4: Intention to Adopt New Information

In Extension, one of the primary measures of success is how clients adopt the information that is taught. In this case, the clients are the Iraq extension agents. The adoption survey identified four key areas of extension outreach where extension agents spend their time: face-to-face interaction with producers, interaction with peers/supervisors, media outreach/communication, and applied research/demonstration projects. The trainers for each of the technical training courses in Erbil identified main objectives for their course, and the survey asked participants to indicate their intention to use the information they learned from the objectives in each of the four areas of extension.

### Face to Face Interaction with Producers

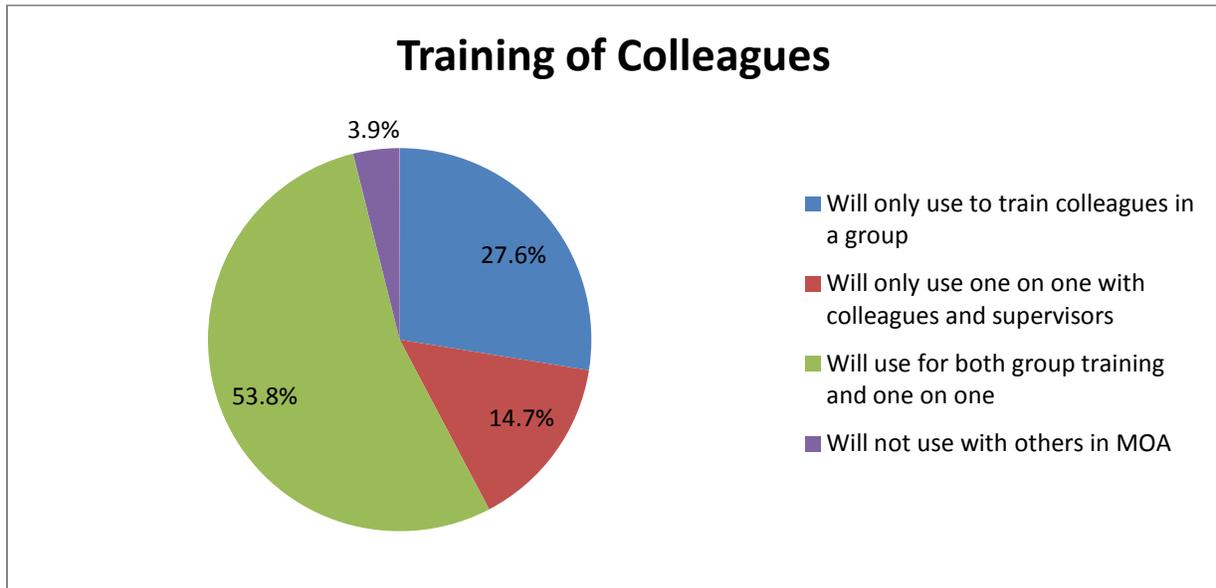
The chart below demonstrates the average intention to adopt information learned across all six courses for face-to-face interaction with producers. An average of 22.4% of respondents indicated that they would use the information they learned for training courses with producers. Another 13.2% responded that they would use the information for field days with producers, and 15.4% said they would use it for individual visits with their producers. 11.1% said that they would use the information for more than one kind of meeting but less than all (i.e. training courses and field days or field days and individual visits), and 34.2% of respondents showed that they would use the material for all of the different kinds of meetings. 3.7% of respondents indicated that they would not use the information in face-to-face interaction with producers.



### Training of Colleagues

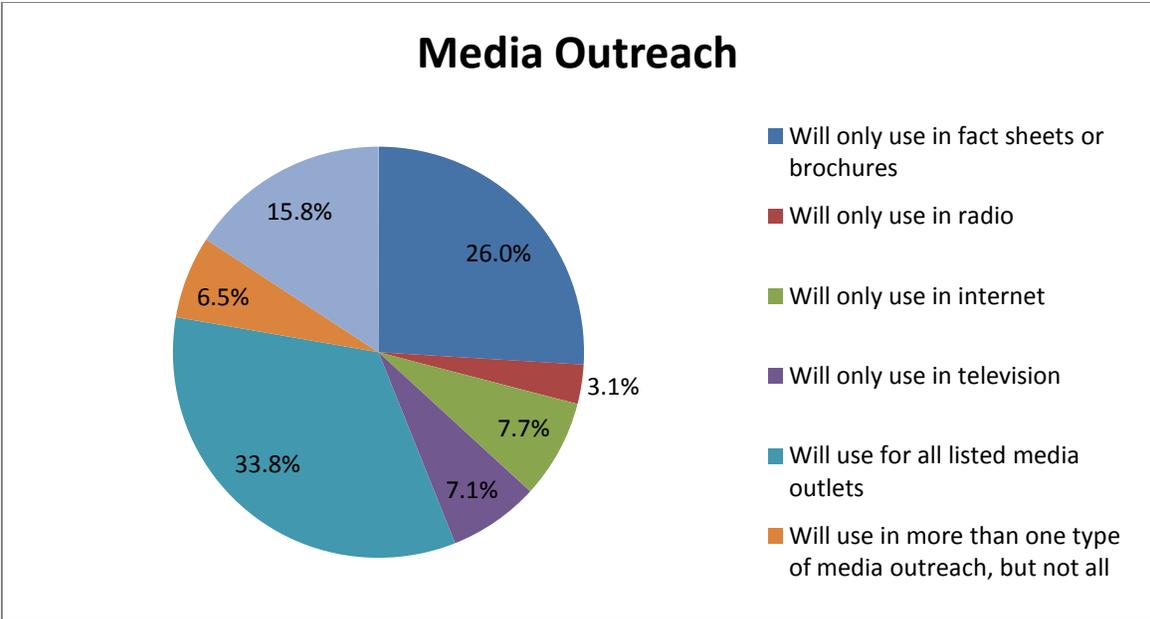
The next chart demonstrates how the participants plan to use the information they learned with their peers and supervisors. Many participants have shared that they give workshops or lectures to their coworkers after they return from training, and others have mentioned that they serve as a resource

