Model Curriculum

QP Name: Mariculture Farmer

Option: Pearl Culture

QP Code: AGR/Q4909

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	24/02/2022
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 installing the pen/ raft/ cage and stocking the seed.
- Demonstrate the process of carrying out post-stocking management.
- 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.
- Demonstrate various practices to maintain personal hygiene and safety in culture operations.
- Describe the process of engaging in collective farming/activity.
- Demonstrate the process of carrying out marine water pearl culture.

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 Mariculture Farmer	05:00	00:00	0:00	0:00	05:00
AGR/N4933 Install the pen/ raft/ cage and stock the seeds **NOS Version-2.0** **NSQF Level-4**	**20:00**	**65:00**	**0:00**	**0:00**	**85:00**
Module 2: Process of Installation the pen/ raft/ cage and stocking the seeds	20:00	65:00	0:00	0:00	85:00
AGR/N4934 Carry out post-stocking management **NOS Version-2.0**	**20:00**	**40:00**	**0:00**	**0:00**	**60:00**

NSQF Level-4					
Module 3: Post-stocking management	20:00	40:00	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 4: Process of harvesting, processing and marketing the aquaculture organisms	15:00	45:00	0:00	0:00	60:00
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 5: Health, hygiene and safety in culture operations	15:00	15:00	0:00	0:00	30:00
AGR/N4922 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
DGT/VSQ/N0102 Employability Skills **NOS Version-1.0** **NSQF Level-4**	**60:00**	**00:00**	**0:00**	**0:00**	**60:00**
Module 7: 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: Pearl Culture

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N4945: Carry out pearl culture **NOS Version-2.0** **NSQF Level-4**	**20:00**	**40:00**	**0:00**	**0:00**	**60:00**
Module 8: Process of carrying out marine water pearl culture	20:00	40:00	0:00	0:00	60:00
Total Duration	**20:00**	**40:00**	**0:00**	**0:00**	**60:00**

Module Details

Module 1: Introduction to the role of a Mariculture Farmer

Bridge Module

Terminal Outcomes:

- Discuss the job role of a Mariculture 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 Mariculture Farmer. • Identify various employment opportunities for a Mariculture Farmer.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
NA	

Module 2: Process of installing the pen/ raft/ cage and stocking the seeds

Mapped to AGR/N4933 v2.0

Terminal Outcomes:

- Describe the process of selecting a suitable site for mariculture.
- Describe the process of procuring seeds of organisms for culture activities.
- Demonstrate the process of fabricating and installing the pen/ raft/ cage.
- Demonstrate the process of stocking the seeds.

Duration: 20:00	**Duration: 65:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List various species cultured in marine water such as hairtail, sargo, queen angelfish, etc. • Explain the criteria for selecting a site for mariculture such as clear seawater, moderate rainfall, suitable climatic conditions, recommended depth, etc. • Explain the importance of ensuring the mariculture site is located away from sewage and industrial discharge. • Describe the process of procuring quality seeds, their safe transportation and storage. • Describe the process of stocking seeds in a mariculture pen/ raft/ cage. • Explain the importance of acclimatising the seeds before stocking • State the recommended stocking density and temperature for various marine water fish/ crustacean species. • Explain various prophylactic measures to protect the seeds from diseases and ectoparasites.	• Demonstrate the process of fabricating the pen/ raft/ cage through co-ordination with the fabricator. • Demonstrate the process of installing the pen/ raft/ cage and secure it using anchors and ropes. • Show how to install nets of the recommended mesh size. • Demonstrate how to acclimatise the seeds before stocking them.
Classroom Aids	
Training kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Water Pump, Air or Oxygen Diffusers, Aerators, Mechanical Filters - like Leaf Filters, Chemical and Biological Filters, Protein Skimmer, UV Steriliser, Water Analysis Meters, Tubes, Power Backup, PVC Pipes. Different types of Cage and Raft Construction Materials, Cage Frame, Net Cages, Mooring Materials for Cages and Rafts, Bivalve Rafts, Seaweed Rafts	

Module 3: Post-stocking management

Mapped to AGR/N4934 v2.0

Terminal Outcomes:

- Describe the process of maintaining the mariculture cages and water quality.
- Demonstrate the process of carrying out feed, health and disease management.
- Demonstrate various practices for effective resource optimisation.
- Demonstrate various waste management practices.

Duration: 20:00	Duration: 40:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain how to maintain the required temperature, pH, dissolved oxygen, alkalinity and salinity levels in the mariculture cages. • Explain the importance of maintaining the adequate exchange of water in the cages to ensure the quality of water. • Describe the process of identifying and removing predators from the mariculture cages. • List different types of feed for different species of mariculture organisms. • State the recommended feeding schedule for different species. • Explain the need of making changes in the feed of mariculture organisms according to the stages of their growth. • Explain the recommended practices to prevent the outbreak of pathogens and disease in the water body. • List various signs of stress and disease among the organisms. • Describe the process of sampling the organisms and co-ordinating with an approved lab to identify the disease/ problem among the organisms. • Describe the process of identifying, quarantining and treating the diseased organisms. • State various commonly prescribed treatment to treat mariculture organisms along with the recommended dose. • Explain the benefits of resource	• Demonstrate how to remove predators, algae, aquatic weeds, and uneaten feed from the cages. • Demonstrate the process of carrying out regular repair and maintenance of the cages. • Show how to feed the stocked organisms with the recommended feed. • Demonstrate the process of sampling the organisms and water. • Demonstrate the process of applying the prescribed treatment to treat mariculture organisms. • Demonstrate various practices to optimise the usage of various resources such as water and electricity. • Demonstrate the process of recycling and disposing different types of waste appropriately.

optimisation. ● 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	
FRP Boat with Outboard Engine, FRP Tanks, Grinder, Mixer, Pelletiser, Diving Equipment's Hand Nets, Feeding Trays, Seechi Disk, pH Meter, Refractometer, Scissors, Water Testing Kit, Buckets, Forceps, Dropper, Tissue Paper, Syringes, Simple Microscope, Power Backup	

Module 4: 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 5: 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 disposing them safely.	• 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.

