Model Curriculum

QP Name: Brackishwater Aquaculture Farmer

Options: Crab/Finfish

QP Code: AGR/Q4906

Version: 3.0

NSQF Level: 4

Model Curriculum Version: 2.0

Agriculture Skill Council of India || Agriculture Skill Council of India (ASCI), 6th Floor, GNG Tower, Plot No. 10, Sector – 44

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Training Parameters

Sector	Agriculture
Sub-Sector	Fisheries
Occupation	Aquaculture
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/2132.0900
Minimum Educational Qualification and Experience	Minimum Educational Qualification: 12th grade pass OR Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma OR 10th grade pass plus 2-year NTC OR 10th grade pass plus 1-year NTC plus 1 year NAC OR 8th pass plus 2-year NTC plus 1-Year NAC plus CITS OR 10th grade pass and pursuing continuous schooling OR 10th Grade Pass with 2-year relevant experience OR Previous relevant Qualification of NSQF Level 3.0 with minimum education as 8th Grade pass with 3- year relevant experience OR Previous relevant Qualification of NSQF Level 3.5 with 1.5- year relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	24/02/2022

Next Review Date	24/02/2025
NSQC Approval Date	24/02/2025
QP Version	3.0
Model Curriculum Creation Date	24/02/2022
Model Curriculum Valid Up to Date	24/02/2025
Model Curriculum Version	2.0
Minimum Duration of the Course	390 Hours
Maximum Duration of the Course	450 Hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills to:

- Demonstrate the process of setting up a brackishwater aquaculture farm.
- Demonstrate the process of preparing soil and managing the water quality.
- Demonstrate the process of stocking and maintaining the brackishwater organisms and pond.
- Demonstrate the process of harvesting, processing and marketing the aquaculture organisms.
- Explain the basic entrepreneurial activities for small enterprise.
- Describe the process of undertaking employability and entrepreneurial practices.
- Describe the process of engaging in collective farming/activity.
- Demonstrate various practices to maintain personal hygiene and safety in culture operations.
- Demonstrate the process of carrying out crab culture farming.
- Demonstrate the process of carrying out finfish culture farming.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Bridge Module	**05:00**	**00:00**	**0:00**	**0:00**	**05:00**
Module 1: Introduction to the role of a Brackishwater Aquaculture Farmer	5:00	00:00	0:00	0:00	05:00
AGR/N4956 Set up a brackishwater aquaculture farm **NOS Version-1.0** **NSQF Level-4**	**15:00**	**40:00**	**0:00**	**0:00**	**55:00**
Module 2: Process of setting up a brackishwater aquaculture farm	15:00	40:00	0:00	0:00	55:00
AGR/N4924 Prepare the soil and manage the water quality **NOS Version-2.0** **NSQF Level-4**	**10:00**	**20:00**	**0:00**	**0:00**	**30:00**
Module 3:Preparation of soil and management of water quality	10:00	20:00	0:00	0:00	30:00
AGR/N4925 Stock and maintain the brackishwater organisms and pond **NOS Version-2.0** **NSQF Level-4**	**15:00**	**45:00**	**0:00**	**0:00**	**60:00**
Module 4: Process of stocking and maintaining the brackishwater organisms and pond	15:00	45:00	0:00	0:00	60:00
AGR/N4923 Harvest, process and market the aquaculture organisms **NOS Version-2.0** **NSQF Level-4**	**15:00**	**45:00**	**0:00**	**0:00**	**60:00**

Module 5: Process of harvesting, processing and marketing the aquaculture organisms	15:00	45:00	0:00	0:00	60:00
AGR/N9922 Engage in collective farming/activity **NOS Version-1.0** **NSQF Level-4**	**15:00**	**15:00**	**0:00**	**0:00**	**30:00**
Module 6 Engagement in collective farming/ activities	15:00	15:00	0:00	0:00	30:00
AGR/N4955 Follow the hygiene and safety practices in culture operations **NOS Version-1.0** **NSQF Level-4**	**15:00**	**15:00**	**0:00**	**0:00**	**30:00**
Module 7: Health, hygiene and safety in culture operations	15:00	15:00	0:00	0:00	30:00
DGT/VSQ/N0102 Employability Skills **NOS Version-1.0** **NSQF Level-4**	**60:00**	**00:00**	**0:00**	**0:00**	**60:00**
Module 8: Employability Skills	60:00	00:00	0:00	0:00	60:00
Total Duration	**150:00**	**180:00**	**0:00**	**0:00**	**330:00**
OJT: 60 hours					

Optional Modules

The table lists the modules and their duration corresponding to the Optional NOS of the QP.

