

## **PERFORM AQUACULTURE HOUSING ACTIVITIES**

**UNIT CODE:** 0831 351 01A

**TVET CDACC UNIT CODE:** AQ/OS/AM/CR/01/3/MA

### **UNIT DESCRIPTION**

This unit specifies the competencies required to set up fish rearing unit. It involves constructing fish rearing units, installing inlet and outlet systems, predatory control devices and maintaining fish rearing units.

### **ELEMENTS AND PERFORMANCE CRITERIA**

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
These describe the <b>key outcomes</b> which make up <b>workplace function</b> .	These are <b>assessable</b> statements which specify the required level of performance for each of the elements.  <i>Bold and italicized terms are elaborated in the Range</i>
1. Construct a fish-rearing unit	1.1 <b>Tools, equipment, materials</b> and <b>supplies</b> are identified and gathered based on job requirements. 1.2 <b>PPEs</b> are identified and gathered as per job requirements. 1.3 Pond site is drained where necessary 1.4 Pond site is cleared of vegetation, debris and topsoil as instructed by <b>immediate supervisor</b> 1.5 Cleared vegetation is disposed of as recommended by the supervisor 1.6 Safety precautions are applied according to site requirements 1.7 Tools, equipment, materials and supplies are identified and gathered based on job requirements. 1.8 PPEs are identified and gathered as per job requirements. 1.9 Fish pond area is measured and pegged following directions from immediate supervisor 1.10 A perimeter cut-off trench is constructed around the pond area based on the peg marks 1.11 Pond area is excavated following the peg markings, to a depth recommended by the supervisor

	<p>1.12 Dykes are constructed, shaped and aligned under supervision of a qualified technician</p> <p>1.13 Pond leveling and inlet-outlet system are carried out under supervision of a qualified technician</p>
2. Install inlet and outlet systems	<p>2.1 Pond water diversion channel is trenched following peg markings as directed by immediate supervisor.</p> <p>2.2 Screening devices for in-coming water are installed under supervision</p> <p>2.3 Flood control structures are installed as directed by supervisor</p> <p>2.4 Drainage channels are constructed following peg markings as directed by immediate supervisor.</p>
3. Install predatory control devices	<p>3.1 <b><i>Fish predators and intrusive animals</i></b> are identified</p> <p>3.2 <b><i>Pond weeds</i></b> are located and removed as per good aquaculture management practices</p> <p>3.3 <b><i>Control measures</i></b> for predators and intrusive animals are installed as per identified risks and good aquaculture management practices</p>
4. Maintain fish rearing unit	<p>4.1 <b><i>Maintenance tools, equipment and materials</i></b> are assembled as per the task requirements</p> <p>4.2 Grass on pond dykes is cleared periodically as per good aquaculture practices</p> <p>4.3 Infringing vegetation is cleared as per good aquaculture practices</p> <p>4.4 Pipes and drainage channels are monitored and cleared blockages as per workplace procedures</p> <p>4.5 Tools and equipment are cleaned and stored as per workplace procedures</p>

## RANGE

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

<b>Variable</b>	<b>Range</b>
1. Hazards may include but not limited to:	<ul style="list-style-type: none"> <li>• Physical hazards</li> <li>• Chemical hazards <ul style="list-style-type: none"> <li>• Heavy metals</li> <li>• Pesticides</li> <li>• Industrial chemicals</li> </ul> </li> <li>• Biological hazards <ul style="list-style-type: none"> <li>• Aquatic animal diseases</li> </ul> </li> <li>• Naturally occurring toxins</li> </ul>
2. Sources may include but not limited to:	<ul style="list-style-type: none"> <li>• Agricultural chemicals</li> <li>• Toxic plants</li> <li>• Fecal matter</li> <li>• Soil</li> <li>• Water</li> </ul>
3. Preventing may include but not limited to:	<ul style="list-style-type: none"> <li>• Location, design and layout of farm</li> <li>• Farm waste management</li> <li>• Pond nets</li> </ul>
4. Correcting may include but not limited to:	<ul style="list-style-type: none"> <li>• Pest control</li> <li>• Pond lining</li> <li>• Runoff control</li> </ul>
5. Tools, equipment, materials and supplies include but not limited to:	<ul style="list-style-type: none"> <li>• Tools-tape measure, spirit level, water level, jembes, spades, pangas,</li> <li>• Equipment-plate compactors and rollers, wheelbarrows</li> <li>• Materials and supplies-ropes, liners, pegs, plumbing materials, lime, cement, sand</li> </ul>
6. Water fit for aquaculture include but not limited to	<ul style="list-style-type: none"> <li>• Fish species specific recommended level of chlorine</li> <li>• Fish species specific Recommended pH range</li> <li>• Fish species specific Recommended Ammonia</li> <li>• Fish species specific recommended turbidity level</li> <li>• Free of infective pathogens</li> </ul>
7. PPE's include but not limited to	<ul style="list-style-type: none"> <li>• Gum boots, helmets, gloves, overalls, first aid kits</li> </ul>
8. Immediate supervisor includes but not limited to:	<ul style="list-style-type: none"> <li>• Fisheries Officer</li> <li>• Assistant Fisheries Officer</li> <li>• Aquaculture technician Level 3, 4, or 5</li> </ul>

