Rapid Intervention Program (RIP) to Improve Operational Management and Efficiencies in Irrigation Districts in Iraq

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Rapid Intervention Program (RIP)

RIP is a structured and systematic approach for

1. analyzing the distribution network and on-farm irrigation of irrigation schemes, and

2. developing recommendations on improved management strategies
Rapid Intervention Program (RIP)

RIP is designed as

1. a low-cost, user-friendly and versatile approach

2. that takes advantage of the knowledge and experience of the scheme operators and managers
RIP Components Include

1. Inventory of basic data needed to estimate water supply, flows and on-farm irrigation needs

2. Distribution Network Hydraulic Head Survey and Analysis Tool (Head Survey)

3. Distribution Network Condition Rating Tool (Canal Evaluation)

4. On-farm Head Survey and Analysis Tool (On-Farm Survey)

5. Spreadsheets for storage and analysis of data and GIS map of the command area
RIP Components Include

6. Re-formatted spreadsheets for organizing and analysis of data

7. Proposed organization structure for GIS shape files

8. Standardized GIS maps of the WUA

9. *Training curriculums* for persons implementing the RIP in flow measurement, and in skills needed in GIS and Excel related to the RIP
Project Activities

1. Adapt the Rapid Intervention Program (RIP) to WUAs in Iraq
2. Apply the RIP to the Al Shehamiyah Water User Association and the Thraima Project
3. Developed training curriculum on GIS, spreadsheets, flow measurement
4. Develop a Manual
5. Project activities began in February 2012, completed November 2012
RIP Manual

This manual is organized to serve as both a training program and a reference guide to all the steps required in order to successfully apply the RIP.

The manual also includes four Appendixes:

- A copy of all forms in English and Arabic
- Training curriculum
- A case study of the application of the RIP to the Al Shehamiyah Agriculture Association in Iraq
We applied the surveys as follows:

1) Obtain map (scale 1:25,000 or larger) of the distribution network and irrigated areas

2) Working with the operators, complete survey forms and modify forms as needed

3) Encourage operators to conduct ground truth, and carry out measurements of actual flow rates for all canals and at on-farm turnouts

4) Enter data into spreadsheet, and train collaborators on data entry

5) Analyze data and create maps showing results (include also data quality control, link data to GIS, review of results with operators)

6) Create reports (include tables of results, GIS maps with results of rating)
We applied the surveys as follows (cont):

RIP assumes that the persons implementing the program have already had training and basic skills on use of GIS and Excel. However, implementers need training to review basic concepts, and on how to apply these tools to the RIP

Persons who will conduct the flow measurements need at least some understanding of open channel flow principle. Ideally, they will also have had experience with field instrumentation. Training is usually required on use of portable velocity meters
Head Survey

Purpose:

• Identification of canals and areas that currently have continuous or intermittent water supply problems

• Identification of the potential causes of these problems
Head Survey

Two components

1. Head Survey
   • Canals
   • Affected areas

2. Drainage survey
   • Areas with drainage problems
Canal Evaluation

Purpose:

Assess general condition of the irrigation distribution network through a visual rating system to identify segments which need rehabilitation.
On-Farm Survey

Purpose:

• information needed to determine if the current flow at the farm turn-out is sufficient to allow for efficient on-farm irrigation

• For a representative field in each command area during peak irrigation
Application of the RIP to the Al Shehamiyah Water User Association
Head Survey
(Al Shehamiyah Project)

Frequency of head problem during peak period
Head Survey
(Al Shehamiyah Project)

Severity of head problem
Canal Evaluation
(Al Shehamiyah Project)

General conditions (concrete canal)

Rating IDs are shown for the Main Canal and the Branch Canal only
On-Farm Survey (Al Shehamiyah Project)

Water Table depth
Pumping Station
Recommendation for On-Farm Water Delivery

• Not completed for Al Shehamiyah (flow measurements not available)
• Provides recommendations for
  o Optimal flow at the farm turnout
  o Frequency and volume of irrigation at peak demand
  o Number of fields that can be irrigated at the same time
  o Maximum flow in each canal segment
Benefit of applying the RIP

• Organized structure of data that can be further developed in more complex analysis
• Identification of priorities to be addressed to improve water delivery efficiency
Benefit of applying the RIP (cont)

- All data are interconnected and easily modifiable by a trained person, and results can be automatically updated with new data.
- Several projects can be combined in the same GIS structure.
- Water delivery scheduling can be recalculated when detailed flow rate measurements or other field data become available, and variables can be changed too (ex. diversion and irrigation efficiency, time and interval of application, number of borders irrigated at the same time).
For more information:

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