Model Curriculum

QP Name: Water Resource Supervisor

Electives: Watershed/Springshed/Groundwater

QP Code: AGR/Q6605

Version: 2.0

NSQF Level: 5.5

Model Curriculum Version: 1.0

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	Forestry, Environment and Renewable Energy Management
Occupation	Watershed Management
Country	India
NSQF Level	5.5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/NIL
Minimum Educational Qualification and Experience	Completed 3rd year of UG OR Pursuing 3rd year of UG and continuous education OR Completed 2nd year diploma after 12th OR 12th grade pass plus 2 years of vocational education and training with 1-year relevant experience OR Completed 3-year diploma (after 10th) with 2 years of relevant experience OR 12th grade pass with 3 years of relevant experience OR Previous relevant qualification of NSQF Level 5 with 1.5 years of relevant experience OR Previous relevant qualification of NSQF Level 4.5 with 3 years of relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	25 Years
Last Reviewed On	29/03/2023
Next Review Date	29/03/2026
NSQC Approval Date	29/03/2023
QP Version	2.0

Model Curriculum Creation Date	29/03/2023
Model Curriculum Valid Up to Date	29/03/2026
Model Curriculum Version	1.0
Minimum Duration of the Course	600 Hours
Maximum Duration of the Course	660 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:

- Explain the process of building technical capacities of water resource assistants, community mobilizers and para geo-hydrologists.
- Demonstrate the process of carrying out data management and analysis.
- Elucidate ways to support in regular field-level project monitoring and reporting.
- Demonstrate the process of carrying out water budgeting for the target area.
- Demonstrate various practices to ensure health and safety at work.
- Demonstrate the process of supervising watershed planning and implementation.
- Demonstrate the process of supervising springshed planning and implementation.
- Demonstrate the process of supervising planning and implementation of groundwater resource development.

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**	**00:00**	**05:00**
Module 1: Introduction to the role of a Water Resource Supervisor	05:00	00:00	0:00	00:00	05:00
AGR/N6645: Build technical capacities of water resource assistants, community mobilizers, para geo-hydrologists, and facilitators **NOS Version- 1.0** **NSQF Level- 5.5**	**25:00**	**30:00**	**0:00**	**00:00**	**55:00**
Module 2: Process of building technical capacities of water resource assistants, community mobilizers, para geo-hydrologists, and facilitators	25:00	30:00	0:00	00:00	55:00
AGR/N6638: Carry out data management and analysis **NOS Version- 1.0** **NSQF Level- 5.5**	**30:00**	**60:00**	**0:00**	**00:00**	**90:00**

Module 3: Process of carrying out data management and analysis	30:00	60:00	0:00	00:00	90:00
AGR/N6639: Support in regular field-level project monitoring and Reporting **NOS Version- 1.0** **NSQF Level- 5.5**	**60:00**	**30:00**	**0:00**	**00:00**	**90:00**
Module 4: Process of supporting in regular field-level project monitoring and reporting	60:00	30:00	0:00	00:00	90:00
AGR/N6640: Carry out water budgeting for the target area **NOS Version- 1.0** **NSQF Level- 5.5**	**55:00**	**35:00**	**0:00**	**00:00**	**90:00**
Module 5: Process of carrying out water budgeting for the target area	55:00	35:00	0:00	00:00	90:00
AGR/N9903 Maintain health and safety at the workplace **NOS Version- 3.0** **NSQF Level- 4**	**05:00**	**25:00**	**0:00**	**00:00**	**30:00**
Module 6: Hygiene and cleanliness	02:00	10:00	0:00	00:00	12:00
Module 7: Safety and emergency procedures	03:00	15:00	0:00	00:00	18:00
DGT/VSQ/N0103: Employability Skills **NOS Version- 1.0** **NSQF Level- 5**	**90:00**	**00:00**	**0:00**	**00:00**	**90:00**
Module 8: Employability Skills	90:00	00:00	0:00	00:00	90:00
Total Duration	**270:00**	**180:00**	**0:00**	**00:00**	**450:00**
OJT: 120 Hours					

