

# ***Introduction to Surface Irrigation Systems***



***IRRIGATION AND WATER  
RESOURCES ENGINEERING  
PROGRAM***

***UTAH STATE UNIVERSITY***

# *Surface Irrigation Methods -- Discussion 3*

## ***Preparation:***

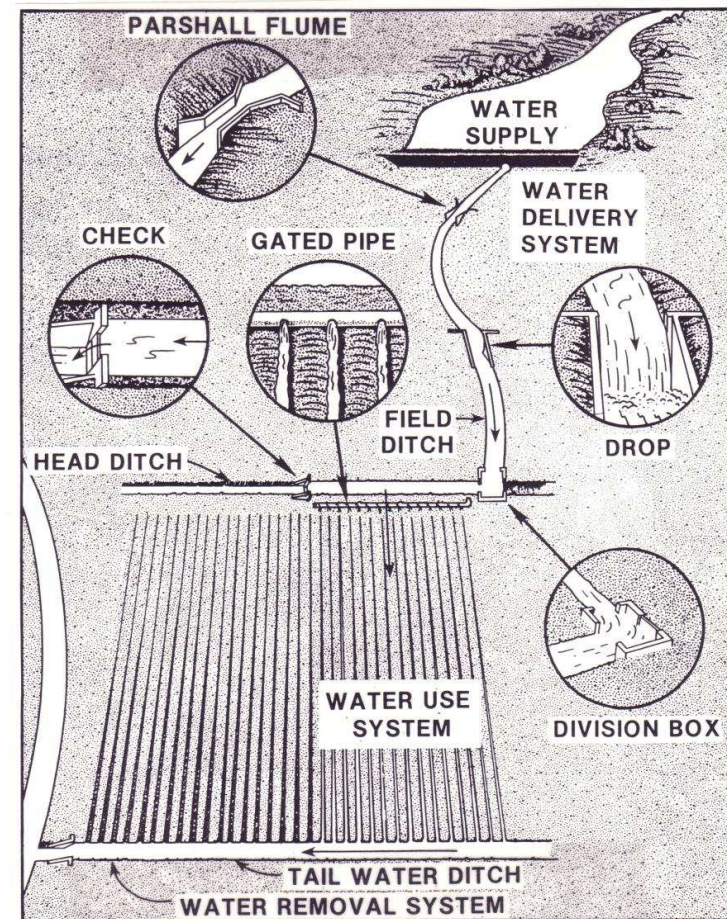
**Read Chapter 3 in Walker (2007) and Chapter 5 in Hargreaves and Merkle (1998)**

## ***Discussion 1 DISCUSSION OF SURFACE IRRIGATION IN IRAQ***

1. **Needs Assessment --**
  1. What is surface irrigation in Iraq like today?
  2. What methods are used?
  3. How large are the fields? Is the water supply mainly from canals?
  4. How much groundwater pumping is used?
2. **Opportunities for Improving Irrigation Efficiency and Uniformity--**
  1. Is laser guided land leveling used in Iraq?
  2. What is the availability of aluminum and PVC pipe?
  3. Is there any kind of flow measurement situated in the irrigation system?
3. **Conducting a Field Reconnaissance –**
  1. Does the extension service offer any services in which the efficiency and uniformity of surface irrigation is evaluated at the field level.

# Presentation 3 – Surface Irrigation Systems

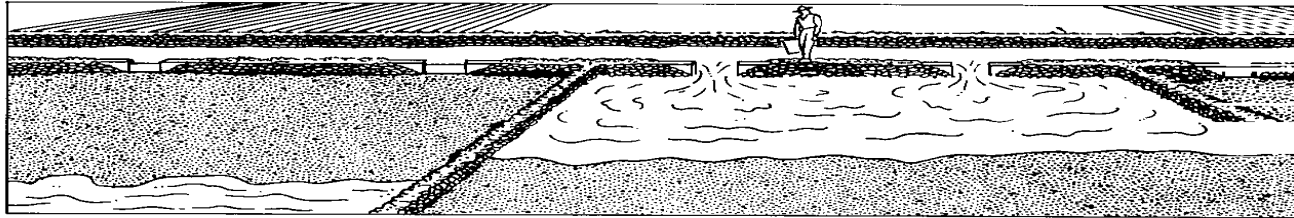
- Subsystems of a Surface Irrigation System
- Types of Surface Irrigation Systems
  - Basins
  - Borders
  - Furrows
- Water Supply and Management
  - Inlet Control
  - Land Leveling
  - Wastewater Recovery and Reuse
- Surface Irrigation Structures
  - Diversion Structures
  - Management Structures
  - Field Distribution Structures