Option 1: Crab

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N4957 Carry out crab culture **NOS Version- 1.0** **NSQF Level- 4**	**10:00**	**20:00**	**0:00**	**0:00**	**30:00**
Module 9: Crab Culture Farming	10:00	20:00	0:00	0:00	30:00
Total Duration	**10:00**	**20:00**	**0:00**	**0:00**	**30:00**

Option 2: Finfish

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N4958 Carry out finfish culture **NOS Version- 1.0** **NSQF Level- 4**	**10:00**	**20:00**	**0:00**	**0:00**	**30:00**
Module 10: Finfish Culture Farming	10:00	20:00	0:00	0:00	30:00
Total Duration	**10:00**	**20:00**	**0:00**	**0:00**	**30:00**

Module Details

Module 1: Introduction to the role of a Brackishwater Aquaculture Farmer

Bridge Module

Terminal Outcomes:

- Discuss the job role of a Brackishwater Aquaculture Farmer.

Duration: 05:00	**Duration: 0:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the size and scope of the Agriculture industry and its sub-sectors. • Discuss the role and responsibilities of a Brackishwater Aquaculture Farmer. • Identify various employment opportunities for a Brackishwater Aquaculture Farmer.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
NA	

Module 2: Process of setting up a brackishwater aquaculture farm

Mapped to NOS AGR/N4956 v1.0

Terminal Outcomes:

- Describe the process of identifying a site and species for brackishwater aquaculture.
- Describe the process of identifying and arranging the resources.
- Demonstrate the process of establishing the aquaculture farm.

Duration: 15:00	**Duration: 40:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the criteria for selecting a site for the construction of brackishwater aquaculture farm such as water source, soil characteristics, topography, provision of drainage, etc. • Explain the criteria for selecting appropriate fish and crustacean species to culture in brackishwater. • List various resources required for setting up a brackishwater aquaculture farm. • State various factors to be considered while estimating the cost of setting up an aquaculture farm. • List relevant government schemes and financial institutions with the provision of support for brackishwater aquaculture farming. • Describe the process of applying for arranging financial assistance. • Describe the process of procuring and storing the necessary resources. • Explain the importance of setting up a controllable water inlet and outlet in the pond.	• Prepare a sample layout for the farm making provision for the appropriate type of pond such as the nursery pond, rearing pond and stocking pond as per the requirement through co-ordination with the designer. • Demonstrate the process of constructing the pond and water-tight dykes as per the layout through co-ordination with the pond construction expert. • Demonstrate the process of installing water pumps to pump in/ out water into and from the ponds.
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
NA	

Module 3: Preparation of soil and management of water quality

Mapped to NOS AGR/N4924 v2.0

Terminal Outcomes:

- Demonstrate the process of carrying out soil conditioning.
- Describe the process of managing the water quality.
- Demonstrate various practices for effective resource optimisation.

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• State various measures to adjust the soil pH level. • Explain the importance and ways of ensuring the optimum level of dissolved oxygen in the pond water. • State relevant quality parameters to evaluate the quality of water. • Explain various ways for maintaining the pH and salinity levels in the water according to the fish/ crustacean species. • List different ways of removing the decomposing organic waste material from the pond. • State the optimum depth and stocking density for various fish/ crustacean species. • Explain various practices to reduce the loss of water and conserving water. • Explain wastewater management and methods of recycling. • Explain various uses of recycled water in culture operations. • Explain the benefits of resource optimisation.	• Demonstrate the use of a pH meter. • Demonstrate the process of applying lime or gypsum to adjust the soil pH level. • Show how to replace the pond water. • Demonstrate the process of applying lime or the approved disinfectant(s) to treat the wastewater for recycling. • Demonstrate various practices to optimise the usage of various resources such as water and electricity.
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Benchtop pH Meter, Conductivity Meter, Dissolved Carbon Dioxide Meter, Dissolved Oxygen Analyser, Portable Conductivity Meter, Secchi Disc, Portable Turbidity Meter, Spectrophotometer Soluble Reactive Phosphorous Analyzer, Centrifuge, Thermometer, Orbital Shaker, BOD Analyser, Flame Photometer, Hot plate, Double distillation Unit, Whattman Filter Paper, Volumetric Flask (10ml,25ml, 100ml, 250ml, 500ml, 1000ml), Flat bottom, Flask, Round bottom Flask, Test tube, Pippete, Dropper, DO Brown Bottles, Measuring Cylinder, Glass Funnel, Burette, Burette Stand	

Module 4: Process of stocking and maintaining the brackishwater organisms and pond

Mapped to NOS AGR/N4925 v2.0

Terminal Outcomes:

- Demonstrate the process of stocking the brackishwater organisms.
- Demonstrate the process of carrying out feed and disease management.
- Describe the process of maintaining the pond.
- Demonstrate various waste management practices.