Elective Modules

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

Elective 1: Watershed

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N6641: Supervise watershed planning and implementation NOS Version- 1.0 NSQF Level- 5.5	10:00	20:00	0:00	00:00	30:00
Module 9: Process of supervising watershed planning and implementation	10:00	20:00	0:00	00:00	30:00
Total Duration	10:00	20:00	0:00	00:00	30:00

Elective 2: Springshed

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N6642: Supervise springshed planning and implementation NOS Version- 1.0 NSQF Level- 5.5	10:00	20:00	0:00	00:00	30:00
Module 10: Process of supervising springshed planning and implementation	10:00	20:00	0:00	00:00	30:00
Total Duration	10:00	20:00	0:00	00:00	30:00

Elective 3: Groundwater

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N6643: Supervise the planning and implementation of groundwater resource development NOS Version- 1.0 NSQF Level- 5.5	10:00	20:00	0:00	00:00	30:00
Module 11: Process of supervising the planning and implementation of	10:00	20:00	0:00	00:00	30:00

groundwater resource development					
Total Duration	**10:00**	**20:00**	**0:00**	**00:00**	**30:00**

Module Details

Module 1: Introduction to the role of a Water Resource Supervisor
Bridge Module

Terminal Outcomes:

- Discuss the job role of a Water Resource Supervisor.

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 Water Resource Supervisor. - Identify various employment opportunities for a Water Resource Supervisor.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 2: Process of building technical capacities of water resource assistants, community mobilizers, para geo-hydrologists, and facilitators
Mapped to ARG/N6645 v1.0

Terminal Outcomes:

- Explain the process of preparing for the training.
- Elucidate ways to deliver the technical training.

Duration: 25:00	Duration: 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the principles of pedagogy, including how to engage with the learners, ice-breakers, etc. - Elucidate the role and background of learners. - List the relevant health and safety facilities required for the training, such as first aid box, fire extinguishers, etc. - Explain the importance of selecting the appropriate training material according to the learners. - Describe different formats and templates for various forms and reports. - Explain the importance of using the appropriate tools and technologies for delivering training. - Explain the importance of liaising with the relevant stakeholders, such as line department officials, universities, research organizations, etc., for resource mobilization. - Describe the process of preparing and finalizing the budget for the training and getting it approved by the relevant authority. - Elucidate the importance and methods of taking feedback from learners after training to identify and plan improvements. - Explain the importance of regularly interacting with the learners to resolve any issues experienced after the training or give them required	- Prepare a sample training module and training calendar based on the need assessment. - Show how to prepare the training material, e.g. presentations, posters, reference booklets, etc. - Roleplay how to conduct classroom/ virtual/ practical training for the facilitators and other stakeholders, such as government officials. - Demonstrate how to prepare and compile the training reports.

clarifications.

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

White Board, Measuring Tape, Hammer, Audio/ Visual Aids, Installed Video camera with high resolution and recording facility, L Scale, A Frame Construction model, Computer, Mason pipe, Wooden Pole for pipe level, Survey of India Topo sheet, Cadastral Maps, Plum bob

Module 3: Process of carrying out data management and analysis
Mapped to ARG/N6638 v1.0

Terminal Outcomes:

- Explain the process of guiding in data collection.
- Demonstrate the process of analysing the collected data.
- Demonstrate the process of carrying out audit-related reporting and documentation.

Duration: 30:00	Duration: 60:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain different types of available maps, their source, and how to read them. - Explain how to prepare composite maps. - Describe different methods of data analysis and the tools required. - Describe different methods of impact assessment. - Explain how to draw relevant graphs. - Explain the use of relevant software tools and mobile applications. - Describe the process of preparing a yearly calendar for data collection and setting up a monitoring network. - Describe different sources and methods for the collection of primary and secondary data. - Describe the process of estimating the budget for data collection and taking approval from the relevant authority. - Explain the importance of verifying the collected data for completeness and correctness and ensuring appropriate corrective measures are taken by the field functionaries. - Explain how to manage data using Management Information System (MIS). - Describe the process of data curation, including analysis, interpretation, visualization, dissemination and demystification for communities.	- Prepare sample yearly calendar for data collection and set up a monitoring network. - Demonstrate the process of preparing the appropriate formats and templates for data collection. - Prepare sample composite map using the collected data and cadastral map, toposheets, PRA maps, etc. - Demonstrate the process of carrying out data curation, including analysis, interpretation, visualization, dissemination and demystification for communities. - Show how to conduct an impact assessment, e.g. baseline vs endline, control vs test, case studies, change in the cropping pattern and irrigation method, etc. - Demonstrate how to maintain the books of accounts, monitoring and tracking the use of funds.