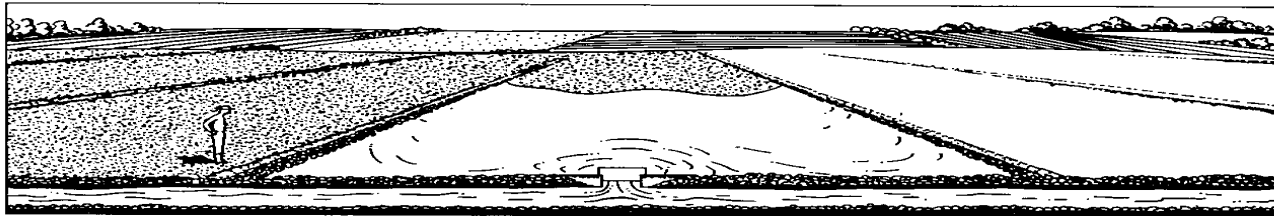
# ***Types of Surface Irrigation Systems -- Basins***



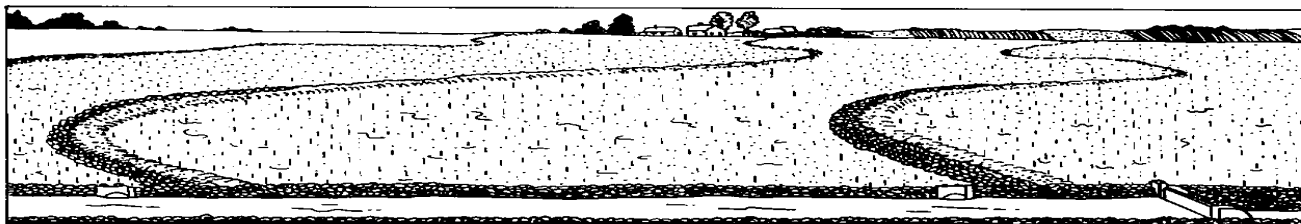
# *Types of Surface Irrigation Systems -- Borders*



(a)

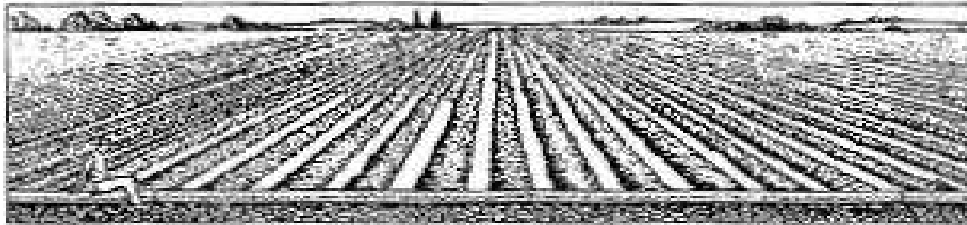


(b)

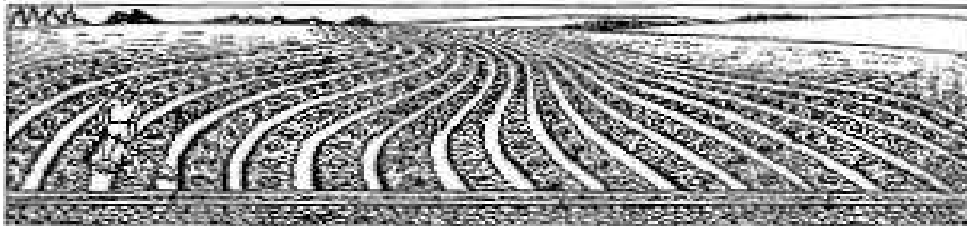


(c)

# ***Types of Surface Irrigation Systems -- Furrows***



(a)



(b)



(c)



