REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARD

FOR

AGRICULTURE AND EXTENSION PRACTITIONER

LEVEL 6
(CYCLE 3)

ISCED OCCUPATIONAL STANDARD CODE: 0811 554 A

TVET CDACC
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CONSERVE WATER IN THE FARM

UNIT CODE : 0811 551 13A

TVET CDACC UNIT CODE: AGR/OS/EXT/CR/04/4/MA

UNIT DESCRIPTION

This unit specifies the competencies required by Agriculture and Extension practitioner to utilize water in the farm. It involves select sustainable water supply, Harvest water in the farm, irrigate crop farm and continuously improve utilization of water.

ELEMENTSANDPERFORMANCECRITERIA

ELEMENT These describe the **key outcomes** which makeup **work place function**.	**PERFORMANCECRITERIA** These are **assessable s**tatementswhichspecifytherequiredlevelofperformancef oreachoftheelements. ***(Bold and italicized terms are elaborated in the range).***
1. Select sustainable water supply	1.1 ***Water sources*** are identified as per work requirement. 1.2 ***Water testing*** is carried out as per work procedures 1.3 Water treatment is as carried out as per work procedure.
2. Harvest water in the farm	2.1 ***Water harvesting structure*** identification is carried out as per work requirement 2.2 water harvesting structure design is drawn as per work requirement 2.3 ***Personal Protective Equipment*** is worn as per work requirement 2.4 Water harvesting structure is constructed as per design 2.5 water harvesting structure functionality is tested as per work requirement 2.6 water harvesting structure faults are corrected as per work requirement 2.7 Water harvesting structure is utilized as per work requirement

3. Irrigate crop farm	3.1 crop water requirement grown is established as per work requirement 3.2 ***Irrigation system*** is selected as per work requirement 3.3 Irrigation system is designed as per work requirement 3.4 ***Tools and equipment*** are assembled and are used as per work. 3.5 Irrigation system is installed as per work requirement 3.6 Irrigation system is maintained as per work requirement
4. Improve utilization of water	4.1 Repairs of faults are carried out as per work requirement 4.2 ***Erosion and pollution control measures*** are put in place as per work requirement. 4.3 Regulations governing water use and management are complied with as per work requirement. 4.4 Improved technologies that use less water are adopted in the farm as per work requirement

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

Variable	**Range**
1. Tools and equipment include but not limited to :	• Tools for designing • Tools and equipment for construction • Tools and equipment for repair and maintenance
2. Components of irrigation system include but not limited to:	• Pipes • Emitters • Pump • Tanks • Nozzles • Valves • Control unit • Wiring

3. Erosion and pollution control measures Include but not limited to:	• Walk-over techniques • Minimal disturbance techniques • Crown and cross fall drainage • Cross bank drainage • Relief culverts on roads • Mitre and table drains on roads • Armouring/gravelling of roads • Crossing and draining surfaces • Batter stabilisation • Contour banks and channels • Gabions • Sediment basins • Riparian buffer zones • Outlet protection structures • Re-vegetation

REQUIRED KNOWLEDGE AND SKILLS

Required skills

The individual needs to demonstrate the following skills:

- **Literacy skills to**: Locate, read, interpret and convey information in written, diagrammatic and/or verbal form
- **Numeracy skills to** measure calculate and estimate material quantities and time required to complete a task
- **Problem-solving skills:** Identify problems and equipment faults and demonstrate appropriate response procedures.

Required knowledge

The individual needs to demonstrate knowledge of:

- Environmental protection requirements, including the safe disposal of products and waste material
- Organizational and site standards, requirements, policies and procedures relevant to environmental care

- Environmental policies and practices, risks and hazard identification relevant to water protection
- Established communication channels and protocols
- Problem identification and common faults-finding techniques
- Types of tools and equipment and procedures for their safe use and maintenance
- Mathematical procedures for measuring and estimating, including calculating quantities and time to complete tasks

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Selected sustainable water supply technologies for the farm 1.2 Designed water harvesting and storage structures 1.3 Supervised construction of water harvesting and storage structure. 1.4 Designed an irrigation system 1.5 Maintained irrigation system 1.6 Used tools and equipment appropriately 1.7 Drew designs appropriately 1.8 Calculated elevations correctly 1.9 Measured distances correctly. Observed environmental and economic implications in designing
2. Resource Implications	The following resources should be provided: 2.1 Appropriately simulated environment where assessment can take place 2.2 Access to relevant workplace assessment environment 2.3 Resources relevant to the proposed assessment activity or tasks

3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Written tests 3.3 Oral questioning 3.4 Interviewing
4. Context of Assessment	Competency may be assessed: 4.1 Workplace 4.2 Simulated work environment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. Attitude is assessed alongside application of water smart technologies.