

MANAGE SOIL AND WATER RESOURCES

UNIT CODE: AGR/CU/EXT/CR/02/6/A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: manage soil and water resources

Duration of Unit: 170 hours

Unit Description

This unit specifies competencies required to manage soil and water resources.

It involves assessment of area topography, conserve soil fertility, conserve farm water, Design soil and water conservation structures, lay out soil and water structures, carry out farm irrigation, carry out farm water drainage, harvest farm water, manage waste water disposal, manage water supply and prepare soil and water resources management report.

Summary of Learning Outcomes

1. Assess area topography
2. Conserve soil fertility
3. Conserve farm water
4. Design soil and water conservation structures
5. Lay out soil and water structures
6. Carry out farm irrigation
7. Carry out farm water drainage
8. Harvest farm water
9. Manage waste water disposal
10. Manage water supply
11. Prepare soil and water resources management report

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Assess area topography	<ul style="list-style-type: none">• Area topography• Area topography mapping• Assessment methods• Land survey• Land use systems• Agro-ecological zones	<ul style="list-style-type: none">• Written tests• Observation• Oral questions• Third party report
2. Conserve soil fertility	<ul style="list-style-type: none">• Basic soil science• Soil nutrition	<ul style="list-style-type: none">• Written tests• Observation

	<ul style="list-style-type: none"> • Soil fertility management and improvement • Fertilizer requirements • Soil conservation systems 	<ul style="list-style-type: none"> • Oral questions • Third party report
3. Conserve farm water	<ul style="list-style-type: none"> • Sources of farm water • Water harvesting methods • Water conservation systems` • Water conservation method 	<ul style="list-style-type: none"> • Written tests • Observation • Oral questions • Third party report
4. Design soil and water conservation structures	<ul style="list-style-type: none"> • Soil and water conservation designs • Soil and water conservation structures • 	<ul style="list-style-type: none"> • Observation • Written tests • Oral questions • Third party report
5. Lay out soil and water structures	<ul style="list-style-type: none"> • Soil and water conservation designs • Layout / construction of soil and water conservation structures • Maintenance of soil and water conservation structures 	<ul style="list-style-type: none"> • Observation • Written tests • Oral questions • Third party report
6. Carry out farm irrigation	<ul style="list-style-type: none"> • Irrigation • Irrigation methods • Installation of irrigation systems • Irrigation water requirements • 	<ul style="list-style-type: none"> • Observation • Written tests • Oral questions • Third party report
7. Carry out farm water drainage	<ul style="list-style-type: none"> • Water drainage • Farm water drainage systems • Types of drainage systems • Maintenance of drainage systems • Tools and equipment • Operational standards 	<ul style="list-style-type: none"> • Observation • Written tests • Oral questions • Third party report
8. Harvest farm water	<ul style="list-style-type: none"> • Roof catchment • Surface runoff • Ground water • Rock catchment 	<ul style="list-style-type: none"> • Observation • Written tests • Oral questions • Third party report
9. Manage waste water disposal	<ul style="list-style-type: none"> • Waste water treatment • Waste water recycling • Waste water disposal 	<ul style="list-style-type: none"> • Observation • Written tests • Oral questions

	<ul style="list-style-type: none"> • Water pollution management 	<ul style="list-style-type: none"> • Third party report
10. Manage water supply	<ul style="list-style-type: none"> • Water supply equipment • Water supply surveys • Water supply system layout • Water supply system operation and maintenance 	<ul style="list-style-type: none"> • Observation • Written tests • Oral questions • Third party report
11. Prepare soil and water resources management report	<ul style="list-style-type: none"> • Collection of data • Data analysis • Documentation • Report writing 	<ul style="list-style-type: none"> • Observation • Written tests • Oral questions • Third party report

Suggested Methods of instruction

- Project
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction
- Simulation
- On job training

Recommended Resources

- Topography mapping tools
- Binoculars
- Quick set
- Ranging rodes
- Measuring tape
- Note books
- Levelling boards
- Shovels
- Jembes
- Mattock
- Pangas
- Water tanks
- Gutters
- Rope
- Soil auger

- Soil sample packaging bags
- Soil science laboratory and equipment
- Drip irrigation kit
- Water pipes
- Text books
- Note books
- Flip charts
- Projector
- Computers
- Manuals
- White boards
- White board markers
- Masking tapes
- Felt pens

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