point for coworkers after the training. This survey found that 27.6% plan to train their colleagues in a group setting, while 14.7% indicated they would use it in an individual setting, training peers and supervisors one-on-one. More than half of respondents (53.8%) said they would use the information they learned for both group and individual training, and 3.9 % said that they would not share the information with their colleagues.



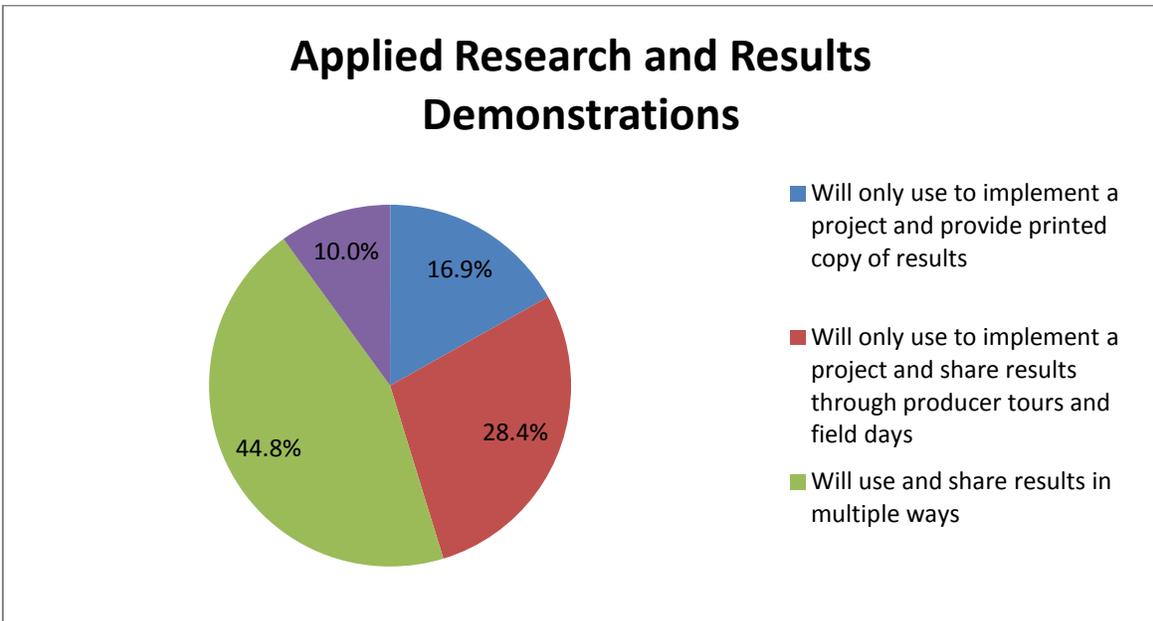
### Media Outreach

Extension uses various forms of media in its outreach to producers and farm communities. The following chart describes how participants expect to use the information they received in various methods. Of the respondents, 26.0% indicated that they would use the information to create fact sheets and/or brochures for their producers. 3.1% responded that they would disseminate the information through radio, 7.8% through the internet, and 7.1% through television. 33.9% of participants would use the information in all methods of media outreach, and 6.5% said they would use multiple kinds of media but not all (i.e. radio and television or fact sheets and internet). 15.8% indicated that they do not use media in their work.



### Applied Research and Results Demonstrations

The final area of extension outreach is through applied research and result demonstrations. In this area, 16.9% of respondents indicated that they would utilize the information they learned for an applied research project and provide a report of their results, while 28.4% said they would do applied research and share the results through field days and tours for producers. 44.7% indicated that they would do both a written report and producer field days and tours, and 10.0% said they do not do applied research or demonstrations in their job