• Describe the appropriate methods for conducting an impact assessment, e.g. baseline vs endline, control vs test, case studies, change in the cropping pattern and irrigation method, etc. • Explain the importance of analysing the annual water budget along with the interventions undertaken to identify the gaps and determine the further course of action. • Elucidate the temporal and spatial analysis of the impact on land use pattern, water productivity and water use efficiency. • Explain the applicable audit-related reporting and documentation requirements.	

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

Installed Video camera with high resolution and recording facility, Hammer, Mason pipe, Measuring Tape, Wooden Pole for pipe level, A Frame Construction model, Cadastral Maps, Survey of India Topo sheet, Audio/ Visual Aids, Computer, Plum bob, L Scale

Module 4: Process of supporting in regular field-level project monitoring and reporting

Mapped to AGR/N6639 v1.0

Terminal Outcomes:

- Explain the process of supporting in regular field-level project monitoring.
- Explain the process of supporting in periodic field-level reporting of the progress.

Duration: 60:00	Duration: 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the use of relevant templates and formats for monitoring and reporting project progress. - Explain different ways of conducting IEC activities and the materials used. - Describe project milestones, budget and applicable Key Performance Indicators (KPIs). - State technical specifications of different water conservation structures. - Elucidate different frameworks for assessing the performance of field functionaries and ways of encouraging them. - Explain the use of relevant monitoring and reporting software tools and mobile applications, such as Management Information System (MIS) and Geographic Information System (GIS)-based tools, etc. - Explain the importance of regular monitoring to ensure good quality implementation of physical structures. - Describe the process of monitoring the sensitization and Information, Education and Communication (IEC) activities. - Describe the process of monitoring the physical and financial progress of the project. - Explain the importance and process of monitoring the functioning of governance institutions and adherence	- Roleplay how to conduct regular monitoring to ensure good quality implementation of physical structures. - Roleplay how to conduct regular monitoring of sensitization and Information, Education and Communication (IEC) activities. - Demonstrate the process of monitoring and analysing the performance of field functionaries. - Demonstrate the use of data, decision support tools, appropriate formats, templates and framework to conduct regular monitoring. - Prepare training, sensitization and IEC activity reports in the prescribed formats. - Prepare the progress and impact reports as per the project requirements.

to bylaws concerning the water resource usage.

- Explain the importance of monitoring the impact of interventions on underprivileged sections of the community.

- Elucidate how to curate challenges from the field to help inform changes in program design, capacity building and other areas.

- Explain the use of relevant data, decision support tools, appropriate formats, templates and frameworks for monitoring.

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

Installed Video camera with high resolution and recording facility, Hammer, Mason pipe, Measuring Tape, Wooden Pole for pipe level, A Frame Construction model, Cadastral Maps, Survey of India Topo sheet, Audio/ Visual Aids, Computer, Plum bob, L Scale

Module 5: Process of carrying out water budgeting for the target area
Mapped to AGR/N6640 v1.0

Terminal Outcomes:

- Explain the importance of ensuring data collection for water budgeting.
- Demonstrate the process of carrying out water budgeting and support in presenting the findings.
- Explain the importance of ensuring follow-up and development of a plan.