Duration: 15:00	Duration: 45:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the process of stocking brackishwater organisms in the pond maintaining the recommended stocking density and species ratio. • Explain the importance and process of applying lime, fertilizers and other recommended treatment in the pond. • Explain how to identify the optimum feed size for the various stages of growth of the stocked organisms. • Explain the importance of maintaining an adequate stock of feed/ feed ingredients during the culture operation. • Explain the recommended practices to ensure maximum feed utilisation and prevention of pathogens and disease in the pond. • List various signs of stress, pathogens and disease in the brackishwater organisms. • Explain the importance of maintaining brackishwater exchange in the pond. • Explain the importance and process of maintaining the recommended salinity, pH, oxygen, temperature and water levels in the pond. • Describe the process of identifying and removing algae growing in the pond. • Explain how to identify and mitigate	• Demonstrate the process of applying lime, fertilizers and other recommended treatment in the culture unit to stimulate the production of natural food organisms. • Demonstrate how to feed the organisms wet feed/ floating feed/ pellets as per the recommended diet composition. • Demonstrate the process of applying the necessary treatment in the recommended quantity to remove the pathogens and disease from the pond. • Show how to remove sludge from the pond. • Demonstrate the process of carrying out regular maintenance in the pond such as repairing the nets and dykes. • Demonstrate the process of recycling and disposing different types of waste appropriately.

cannibalism in the pond. • Explain the criteria for segregating waste into appropriate categories.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Pond Construction Equipment-JCB, Tractor with Accessories, Roller, Farm Equipment such as Aerators, Generator, Water Pumps (Diesel & Electric Operated), Check Trays, Plankton Nets, Cast Nets, Bag Nets, Plastic Sheet, Pond Lining Material, Bird Net, Crab Fencing Net, Polythene Sheet, Water Pumps, 5 Nos FRP Tanks of 500 to 1-Ton Capacity, Audiovisual Aids, Land Survey Equipment, Engineering Chain, Tape, Ranging Rod, Digital Distance Meter, Dumpy Level, Compass (Prismatic), Plain Table Set, Total Stations	

Module 5: Process of harvesting, processing and marketing the aquaculture organisms

Mapped to NOS AGR/N4923 v2.0

Terminal Outcomes:

- Demonstrate the process of harvesting the aquaculture organisms.
- Demonstrate the process of sorting, grading, storing and marketing the aquaculture organisms.
- Discuss ways to promote diversity and inclusion at the workplace.

Duration: 15:00	Duration: 45:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List maturity indicators of various aquaculture organisms. • State the appropriate time and method to harvest the aquaculture organisms such as ring seine, shore seine, etc. • List various tools and equipment used for harvesting the aquaculture organisms. • Describe the process and criteria for sorting and grading harvested aquaculture organisms. • State appropriate conditions to store the harvested aquaculture organisms. • Explain various activities in the process of marketing the produce such as identify market demand, connecting with buyers and negotiating the price, processing orders and payments, etc. • State the recommended practices for packing and transporting aquaculture organisms while protecting them from contamination. • Explain how to calculate the benefit-cost (B:C) ratio. • Explain the importance of inclusion of all genders and people with disability (PwD) at the workplace.	• Demonstrate the use of various tools and equipment such as dip net, cast net, portable lift net, gill nets. • Demonstrate the process of harvesting the aquaculture organisms partially or completely according to the local demand and proximity to the relevant markets/ buyers. • Prepare a sample record of the harvested organism. • Demonstrate the process of carrying out sorting of organisms as per the relevant criteria such as species and maturity. • Demonstrate the process of grading the organisms mechanically on appropriate quality parameters such as size and appearance. • Show how to pack the aquaculture organisms in appropriate containers for being transported to the market/ buyer. • Demonstrate the use of relevant e-payment methods such as the Aadhaar Enabled Payment System (AEPS), Unified Payment Interface (UPI), Unstructured Supplementary Service Data (USSD) payment, etc. • Prepare a sample record of sales and payments. • Demonstrate appropriate verbal and non-verbal communication that is respectful of genders and disability.

Classroom Aids
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop
Tools, Equipment and Other Requirements
Hand Nets and Cast Nets, Dip Nets, Hand Gloves, Boots, Head Gear, Autoclave, Transport Vehicles with Water storage capacity, Oxygen Cylinders, Ropes, Threads, Polyoropelene Tanks, Oxygen Tablets, Vitamin B 12 tablets for removal of stress during transportation, Siphoning pipes, Portable DC Chargeable Battery Aerators, Small Ice Machine

Module 6: Engagement in collective farming/activities

Mapped to NOS AGR/N9922 v1.0

Terminal Outcomes:

- Describe the process of creating PGs/ FIGs/ SHGs and preparing for its operations.
- Demonstrate the process of conducting group meetings and training sessions.
- Demonstrate the process of carrying out collective farming/activities.