9. Soil erosion control measures include but not limited to:	<ul style="list-style-type: none"> <li>• Planting grass on the dykes, terracing</li> </ul>
10. Hazards may include but not limited to:	<ul style="list-style-type: none"> <li>• Chemical hazards <ul style="list-style-type: none"> <li>• Heavy metals</li> <li>• Pesticides</li> <li>• Industrial chemicals</li> </ul> </li> <li>• Physical hazards</li> <li>• Biological hazards <ul style="list-style-type: none"> <li>• Aquatic animal diseases</li> <li>• Naturally occurring toxins</li> </ul> </li> </ul>
11. Sources of hazards may include but not limited to:	<ul style="list-style-type: none"> <li>• Poor feeding</li> <li>• Poor feed quality</li> <li>• Poor water quality</li> <li>• Human carriers</li> <li>• Cleaning agents</li> <li>• Pesticides</li> <li>• Industrial/ agricultural wastes</li> </ul>
12. Preventing may include but not limited to:	<ul style="list-style-type: none"> <li>• Good water quality</li> <li>• Sanitary measures</li> <li>• Proper use of antibiotics</li> <li>• Disease management</li> <li>• Parasite control</li> <li>• Use of quality feed</li> <li>• Good hygienic practices</li> <li>• Biosecurity measures</li> <li>• Probiotics</li> </ul>
13. Correcting may include but not limited to:	<ul style="list-style-type: none"> <li>• Disposal of contaminated fish</li> <li>• Fish treatment</li> <li>• Water flow management</li> <li>• Sterilization of the fish grow-out</li> </ul>
14. PPEs include but not limited to	<ul style="list-style-type: none"> <li>• Safety goggles, gum boots, helmets, gloves, dust coats, first aid kits, industrial mouth piece</li> </ul>
15. Tools, equipment and materials include but not limited to:	<ul style="list-style-type: none"> <li>• Measuring tape, weighing scale, wheelbarrow, pH meter, jembes, spades, rakes</li> <li>• Lime, fertilizer, ropes</li> </ul>

16. Grow out culture units includes but not limited to	<ul style="list-style-type: none"> <li>Earthen ponds, concrete tanks, plastic tanks, fiberglass, raceways, cages and pens</li> </ul>
17. Fisheries technician includes but not limited to:	<ul style="list-style-type: none"> <li>Assistant Fisheries Officer, Fisheries Officer, Aquaculture technician levels 4, 5 and 6, Aquaculture extension officer</li> </ul>
18. Fish predators and intrusive animals include but not limited to:	<ul style="list-style-type: none"> <li>Birds, mammals, reptiles, amphibians, invertebrates, man</li> </ul>
19. Control measures include but not limited to:	<ul style="list-style-type: none"> <li>Clearing grass, trimming vegetation, traps and scarecrows, net covers, twines, screens, fencing</li> </ul>
20. Harvesting tools, equipment and materials include but not limited to:	<ul style="list-style-type: none"> <li>Seine net, scoop net, buckets, laundry baskets, weighing scale, perforators</li> </ul>
21. Maintenance tools, equipment and materials include but not limited to:	<ul style="list-style-type: none"> <li>Slashers, machetes, jembes, spades, wheelbarrow, rakes, gunny bags</li> </ul>

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

### Required Skills

The individual needs to demonstrate the following skills:

- Organizing skills
- Analytical skills
- Negotiation skills
- Interpersonal skills
- Communication skills
- Evaluation skills
- Problem solving
- Critical thinking
- Sanitary food handling practices
- Implementing sustainable waste management
- Applying first aid treatment

## **Required Knowledge**

The individual needs to demonstrate knowledge of:

- Safety Practices
- Proper waste disposal
- Environmental protection and concerns
- Food safety principles and practices
- Good grooming and personnel hygiene
- Parts and functions of personal protective equipment
- First Aid Kit
- Sanitizing equipment

## **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	<p>Assessment requires evidence that the candidate:</p> <ol style="list-style-type: none"><li>1. 1 Identified and appropriately used Personal Protective Equipment</li><li>1. 2 Identified, controlled and prevented aquaculture hazards</li><li>1. 3 Implemented personnel hygiene and sanitation practices in aquaculture.</li><li>1. 4 Implemented aquaculture workplaces' safety measures</li><li>1. 5 Implemented sustainable waste management practices in aquaculture.</li></ol>
2. Resource implications	<p>The following resources should be provided:</p> <ol style="list-style-type: none"><li>2.1 Appropriately simulated environment where assessment can take place.</li><li>2.2 Access to relevant work environments.</li><li>2.3 Resources relevant to the proposed activities or task.</li></ol>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <ol style="list-style-type: none"><li>3.1 Written tests</li><li>3.2 Third party reports</li><li>3.3 Oral questioning</li><li>3.4 Interview</li></ol>

	<b>3.5 Observation</b>
<b>4. Context of Assessment</b>	<p>Assessment could be conducted:</p> <ul style="list-style-type: none"> <li>4.1 On-the-job</li> <li>4.2 Off-the-job</li> <li>4.3 During industrial attachment</li> </ul>
<b>5. Guidance information for assessment</b>	Holistic assessment with related units in the sector