• 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 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-owned bank to provide quality seeds, fertilisers, pesticides, tools and	• 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.

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: Process of carrying out marine water pearl culture

Mapped to NOS AGR/N4945 v2.0

Terminal Outcomes:

- Describe the process of checking the feasibility and selecting a site for pearl culture.
- Describe the process of procuring and conditioning the pearl oysters.
- Demonstrate the process of setting up the marine water pearl culture farm.
- Demonstrate the process of grafting and transferring pearl oysters to the pearl farm.
- Describe the process of maintaining the water body and pearl oysters.
- Demonstrate the process of harvesting and marketing the pearl oysters.

Duration: 20:00	Duration: 40:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the criteria for selecting a site for pearl culture such as the recommended temperature and salinity levels, recommended depth, mild water currents, etc. • Describe the process of conducting a feasibility study to determine profitability in carrying out pearl culture. • Explain the criteria for selecting a variety of oyster for pearl culture. • Describe the process of procuring and conditioning the pearl oysters. • List various material required for setting up a pearl culture farm. • Describe the process of setting up a pearl culture farm. • Describe the process of grafting pearl oysters and the applicable quality standards. • Explain the importance and process of maintaining the pearl culture water body. • Explain how to protect the pearl culture farm from extreme temperatures, dirt, chemicals, vandalism and theft. • Explain the health and disease management of the pearl oysters. • Describe the process of harvesting and marketing the pearls. • Describe the process of drying the harvested pearls to the recommended level to preserve their	• Demonstrate how to condition the oysters using disinfected water or recommended chemicals. • Demonstrate the process of preparing the rafts and floats in the recommended size and tie them using ropes. • Show how to apply anti-saline/ anti-corrosive paint if using steel barrels as floats. • Demonstrate the process of installing the rafts and floats in the water body according to the wind direction. • Demonstrate the process of preparing the grafts through co-ordination with the grafting technician. • Show how to create a scalpel slit in the soft tissue near the reproductive organ of the host oyster. • Demonstrate the process of inserting the graft into the slit after opening the host oyster using the necessary tools and equipment. • Demonstrate the process of inserting the nucleus in the scalpel slit to provoke the host oyster to cover the nucleus with pearl nacre. • Demonstrate the process of carrying out an x-ray examination of the oysters to check if the implant has been successful. • Show how to transfer the oysters with the successful implant to the pearl farm ensuring no damage to

lustre. ● State the relevant parameters for sorting and grading the harvested pearls.	them. ● Demonstrate how to place the oysters in lantern baskets/ pocket nets attached to the rafts and suspend them into water. ● Demonstrate the process of carrying out regular cleaning to remove fouling organisms from the water body and oyster shells. ● Show how to remove predators from the water body. ● Demonstrate the process of applying the appropriate treatment in the recommended dose to cure the unhealthy pearl oysters. ● Prepare a sample record of treatment used in the water body. ● Demonstrate the process of removing and disposing the dead pearl oysters and other waste as per the recommended practices. ● Demonstrate the use of the appropriate equipment to split open the oysters and cut the pearl bags to remove the pearls. ● Demonstrate the process of sorting and grading the harvested pearls on the applicable parameters. ● Prepare a sample record of sales and payments.
Classroom Aids:	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
PVC Pipes or Bamboos, Crates, Nylon Bags, Nylon Mesh, Nylon Twine, Feed NPK, Organic Manure, Lime, Plankton Net 1 litre Mug, Bucket, Bleaching Powder, Velvet Cloth (Small Piece) Small Saw, Filer (Tool) Plastic Boxes (Small)	

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

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Diploma	Regular Diploma more than 15 months in fisheries	3	Marine Fishery Production and management			
Graduate	Agriculture/ Fisheries/ Zoology	2	Marine Fishery Production and management			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	Fisheries Science/ B.Sc. Industrial Fish & Fisheries					

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "**Mariculture Farmer**", mapped to QP: "AGR/Q4909, 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". The 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		5	In Fisheries Science / Aquaculture / Applied aquaculture / Marine biology or related streams and fields			Practical skills and knowledge required in managing the overall operations of a sea farm, and maintaining cultivating and harvesting infrastructure
Graduation	Fisheries and related streams	5	In Fisheries Science / Aquaculture / Applied aquaculture / Marine biology or related streams and fields			Practical skills and knowledge required in managing the overall operations of a sea farm, and maintaining cultivating and harvesting infrastructure
M.F. Sc		2	In Fisheries Science / Aquaculture / Applied aquaculture / Marine biology or related streams and fields			Practical skills and knowledge required in managing the overall operations of a sea farm, and maintaining cultivating and harvesting infrastructure
Post-Graduation	Fisheries / Applied Aquaculture and related streams	2	In Fisheries Science / Aquaculture / Applied aquaculture / Marine biology or related streams and fields			Practical skills and knowledge required in managing the overall operations of a sea farm, and maintaining cultivating and harvesting infrastructure
PhD	Fisheries Science/ Aquaculture and related streams	1	In Fisheries Science / Aquaculture / Applied aquaculture / Marine biology or related streams and fields			Practical skills and knowledge required in managing the overall operations of a sea farm, and maintaining cultivating and harvesting infrastructure

Assessor Certification	
Domain Certification	**Platform Certification**
"**Mariculture Farmer**", "AGR/Q4909, 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 empanelled 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.

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 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

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