Duration: 15:00	Duration: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the process of preparing for the Producer Groups (PGs)/Farmers Interest Groups (FIGs)/ Self-Help Groups (SHGs) operations such as fundraising, induction of SMEs, investing in ICT products, etc. • Explain how to obtain access to the relevant government development programmes and funds. • Describe the process of commodity convergence with the relevant developmental programmes. • Explain the importance of planning optimal production to meet the market and household food security needs. • Explain the importance of setting the group objectives and deciding the group income-generating enterprises/ activities, methods of operation, benefits, etc. • Explain the importance of organising the PG/FIG/ SHG meetings and training sessions to resolve common concerns and get information about the latest developments in the field of work. • Explain the benefits of various capacity building exercises such as skill development and training programmes. • Explain the importance and process of conducting field trials to identify and resolve problems encountered by farmers in the field operations. • Explain the concept of the group-	• Roleplay to illustrate how to conduct the initial group meetings to introduce the members, discuss the group objectives, group income-generating enterprises/ activities, methods of operation, etc. • Roleplay to illustrate how to organise field trials to identify and resolve problems encountered by group members in the field operations.

owned bank to provide quality seeds, fertilisers, pesticides, tools and equipment to the member farmers. • Describe the process of using the group's credit facility. • Explain various core collective farming activities such as procuring inputs in bulk, large-scale farming, etc. • Explain the concept and benefits of forming forward and backward linkages. • State the relevant value addition practices such as processing, packing, upgrading the quality, etc. • Explain the benefits of connecting with similar groups to address common problems on a large scale.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
NA	

Module 7: Health, hygiene and safety in culture operations

Mapped to NOS AGR/N4955 v1.0

Terminal Outcomes:

- Demonstrate the process of maintaining the water body and its hygiene.
- Demonstrate the process of maintaining the health of cultured organisms.
- Describe how to maintain personal health and safety.

Duration: 15:00	Duration: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain how to protect the aquaculture farm and cultured species from various threats. • Describe the process of identifying and removing predators or preying organisms from the culture pond or tank. • Explain the importance and process of carrying out regular cleaning of the culture pond or tank to remove sludge, algae, uneaten feed, etc. • State the recommended disinfectants for water bodies and the process of applying them. • State the recommended practices to protect the cultured organisms from air/ water/ fomite-borne contamination and diseases during and after harvesting. • Describe the process of sampling the cultured organisms to identify disease, disorders and presence of parasites and pathogens. • List the signs of stress or disease in the cultured organisms such as spots, lesions, erratic movement, etc. • Describe the process of identifying, quarantining and treating the diseased organisms. • List the signs of improvement in the quarantined organisms. • Explain the importance of removing the dead or moribund organisms from the water body promptly and	• Demonstrate the process of carrying out regular maintenance of dykes or fences in the culture pond. • Show how to remove sludge, algae, uneaten feed and any other waste materials from the culture pond or tank. • Demonstrate the process of applying necessary disinfectants or treatment in the culture pond or tank, to prevent disease outbreak and the growth of harmful organisms. • Demonstrate the process of sampling the cultured organisms regularly to identify the signs of stress, disease, phenotypic disorders and the presence of parasites and pathogens. • Demonstrate how to remove the dead and moribund organisms and dispose them in an environment-friendly manner. • Demonstrate how to safely use the PPE during hazardous aquaculture operations. • Demonstrate procedures for dealing with accidents and emergencies. • Demonstrate the administration of first aid.

disposing them safely. • Explain the importance of using the relevant PPE and ensuring it is damage-free. • State appropriate practices to be followed to maintain personal hygiene and prevent infections. • Explain the importance of storing hazardous chemicals, tools and equipment safely. • Describe the common first aid procedures to be followed in case of emergencies.	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and Software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Personal Protective Equipment, Cleaning Equipment and Materials, Sanitizer, Soap, Mask, First aid Kit, Equipment used in Medical Emergencies.	

Module 8: Employability Skills (60 hours)

Mapped to NOS DGT/VSQ/N0102 v1.0

Duration: 60:00

Key Learning Outcomes

Introduction to Employability Skills Duration: 1.5 Hours

After completing this programme, participants will be able to:

1. Discuss the Employability Skills required for jobs in various industries
2. List different learning and employability related GOI and private portals and their usage

Constitutional values - Citizenship Duration: 1.5 Hours

3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
4. Show how to practice different environmentally sustainable practices.