## Appendix 5: IAER Training Programs

<b>General Training: DDC, Egypt</b>	5-26 July 2007
<b>TAMU Beekeeping: Amman, Jordan</b>	28 Oct – 1 Nov 2007
<b>USU Irrigation I: Amman, Jordan</b>	28 Oct – 1 Nov 2007
<b>TAMU Dairy: Amman, Jordan</b>	11-14 Nov 2007
<b>UCD Advanced Horticulture: DDC, Egypt</b>	17-22 Nov 2007
<b>NMSU Farm Business Management: Amman, Jordan</b>	5-10 January 2008
<b>WSU Cropping Demonstration: Aleppo, Syria</b>	5-12 January 2008
<b>USU Irrigation II: Amman, Jordan</b>	13-17 January 2008
<b>USU Water Resource Needs Assessment Forum: Amman, Jordan</b>	3-5 February 2008
<b>UCD Post-Harvest: Amman, Jordan</b>	9-14 February 2008
<b>TAMU Poultry Production and Management: Amman, Jordan</b>	10-14 February 2008
<b>NMSU Project Planning: Amman, Jordan</b>	17-22 February 2008
<b>NMSU Agriculture Communications: Amman, Jordan</b>	5-13 March 2008
<b>WSU Pest Management and Conservation Tillage: Amman, Jordan</b>	8-13 March 2008
<b>TAMU Advanced Beekeeping: Irbid, Jordan</b>	13-17 April 2008
<b>UCD Pest, Water and Soil Management: Amman, Jordan</b>	26 April – 1 May 2008
<b>USU Advanced Water and Irrigation Modeling: Amman, Jordan</b>	27 April – 1 May 2008
<b>NMSU Working with Women and Youth: Amman, Jordan</b>	15-19 June 2008
<b>WSU Women in Agriculture: Amman, Jordan</b>	14-19 June 2008
<b>TAMU Aquaculture: Beirut, Lebanon</b>	21-25 June 2008
<b>WSU Pasture/Forage Crops, Land Reclamation and Water Harvesting: Amman, Jordan</b>	5-10 July 2008
<b>TAMU Small Ruminants: Amman, Jordan</b>	6-10 July 2008
<b>UCD Horticulture: Davis, California</b>	22 April – 26 June 2009

<b>WSU Field Crops: Pullman, Washington</b>	6 June – 17 July 2009
<b>NMSU Advanced Communications: Erbil, Iraq</b>	21 June – 9 July 2009
<b>USU Irrigation: Logan, Utah</b>	27 Sept – 9 Nov 2009
<b>NMSU Agribusiness: Las Cruces, New Mexico</b>	28 Sept – 7 Nov 2009
<b>TAMU Livestock and Rangeland: College Station, Texas</b>	1 Oct – 14 Nov 2009
<b>IAER Conference: Erbil, Iraq</b>	16-20 May 2010
<b>TAMU Ruminant Nutrition: Erbil, Iraq</b>	12-16 December 2010
<b>NMSU Agribusiness: Erbil, Iraq</b>	9-13 January 2011
<b>WSU Modern Wheat Production: Erbil, Iraq</b>	13-17 February 2011
<b>UCD Greenhouse Management: Erbil, Iraq</b>	13-17 March 2011
<b>USU Irrigation Practices and Field Evaluation: Erbil, Iraq</b>	27 March – 7 April 2011
<b>Baghdad University Curriculum Review: Baghdad, Iraq</b>	1-9 June 2011
<b>Extension Methodology: Erbil, Iraq</b>	5-16 June 2011
<b>Extension Methodology: Dohuk Iraq</b>	6-16 June 2011
<b>Extension Methodology: Sulimaniyah, Iraq</b>	12-23 June 2011
<b>UCD and NMSU Postharvest and Ag Marketing: Erbil, Iraq</b>	19-23 June 2011
<b>USU Weather Station: Erbil, Iraq</b>	10-14 July 2011
<b>TAMU and NMSU Extension Curriculum Development: College Station, Texas &amp; Las Cruces, New Mexico</b>	11 July – 5 August 2011

Appendix 6: Interim Financial Summary

<b>IRAQ AGRICULTURE EXTENSION REVITALIZATION</b>	
<b>Interim Financial Summary Report as of February 10, 2012</b>	
<b>COST CATEGORY</b>	<b>Total Actual Expenditures to-date</b>
<b>USDA/FAS</b>	
Salary & Benefits	\$295,152.01
Travel	\$266,188.25
Materials & Supplies	\$6.72
Other Direct Costs	\$81,919.81
Indirect Costs	\$1,763,623.42
<b>TOTAL</b>	<b>\$2,406,890.21</b>
<b>USDA/NIFA</b>	
Indirect Costs	\$145,456.00
<b>Texas A&amp;M University</b>	
Salary & Benefits	\$878,939.33
Travel	\$215,230.34
Materials & Supplies	\$216,804.52
Other Direct Costs	
Insurance Premiums/Other	\$64,511.00
Educational Training	\$35,088.00
Professional Services	\$779,691.14
Communication Services	\$14,069.00
Contracted Services	\$1,065,593.00
Rental of Space/Equipment/Buildings	\$144,062.00
Participant Costs	\$1,763,529.00
Sub Agreements	
University of California - Davis	\$1,040,733.41
Washington State University	\$854,662.56
New Mexico State University	\$938,238.53
Utah State University	\$1,046,227.12
Indirect Costs	\$512,308.19
<b>TOTAL</b>	<b>\$9,569,687.14</b>
<b>TOTAL</b>	<b>\$11,808,587.32</b>