

## FARM WATER CONSERVATION

**UNIT CODE:** 0721 351 04A

**TVETCDACC UNIT CODE:** AGR/CU/LFP/CR/04/4/MA

**UNIT DURATION:** 100 Hours

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Conserve farm water

### Unit Description

This unit equips trainees with knowledge and skills required to conserve water in the farm. It entails selecting sustainable water supply technologies, harvesting water in the farm, irrigating crop farm and maintaining farm irrigation system.

### Summary of Learning Outcomes

By the end of this unit, the trainee will be able to:

SNO	Learning Outcome	Duration (Hours)
1.	Select sustainable water supply	20
2.	Harvest water in the farm	30
3.	Irrigate crop farm	30
4.	Maintain irrigation system	20

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcomes	Content	Suggested Assessment Methods
1. Select sustainable	1.1. Water supply technologies 1.1.1. Water sources 1.1.1.1. Wells	<ul style="list-style-type: none"><li>• Practical</li><li>• Third party report</li></ul>

e water supply technologies	1.1.1.2. Rainfall 1.1.1.3. Rivers 1.1.1.4. Boreholes 1.2. Water testing 1.2.1. Mineral tests 1.2.2. PH test 1.2.3. Basic water test 1.3. Water treatment. 1.3.1. Sedimentation 1.3.2. Filtration 1.3.3. Chemical treatment.	<ul style="list-style-type: none"> <li>• Projects</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
2. Harvest water in the farm	3.1 Water harvesting structures 3.1.1 Farm ponds 3.1.2 Percolation tanks 3.1.3 Roof water harvesting tank 3.1.4 Wells 3.1.5 Sub surface dams 3.1.6 Field bunds 3.2 Personal protective equipment uses 3.3 Water harvesting structure design. 3.4 Water harvesting structure construction	<ul style="list-style-type: none"> <li>• Practical</li> <li>• Third party report</li> <li>• Projects</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
3. Irrigate crop farm	.1 Water requirements .2 Irrigation system selection .2.1 Drip irrigation .2.2 Sprinkler irrigation .2.3 Sub surface irrigation .2.4 Surface irrigation .3 Irrigation system design .4 Irrigation system installation .5 Water application per crop requirement.	<ul style="list-style-type: none"> <li>• Practical</li> <li>• Third party report</li> <li>• Projects</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>
• Maintain irrigation system	.1 Irrigation system maintenance .2 Faults identification .3 Faults repairing .4 Erosion control measures .4.1 Walk-over techniques .4.2 Minimal disturbance techniques .4.3 Crown and cross fall drainage .4.4 Cross bank drainage .4.5 Relief culverts on roads .4.6 Mitre and table drain on roads .4.7 Armouring/gravelling of roads .4.8 Crossing and draining surfaces .4.9 Batter stabilisation	<ul style="list-style-type: none"> <li>• Practical</li> <li>• Third party report</li> <li>• Projects</li> <li>• Portfolio of evidence</li> <li>• Written tests</li> <li>• Oral questions</li> </ul>

	.4.10 Contour banks and channels .4.11 Gabions .4.12 Sediment basins .4.13 Riparian buffer zones .4.14 Outlet protection structures .4.15 Re-vegetation	
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### Suggested Methods of Instruction

- Practical
- Role playing
- Discussion
- Direct instruction

### Recommended Resources for 25 trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
<b>A</b>	<b>Learning Materials</b>			
4.	Textbooks		5 pcs	1:5
5.	Installation manuals		5 pcs	1:5
6.	Charts		5 pcs	1:5
7.	Power point presentations	For trainer's use		
8.				
<b>B</b>	<b>Learning Facilities &amp; infrastructure</b>			
5.	Lecture/theory room		1	1:25
6.	Workshop		1	1:25
7.	Laboratory		1	1:25
8.	Site		1	1:25
<b>C</b>	<b>Consumable materials</b>			
1.	Pipes		5 rolls	1:5
2.	Pipe fittings		25 pcs	1:1
<b>D</b>	<b>Tools and Equipment</b>			
13.	Hacksaws		25 pcs	1:1

14.	Striping knives		25 pcs	1:1
15.	Side cutters		25 pcs	1:1
16.	Pliers		25 pcs	1:1
17.	Tape measure		25 pcs	1:1
18.	PPEs		25 pcs	1:1
19.	Stocks & dies		5 pcs	1:5
20.	Vices		5 pcs	1:5