Becoming a Professional in the 21st Century Duration: 2.5 Hours

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
7. Describe the benefits of continuous learning.

Basic English Skills Duration: 10 Hours

8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e -mail using basic English

Career Development & Goal Setting Duration: 2 Hours

11. Create a career development plan with well-defined short- and long-term goals

Communication Skills Duration: 5 Hours

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

Diversity & Inclusion Duration: 2.5 Hours

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

Financial and Legal Literacy Duration:5 Hours

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely
19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

Essential Digital Skills Duration: 10 Hours

21. Describe the role of digital technology in today's life
22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

Entrepreneurship Duration: 7 Hours

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
29. Create a sample business plan, for the selected business opportunity

Customer Service Duration: 5 Hours

30. Describe the significance of analysing different types and needs of customers
31. Explain the significance of identifying customer needs and responding to them in a professional manner.
32. Discuss the significance of maintaining hygiene and dressing appropriately

Getting Ready for apprenticeship & Jobs Duration: 8 Hours

33. Create a professional Curriculum Vitae (CV)
34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
35. Discuss the significance of maintaining hygiene and confidence during an interview
36. Perform a mock interview
37. List the steps for searching and registering for apprenticeship opportunities

Module 9: Crab Culture Farming

Mapped to NOS AGR/N4957 v1.0

Terminal Outcomes:

- Describe the process of preparing for crab culture.
- Demonstrate the process of stocking the crabs.
- Demonstrate the process of carrying out crab nutrition and health management.
- Describe the process of maintaining the pond and cage.
- Demonstrate the process of harvesting and marketing the crabs.

Duration: 12:00	**Duration: 32:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the criteria for selecting a species of crab to cultures such as suitability to the local climate and profitability • Explain the criteria for selecting an appropriate method for crab culture i.e. grow-out culture or fattening according to the number of crabs to be cultured. • List various material required for the fabrication of the cage. • Describe the process of collecting, acclimating and stocking juvenile crabs. • State the diet requirement of varieties of crab including supplementary feed, their feeding schedule and recommended feeding rate. • Explain the importance of maintaining the recommended levels of temperature, salinity, dissolved oxygen, and pH in the pond. • Explain various measures to prevent cannibalism, disease and pest infestation among the crab. • Describe the process of sampling crab, soil and water to identify any problems. • Explain how to identify and quarantine the diseased crabs, appropriate treatment to cure them	• Demonstrate how to construct a pond of the recommended depth and size through co-ordination with an expert. • Demonstrate the process of draining and applying lime on a perennial pond. • Show how to install fences around the pond using bamboo poles and nets. • Demonstrate the process of acclimatising the crabs before stocking to prevent thermal and salinity shock. • Show how to feed the crabs with the mixed diet of brown mussels and trash fish in the recommended quantity. • Demonstrate the process of applying the recommended treatment to cure the diseased crabs. • Show how to clean the cages and water in the pond to avoid fouling, contamination and disease outbreak. • Show how to remove the feed and sludge deposits from the pond's bottom. • Demonstrate the process of carrying out regular repair and maintenance of the pond and cage. • Demonstrate the process of

and signs of improvement in them. • Describe the process of maintaining the culture pond and cage. • Describe the process of harvesting the crabs including identify maturity indicators, harvesting at a low temperature and washing them. • Describe the process of sorting and grading the crabs and the relevant parameters. • State the appropriate conditions for storing the harvested crabs. • Describe the process of marketing the harvested crabs. • Explain the importance of arranging appropriate packaging and mode of transport to protect the crabs from excess temperature, stress and damage.	harvesting the crabs. • Demonstrate how to wash the harvested crabs to remove dirt and mud. • Demonstrate the process of sorting and grading the crabs on the relevant parameters. • Prepare a sample record with respect to harvesting, sorting and grading of crabs. • Demonstrate how to tie the crabs ensuring no damage to them. • Demonstrate the process of packing the crabs. • Prepare a sample record of sale and payments.
Classroom Aids:	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Water pump, Air or Oxygen diffusers, Aerators, Refractometer, Portable Weighing Balance, Water Quality Kits, Hand Nets and Cast Nets, Dip Nets, , Hand Gloves, Boots, Head Gear, Autoclave, Transport Vehicles with Water etc.	

Module 10: Finfish Culture Farming

Mapped to NOS AGR/N4958 v1.0

Terminal Outcomes:

- Demonstrate the process of stocking and raising fry.
- Demonstrate the process of stocking fingerlings in the grow-out cage.
- Demonstrate the process of carrying out nutrition and disease management.
- Describe the process of maintaining the pond and cage.
- Demonstrate the process of harvesting and marketing the fish.

