SET UP SMALL-SCALE FISH HATCHERY UNIT

UNIT CODE: AQ/OS/AT/CR/06/5/B

UNIT DESCRIPTION

This unit specifies the competencies required to set up small scale fish hatchery unit. It involves ability to implement fish hatchery site food safety plan, interpret simple fish hatchery designs, select ideal hatchery construction sites and prepare cost estimates for hatchery construction. It also involves supervision of hatchery construction and installation of bio-security measures.

ELEMENT These describe the key outcomes which make up workplace function.	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Implement fish hatchery site Food safety plan	1.1 Fish hatchery site and adjacent site ***hazards*** are identified and documented. 1.2 Possible ***sources*** of physical, chemical and microbial contamination are identified based on ***prior use of land***. 1.3 ***Preventive measures*** for fish hatchery site hazards are applied as per manual of standard operating procedures 1.4 Risk is communicated as per policies for internal and external communication
2. Prepare to set up a fish hatchery unit	2.1 Hatchery design is analyzed for specific component dimensions and relative locations 2.2 Proposed hatchery design is validated on site 2.3 Details and cost of labour and materials is worked out according to prevailing prices 2.4 Statutory requirements are established and complied with
3. Supervise fish hatchery construction	3.1 ***PPEs*** are identified and gathered as per task requirements 3.2 ***Tools, equipment, food grade materials*** and ***supplies*** are identified and gathered based on task requirements

	3.3 Site is secured and cleared of unwanted vegetation and debris 3.4 Pegging and construction of nursery and brood stock culture units is carried out to design specifications 3.5 Installation of ***indoor hatchery facilities*** is carried out following design specifications 3.6 Water abstraction and ***plumbing works*** are carried out according to the design 3.7 ***Hatchery components*** are tested for functionality and identified defects are rectified
4. Set up bio-security measures	4.1 Footbaths are installed at hatchery entrances and other strategic points 4.2 Quarantine facilities are constructed at safe distance as outlined in the hatchery designs 4.3 Filtration systems for the incoming water is installed 4.4 Perimeter fence is constructed around the facility 4.5 ***Intruder control facilities and devices*** are installed at strategic points as per identified food safety risks

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.

Variable	**Range**
1. Prior use may include but not limited to:	• For animal feeding or domestic animal production; • As a waste disposal site (garbage or toxic industrial waste); • As a sanitary waste management site; • For mining activities, oil or gas extraction; • For former agricultural activities; • Adjacent land and neighboring areas (risk of cross-contamination); • History of flooding in area of concern.

2. Statutory requirements may include but not limited to:	• Compliance to standards and regulations • Kenya Fisheries Service • County Government • The Fisheries Management and Development Act No.35 of 2016. • The Codex Alimentarius Food Hygiene Basic Texts; • The Food Drugs and Chemical Substances Act Cap. 254 of the Laws of the Kenya; • The Pest Control Products Act, Cap. 346 of the Laws of Kenya; • The Public Health Act, Cap. 242 of the Laws of Kenya; • The Environmental Management and Co-ordination Act, 1999.

3. Hazards may include but not limited to:	• Physical
	• Chemical
	  ○ Heavy metals
	  ○ Pesticides
	  ○ Industrial chemicals
	• Microbial
	• Parasites
	• Naturally occurring toxins

4. Sources of hazards may include but not limited to:	• Agricultural chemicals • Toxic plants • Fecal matter • Soil • Water
5. Preventive measures may include but not limited to:	• Location, design and layout of farm • Farm waste management • Pond nets • Pest control • Pond lining • Runoff control
6. Labour includes but not limited to:	• Casual, skilled, consultancy
7. PPE's include but not limited to	• Gum boots, helmets, goggles, gloves, overalls, first aid kits

8. Tools, equipment, materials and supplies include but not limited to:	• Tools-tape measure, spirit level, jembes, spades, pangas, plumbing tools, masonry • Equipment-plate compactors and rollers, wheelbarrows, aeration equipment, filtration • Materials and supplies-ropes, liners, pegs, plumbing materials, lime, cement, sand, roofing materials, fencing wire, fittings, assorted screens, netting materials
9. Indoor hatchery facilities include but not limited to :	• Tanks, sorting tables, packaging tables, plumbing works, incubation unit,
10. Plumbing works involve but not limited to :	• Connection piping to the hatchery block • inlet and outlet installations • drainage • storage tanks • water flow control structures
11. Hatchery components include but not limited to:	• Water storage tanks, intake structure, fish culture tanks, lighting systems, aeration system, filtration system, drainage, water flow control structures, biosecurity installations
12. Intruder control facilities and devices include but not limited to:	• Nets, meshes, screens, cover nets, gates

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:

- Food safety risk assessment and communication
- Use of tools and equipment
- Measurement
- Drawing and sketching
- Communication skills
- Basic first aid skills

- Interpretation of simple hatchery design
- Masonry skills
- Basic plumbing
- Budgeting

Required Knowledge

The individual needs to demonstrate knowledge of:

- Food safety Standards (codes of practice for fish and fishery products)
- Regulatory bodies/ Competent authorities
- Hazard Analysis Critical Control Point (HACCP)
- National legislations and regulations
- Types of tools, equipment and PPEs
- Budgeting
- Types of nets, meshes and their properties
- Predator and intruder behavior
- Water filtration mechanisms
- Disease causing pathogens
- Pond design, layout and construction

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 Implemented fish hatchery site food safety plan 1.2 Identified a suitable location for the hatchery 1.3 Worked out hatchery construction costs 1.4 Complied with all statutory requirements 1.5 Adhered to safety precautions 1.6 Constructed nursery and Broodstock ponds 1.7 Supervised construction of hatchery block and indoor facilities 1.8 Tested hatchery component to establish functionality and rectified faults 1.9 Installed biosecurity structures
2. Resource Implications	The following resources must be provided: 2.1 Workplace or assessment location

		2.2 PPEs 2.3 Tools, equipment and materials 2.4 Pond construction materials 2.4 Building materials 2.5 Writing materials
3.	Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Oral presentation 3.3 Projects 3.4 Written tests
4.	Context of Assessment	Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.