# Land Leveling



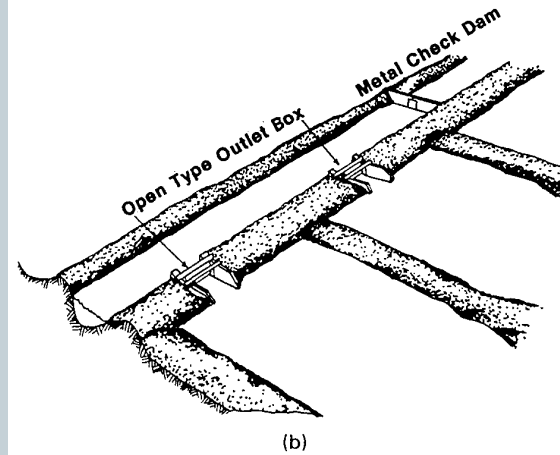
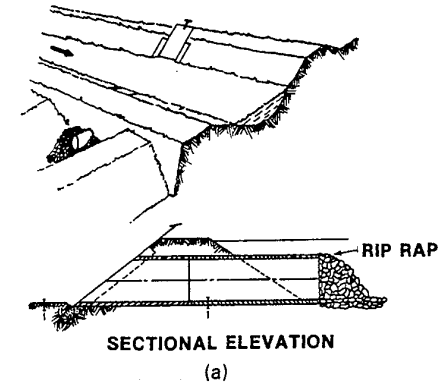
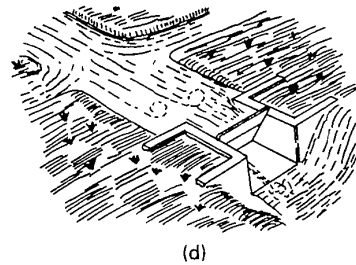
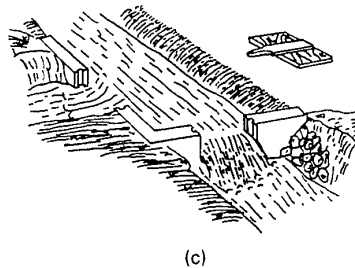
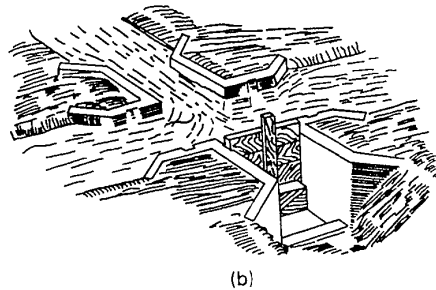
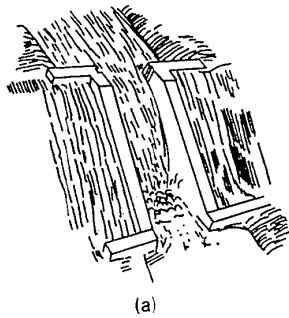
# *Reuse*



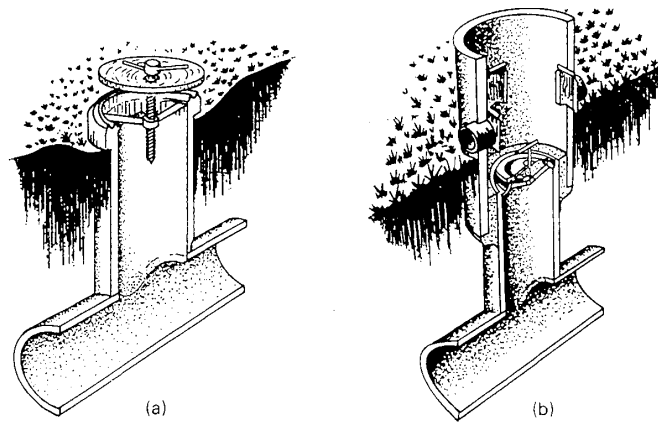
# ***Surface Irrigation Structures – Measurement Devices***