Duration: 12:00	Duration: 32:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the criteria for selecting a finfish species to rears such as suitability to local climate and market demand. • Describe the process of collecting healthy finfish fry and stocking them at the recommended stocking density. • State the feed requirement of the fry and fingerlings at various stages of their growth including the need of adding a supplementary feed. • Explain the need for adjusting the feeding rate according to the species stocked in the pond/ tank. • Explain the importance of changing the water in the pond/ tank regularly to maintain the water quality. • List various signs when fry grows into fingerling and is ready to be moved to the grow-out cage. • Describe the process of grading, starving, acclimating and stocking the fingerlings in the grow-out cage. • Explain various feed management practices. • Explain the need to apply changes to the finfish feed according to the various factors such as biological, climatic, water quality, etc. • Explain the importance and process of sampling the stocked fry and fingerlings and monitor for abnormal behaviour.	• Demonstrate the process of preparing the pond/ tank for nursery rearing of fry to the fingerling stage. • Show how to feed the fry with the recommended quantity of feed. • Demonstrate how to change the water in the pond/ tank to maintain the water quality. • Demonstrate the process of acclimatising and move the fingerlings to the grow-out cage. • Show how to feed the fingerlings as per their feeding schedule according to their stage of growth. • Demonstrate the use of mechanical feeders such as demand feeder and automatic feeder along with feeding tray/ rings to feed a large number of fingerlings. • Demonstrate how to sample the stocked fingerlings. • Show how to remove the carnivorous fish from the pond. • Demonstrate the process of applying the approved treatment or chemicals in the recommended quantity to cure disease. • Prepare a sample record of fish growth, disease, mortalities along with the use of chemical treatments. • Show how to remove the faeces and uneaten feed from the cages. • Show how to clean the nets installed in the pond/ tank to prevent algae

• Explain how to identify and remove the carnivorous fish from the pond. • Explain how to identify insect and disease infestation in the cages. • Explain various practices to maintain the pond and cage. • List signs of readiness in fingerlings for being harvested. • Explain the practice of harvesting fish in single lot/ batches and the use of appropriate harvesting method and equipment. • State relevant requirements for storing, packing and transporting the harvested finfish.	from growing. • Demonstrate the process of carrying out regular repair and maintenance of the cages, moorings, anchors, nets, etc. • Demonstrate the process of harvesting the fish using the appropriate harvesting method and equipment.
Classroom Aids:	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Oxygen Diffusers, Aerators, Mechanical Filters - like Leaf Filters, Tubes, Power Backup, Grinder, Mixer, Pelletiser, Profi-Feeders, Scareheron, Weed Eradication Equipments, Dip Net or any other Harvesting Gear, Safety Shoes, Goggles, First Aid Box, Hand Gloves, Head Gear, wWeed Cutter, Scissors, Forceps, Syringes, Seechi Disc, Refractometer, Simple Microscope, PCR Dagnostic Kit	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
10th Class		7	Inland Fishery Production and management	0		Brackishwater aquaculture farmer with 7 Years experience after 10th Pass Experience certificate issued by BDO/ Agriculture Officer/ Head of Grampanchayat/ Loan disbursing bank or financial institution on official letter Head
Diploma	Regular Diploma more than 15 months in fisheries	3	Inland Fishery Production and management	0		
Graduate	Zoology	3	Inland Fishery Production and management	0		For the school Program minimum qualification of the Trainer should be Graduate(Fisheries Science/ Industrial Fish & Fisheries/ Zoology). Their Teaching experience will be considered industry experience
Graduate	Agriculture / Fisheries	2	Inland Fishery Production and management	0		
Graduate	Fisheries Science / Industrial Fish & Fisheries	0				

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "**Brackishwater Aquaculture Farmer**", mapped to QP: "AGR/Q4906, v3.0", Minimum accepted score is 80%	Recommended that the Trainer is certified for the Job Role: "Trainer (Vet and Skills)", mapped to the Qualification Pack: "MEP/Q2601, v2.0". Minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
B.F. Sc		4	In Fisheries Science/ Aquaculture/ Applied aquaculture/ Marine fishries or related streams and fields	0		Practical skills and knowledge required in Brackish water fisheries
Graduation	Fisheries and related streams	5	In Fisheries Science/ Aquaculture/ Applied aquaculture/ Marine fishries or related streams and fields	0		Practical skills and knowledge required in Brackish water fisheries
M. F. Sc		2	In Fisheries Science/ Aquaculture/ Applied aquaculture/ Marine fishries or related streams and fields	0		Practical skills and knowledge required in Brackish water fisheries
Post-Graduation	Fisheries / Applied Aquaculture / Marine Biology and related streams	2	In Fisheries Science/ Aquaculture/ Applied aquaculture/ Marine fishries or related streams and fields	0		Practical skills and knowledge required in Brackish water fisheries
PhD	Fisheries Science / Aquaculture and related streams	1	In Fisheries Science/ Aquaculture/ Applied aquaculture/ Marine fishries or related streams and fields	0		Practical skills and knowledge required in Brackish water fisheries

