

SET UP SMALL-SCALE FISH HATCHERY UNIT

UNIT CODE: AQ/OS/AT/CR/06/6/B

Unit description

This unit specifies the competencies required to set up fish hatchery. It involves conducting fish hatchery site food safety risk assessment, developing fish hatchery site food safety risk management plan, preparing to set up a fish hatchery unit, managing fish hatchery construction, installing fish hatchery bio-security and safety measures, and evaluating farm hatchery set up.

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. <i>Bold and italicized terms are elaborated in the Range</i>
1. Conduct fish hatchery site Food safety risk assessment	8.1 Fish hatchery site and adjacent site <i>hazards</i> are identified and documented 8.2 Possible <i>sources</i> of physical, chemical and microbial contamination are identified based on <i>prior use of land</i> . 8.3 Level of risk is assessed and established as per manual of standard operating procedures
2. Develop fish hatchery site food safety risk management plan	8.1 <i>Preventive measures</i> for fish hatchery site hazards are established as per identified source of contamination and per manual of standard operating procedures 8.2 Standard operating procedures for preventing and correcting fish hatchery site risks are developed based on the identified risks. 8.3 Fish hatchery site food safety status is evaluated based on statutory requirements and standards 8.4 Risk is communicated as per policies for internal and external communication 8.5 Approval and certification of fish hatchery is sought from relevant certification bodies based on <i>statutory requirements</i> and standards
3. Prepare to set up a fish hatchery unit	8.1 Proposed hatchery site is assessed based on <i>suitability criteria</i> for species to be cultured. 8.2 Hatchery design is prepared for specific component dimensions and relative locations based on the site survey 8.3 Hatchery shade design is prepared based on the components to be constructed and/ or installed 8.4 Proposed hatchery design is validated on site based on statutory requirements and food safety standards. 8.5 Details and cost of <i>labour</i> and materials is worked out according to prevailing prices

	8.6	Approval of the design is sought from relevant authorities
4. Manage fish hatchery construction	8.1	PPEs are identified and gathered as per task requirements
	8.2	Tools, equipment, food grade materials and supplies are identified and gathered based on task requirements.
	8.3	Site is secured and cleared of unwanted vegetation and debris
	8.4	Hatchery shade is constructed based on design specifications
	8.5	Installation of indoor hatchery facilities is carried out following design specifications
	8.6	Pegging and construction of supporting outdoor nursery and broodstock culture units is carried out as per design specifications
	8.7	Water abstraction and plumbing works are carried out according to the design
	8.8	Hatchery components are tested for functionality and identified defects are rectified
	8.9	Test run of the entire hatchery system is conducted for functionality and identified defects rectified
5. Install fish hatchery bio-security and safety measures	8.1	Footbaths are installed at hatchery entrances and other strategic points
	8.2	Hand wash and sanitizer facilities are installed at the entrances to the hatchery
	8.3	Quarantine facilities are constructed at safe distance as outlined in the hatchery designs
	8.4	Filtration systems for the incoming water is installed
	8.5	Intruder control facilities and devices are designed and installed at strategic points
	8.6	Perimeter fence is constructed around the facility
	8.7	Biosecurity facilities are tested for functionality
6. Evaluate farm hatchery set up	8.1	Farm hatchery set up is evaluated based on food safety standards
	8.2	Farm hatchery set up is approved for compliance to statutory requirements by relevant authorities

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
	<ul style="list-style-type: none"> •
1. Hazards may include but not limited to:	<ul style="list-style-type: none"> • Physical • Chemical <ul style="list-style-type: none"> ○ Pesticides ○ Parasites ○ Industrial chemicals ○ Naturally occurring toxins ○ Heavy metals • Microbial
2. Sources of hazards may include but not limited to:	<ul style="list-style-type: none"> • Agricultural chemicals • Toxic plants • Fecal matter • Soil • Water
3. Prior use of land may include but not limited to:	<ul style="list-style-type: none"> • 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 utilization and neighbouring areas (risk of cross-contamination); • History of flooding in area of concern.
4. Preventive measures may include but not limited to:	<ul style="list-style-type: none"> • Location, design and layout of farm • Farm waste management • Pond nets
5. Statutory requirements may include but not limited to:	<ul style="list-style-type: none"> • 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.

6. Suitability criteria may include but not limited to:	<ul style="list-style-type: none"> • Land topography • Proximity to quality and reliable water supply • Soil types • Climatic conditions • Security • Market
7. Labour may include but not limited to:	<ul style="list-style-type: none"> • Casual, skilled, consultancy,
8. PPE's may include but not limited to	<ul style="list-style-type: none"> • Gum boots, helmets, goggles, gloves, overalls, first aid kits
9. Tools, equipment, materials and supplies may include but not limited to:	<ul style="list-style-type: none"> • 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, timber, fittings, assorted screens, netting materials
10. Indoor hatchery facilities may include but not limited to :	<ul style="list-style-type: none"> • Tanks, sorting tables, packaging tables, plumbing works, incubation unit,
11. Plumbing works may include but not limited to :	<ul style="list-style-type: none"> • Connection piping to the hatchery block, inlet and outlet installations, drainage, storage tanks, water flow control structures
12. Hatchery components may include but not limited to:	<ul style="list-style-type: none"> • Water storage tanks, intake structure, fish culture tanks, lighting systems, aeration system, filtration system, drainage, water flow control structures, biosecurity installations
13. Intruder control facilities and devices may include but not limited to:	<ul style="list-style-type: none"> • 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
- Training skills
- Use of tools and equipment
- Measurement

- Drawing and sketching
- Communication skills
- Basic first aid skills
- Design a hatchery
- Masonry skills
- Basic plumbing
- Budgeting

Required Knowledge

The individual needs to demonstrate knowledge of:

- Food safety Standards
- Hazard Analysis Critical Control Points (HACCP)
- Food Safety Hazards in Aquaculture
- Good aquaculture practices
- Good hygiene practices
- Safety precautions
- Principles of food hygiene
- National legislations and regulations
- 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.

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Developed fish hatchery site food safety risk management plan 1.2 Designed a shade and hatchery 1.3 Constructed a shade and a hatchery 1.4 Complied with all statutory requirements 1.5 Adhered to safety precautions 1.6 Installed indoor hatchery facilities 1.7 Tested hatchery component to establish functionality and rectified faults 1.8 Installed and tested biosecurity structures
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<p>2. Resource Implications</p>	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> 2.1 Workplace or assessment location 2.2 PPEs 2.3 Tools, equipment and materials 2.4 Pond construction materials 2.5 Building materials 2.6 Writing materials
<p>3. Methods of Assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Observation 3.2 Oral questioning 3.3 Projects 3.4 Written test 3.5 Portfolio of Evidence 3.6 Interview 3.7 Third party report
<p>4. Context of Assessment</p>	<p>Competency may be assessed:</p> <ul style="list-style-type: none"> 4. 1 On-the-job 4. 2 Off-the –job 4. 3 During Industrial attachment
<p>5. Guidance information for assessment</p>	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>