# Surface Irrigation Structures – Field Distribution Devices



# *Surface Irrigation Structures – Field Distribution Devices*



# ***Evaluation of Surface Irrigation Systems – Infiltration***



# *Evaluation of Surface Irrigation Systems – Flow Geometry*



# *Evaluation of Surface Irrigation Systems – Field Inflow*



# *Evaluation of Surface Irrigation Systems – Field Outflow*

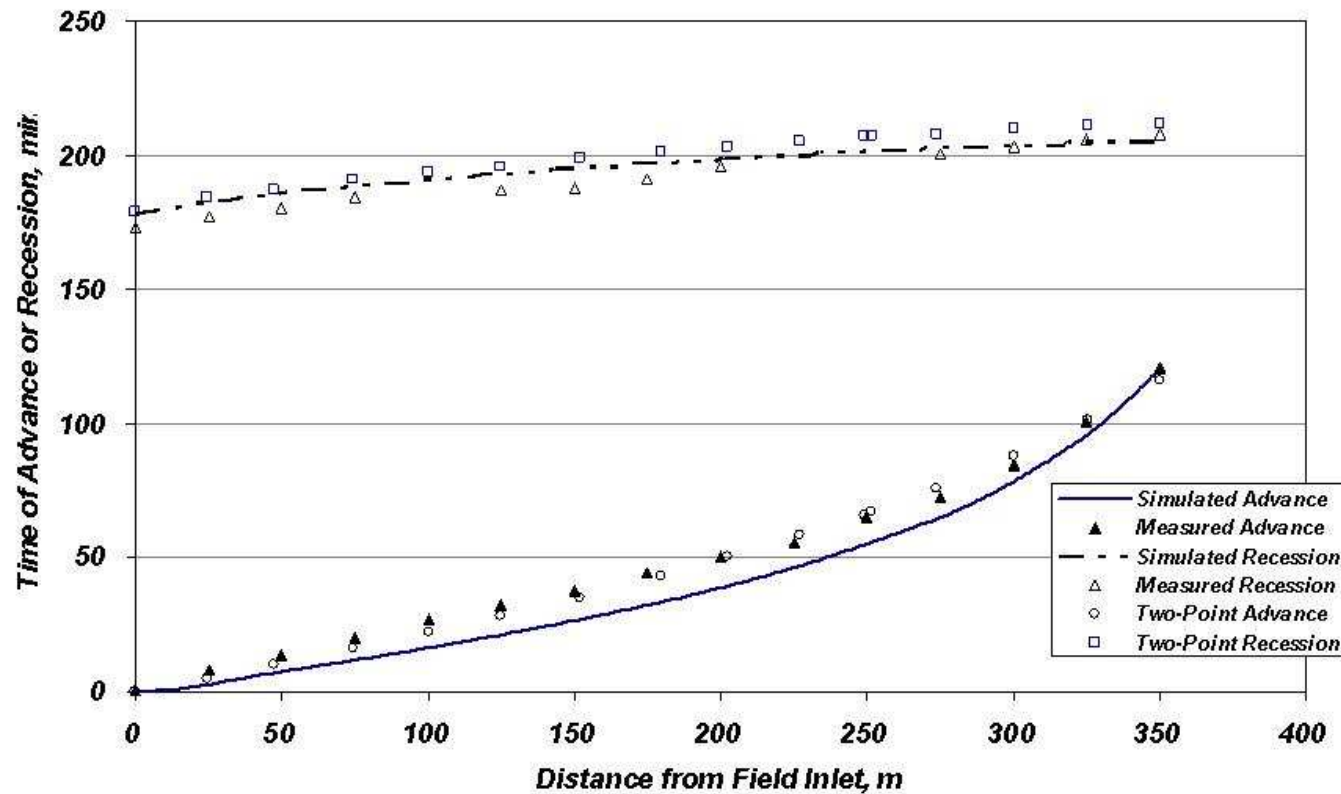


# *Evaluation of Surface Irrigation Systems – Advance/Recession*



# Evaluation of Surface Irrigation Systems – Advance/Recession

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# *End of Presentation 3*



# *Surface Irrigation Methods -- Discussion 3*

## ***Discussion 1 DISCUSSION OF SURFACE IRRIGATION IN IRAQ***

### **1. Needs Assessment --**

- 1. What is surface irrigation in Iraq like today?**
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- 3. How large are the fields? Is the water supply mainly from canals?**
- 4. How much groundwater pumping is used?**

### **2. Opportunities for Improving Irrigation Efficiency and Uniformity--**

- 1. Is laser guided land leveling used in Iraq?**
- 2. What is the availability of aluminum and PVC pipe?**
- 3. Is there any kind of flow measurement situated in the irrigation system?**

### **3. Conducting a Field Reconnaissance –**

- 1. Does the extension service offer any services in which the efficiency and uniformity of surface irrigation is evaluated at the field level.**