Assessor Certification	
Domain Certification	**Platform Certification**
"**Brackishwater Aquaculture Farmer**", "AGR/Q4906, v3.0", Minimum accepted score is 80%	Certified for the Job Role: "Assessor (Vet and Skills)", mapped to the Qualification Pack: "MEP/Q2701, v2.0", with a minimum score of 80%.

Assessment Strategy

Assessment System Overview

In Agriculture Sector it is of ultimate importance that individuals dealing with crop production or livestock have the requisite knowledge and competencies to undertake the task. Based on the Assessment Criteria, SSC in association with empaneled AAs, define the test structure for the given job roles to cover the required skills and competencies. Assessment strategy consists of the following:

1. Multiple Choice Questions: To assess basic knowledge (Objective/Subjective)
2. Viva: To assess awareness on processes (Oral and/or written questioning)
3. Practical: To evaluate skills and identify competencies. (Observation)

Assessments for knowledge and awareness on processes may be conducted through 'real-time' internet-based evaluation or by conducting the same 'offline' through TABs. Skills and competencies are to be assessed by conducting 'practical' on the ground through qualified and ToA certified assessors.

An individual must have adequate knowledge and skills to perform a specific task, weightage for different aspects of the assessment is given as follows:

- Multiple Choice Questions: 20%-30%, depending on the specific QP
- Viva: 20%
- Practical: 50% - 60% (Involves demonstrations of applications and presentations of procedures/tasks and other components)
- Assessment will be carried out by certified assessors through empaneled assessment partners. Based on the results of the assessment; ASCI will certify the learners/candidates

Testing Environment

Assessments are conducted on laptops, Mobiles and android tablets via both offline and online mode depending on the internet connectivity at the assessment location.

In remote locations/villages, assessments get delivered through tablets without the requirement of the Internet.

- Multilingual assessments (ASCI is conducting the assessments in 13 + languages pan India)
- Rubric driven assessments in Practical/Viva sections and responses recorded accordingly
- All responses, data, records and feedback stored digitally on the cloud
- Advanced auto-proctoring features – photographs, time-stamp, geographic-tagging, toggle- screen/copy-paste disabled, etc.
- Android-based monitoring system
- End to end process from allocation of a batch to final result upload, there is no manual intervention

- Assessment will normally be fixed for a day after the end date of the training / within 7 days of completion of training.
- Assessment will be conducted at the training venue
- The room where assessment is conducted will be set with proper seating arrangements with enough space to curb copying or other unethical activities
- Question bank of theory and practice will be prepared by ASCI /assessment agency and approved ASCI. Only from approved Question Bank assessment agency will prepare the question paper. Theory testing will include multiple-choice questions, pictorial questions, etc. which will test the trainee on his theoretical knowledge of the subject.
- The theory, practical and viva assessments will be carried out on the same day. In case of a greater number of candidates, the number of assessors and venue facilitation be increased and facilitated

Assessment			
Assessment Type	**Formative or Summative**	**Strategies**	**Examples**
Theory	Summative	MCQ/Written exam	Knowledge of facts related to the job role and functions. Understanding of principles and concepts related to the job role and functions
Practical	Summative	Structured tasks/Demonstration	Practical application /Demonstration /Application tasks
Viva	Summative	Questioning and Probing	Mock interviews on the usability of job roles/advantages /importance of adherence to procedures. Viva will be used to gauge trainee's confidence and correct knowledge in handling the job situation

The question paper pre-loaded in the computer /Tablet and it will be in the language as requested by the training partner.

Assessment Quality Assurance framework

Assessment Framework and Design:

Based on the Assessment Criteria, SSC in association with AAs will define the test structure for the given roles to cover the required skills and competencies. ASCI offer a bouquet of tools for multi-dimensional evaluation of candidates covering language, cognitive skills, behavioural traits and domain knowledge.

Theoretical Knowledge - Item constructs and types are determined by a theoretical understanding of the testing objectives and published research about the item types and constructs that have shown statistical validity towards measuring the construct. Test item types that have been reported to be coachable are not included. Based on these, items are developed by domain experts. They are provided with comprehensive guidelines of the testing objectives of each question and other quality measures.

Type – Questions based on Knowledge Required, Case-based practical scenario questions and automated simulation-based questions.

Practical Skills - The practical assessments are developed taking into consideration two aspects: what practical tasks is the candidate expected to perform on the job and what aspects of the job cannot be judged through theoretical assessments. The candidates shall be asked to perform either an entire task or a set of subtasks depending on the nature of the job role

Type – Standardized rubrics for evaluation against a set of tasks in a demo/practical task

Viva Voce - Those practical tasks which cannot be performed due to time or resource constraints are evaluated through the viva mode. Practical tasks are backed up with Viva for thorough assessment and complete evaluation

Type – Procedural questions, dos and don'ts, subjective questions to check the understanding of practical tasks.

The assessor has to go through an orientation program organized by the Assessment Agency. The training would give an overview to the assessors on the overall framework of QP evaluation. The assessor shall be given a NOS and PC level overview of each QP as applicable. The overall structure of assessment and objectivity of the marking scheme will be explained to them. The giving of marks will be driven by an objective framework that will maintain the standardization of the marking scheme.

Type of Evidence and Evidence Gathering Protocol:

During the assessment the evidence collected by AAs and ASCI are:

- GeoTagging to track ongoing assessment
- AA's coordinator emails the list of documents and evidence (photos and videos) to the assessor one day before the assessment. The list is mentioned below:
    - Signed Attendance sheet
    - Assessor feedback sheet
    - Candidate feedback sheet

- Assessment checklist for assessor
- Candidate Aadhar/ID card verification
- Pictures of the classroom, labs to check the availability of adequate equipment's and tool to conduct the training and assessment
- Pictures and videos of Assessment, training feedback and infrastructure.

- Apart from the Assessor, a Technical assistant is popularly known as Proctor also ensures the proper documentation and they verify each other's tasks.
- To validate their work on the day of the assessment, regular calls and video calls are done.
- On-boarding and training of assessor and proctor is done on a timely basis to ensure that the quality of the assessment should be maintained.
- Training covers the understanding of QP, NSQF level, NOS and assessment structure

Methods of Validation

- Morning Check (Pre-Assessment): Backend team of AA calls and confirms assessor/technical SPOC event status. Assessor/Technical SPOC are instructed to reach the centre on time by 9:30 AM / as decided with TC and delay should be highlighted to the Training Partner in advance.
- Video Calls: Random video calls are made to the technical SPOC/assessor so as to keep a check on assessment quality and ensure assessment is carried out in a fair and transparent manner
- Aadhar verification of candidates
- Evening Check (Post Assessment): Calls are made to the ground team to ensure the event is over by what time and the documentation is done properly or not.
- TP Calling: To keep a check on malpractices, an independent audit team calls the TP on a recorded line to take confirmation if there was any malpractice activity observed in the assessment on part of the AA/SSC team. If calls are not connected, an email is sent to TP SPOC for taking their confirmation
- Video and Picture Evidence: Backend team collects video and pictures for assessment on a real-time basis and highlights any issue such as students sitting idle/ trainer helping the candidates during the assessment.
- Surprise Visit: Time to time SSC/AA Audit team can visit the assessment location and conduct a surprise audit for the assessment carried out by the ground team.
- Geo Tagging: On the day of the assessment, each technical SPOC is required to login into our internal app which is Geotagged. Any deviation with the centre address needs to be highlighted to the assessment team on a real-time basis.

Method for assessment documentation, archiving, and Access:

- ASCI have a fully automated result generation process in association with multiple AAs
- Theory, Practical and Viva marks form the basis of the results and encrypted files generated to avoid data manipulation. All responses were captured and stored in the System with Time-Stamps at the end of AAs and SSC. NOS-wise and PC-wise scores can

be generated.

- Maker Checker concept: One person prepares the results and another audit result which is internally approved by AA at first and then gets vetted at the end of SSC
- All softcopies of documents are received from the on-ground tech team over email. The same is downloaded by our internal backend team and saved in Repository. The repository consists of scheme-wise folders. These scheme-wise folders have two job role-specific folders. These specific folders have Year wise and Month wise folders where all documents are saved in Batch specific folders. All Hard copies are filed and stored in the storeroom.

Result Review & Recheck Mechanism –

- Time-stamped assessment logs
- Answer/Endorsement sheets for each candidate
- Attendance Sheet
- Feedback Forms: Assessor feedback form, Candidate feedback form, TP feedback form
- The results for each of the candidate shall be stored and available for review (retained for 5 years/ till the conclusion of the project or scheme)

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
AGR	Agriculture
NOS	National Occupational Standard (s)
NSQF	National Skills Qualifications Framework
OJT	On-the-job Training
QP	Qualifications Pack
PwD	People with Disability
PPE	Personal Protective Equipment