Duration: 55:00	Duration: 35:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the water and water-related issues, i.e. accessibility, availability, quality, social issues, traditional knowledge and practices holistically. - Explain the significance of water budgeting in the planning of water resource planning and development interventions. - Explain the importance of discussing water budgeting results with the village community for the preparation of a water use plan. - Describe the relevant quality management processes. - Explain different water management techniques. - Describe standard procedures for water budgeting. - Explain the basics of hydraulics such as pressure, flow and hydrological cycle. - Explain the basics and norms of the calculation of water requirement for drinking, domestic and crop-water. - List different types of pumps, piping networks, PVC fittings and their applications - Explain how to prepare the seasonal calendar for data collection. - Describe the process of collecting data and preparing the appropriate formats and templates. - Explain the importance and process of	- Prepare sample seasonal calendar for data collection. - Show how to prepare the necessary metrics related to water resource development to track the performance at the required level of the institution in consultation with senior officials. - Demonstrate the process of preparing the appropriate formats and templates. - Show how to compile and organise the data for analysis. - Prepare a sample pictogram on water budgeting - Roleplay how to conduct regular review meetings with field functionaries.

verifying the collected data for completeness and correctness.

- Explain the importance of sensitizing the community about water governance and budgeting.

- Explain the importance of presenting the water budgeting findings to the community in a timely manner.

- Explain the importance of conducting regular review meetings with field functionaries.

- Explain the importance of taking community feedback on the findings of water budgeting.

- Describe the process of preparing a plan based on the water budgeting findings and community feedback.

- Explain the relevant metrics to track the performance of water resource development programs.

- Explain the importance of checking the implementation and effectiveness of the action plan.

- Elucidate the benefits and different types of water harvesting, e.g. rooftop water harvesting and surface runoff harvesting.

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

NA

Module 6: Hygiene and cleanliness

Mapped to NOS AGR/N9903 v3.0

Terminal Outcomes:

- Discuss how to adhere to personal hygiene practices.
- Demonstrate ways to ensure cleanliness around the workplace.

Duration: 02:00	Duration: 10:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the requirements of personal health, hygiene and fitness at work. - Describe common health-related guidelines laid down by the organizations/ Government at the workplace - Explain the importance of good housekeeping at the workplace. - Explain the importance of informing the designated authority on personal health issues related to injuries and infectious diseases.	- Demonstrate personal hygiene practices to be followed at the workplace. - Demonstrate the correct way of washing hands using soap and water, and alcohol-based hand rubs. - Demonstrate the steps to follow to put on and take off a mask safely. - Show how to sanitize and disinfect one's work area regularly. - Demonstrate adherence to the workplace sanitization norms. - Show how to ensure the cleanliness of the work area.
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	

Module 7: Safety and emergency procedures
Mapped to NOS AGR/N9903 v3.0

Terminal Outcomes:

- Describe how to adhere to safety guidelines.
- Show how to administer appropriate emergency procedures.

Duration: 03:00	Duration: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- List the Personal Protective Equipment (PPE) required at the workplace. - Describe the commonly reported hazards at the workplace. - Describe the hazards caused due to chemicals/pesticides/fumigants. - Describe the basic safety checks to be done before the operation of any equipment/machinery. - Describe the common first aid procedures to be followed in case of emergencies. - State measures that can be taken to prevent accidents and damage s at the workplace. - Explain the importance of reporting details of first aid administered, to the reporting officer/doctor, in accordance with workplace procedures - State common health and safety guidelines to be followed at the workplace.	- Check various areas of the workplace for leakages, water-logging, pests, fire, etc. - Demonstrate how to safely use the PPE and implement it as applicable to the workplace. - Display the correct way of donning, doffing and discarding PPE such as face masks, hand gloves, face shields, PPE suits, etc. - Sanitize the tools, equipment and machinery properly. - Demonstrate the safe disposal of waste. - Demonstrate procedures for dealing with accidents, fires and emergencies. - Demonstrate emergency procedures to the given workplace requirements. - Demonstrate the use of emergency equipment in accordance with manufacturers' specifications and workplace requirements. - Demonstrate the administration of first aid. - Prepare a list of relevant hotline/ emergency numbers
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and Software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Personal Protective Equipment, First Aid Kit, Equipment used in Medical Emergencies.	

Module 8: Employability Skills

Mapped to NOS DGT/VSQ/N0103 v1.0

Duration: 90:00

Key Learning Outcomes

Introduction to Employability Skills Duration: 3 Hours

After completing this programme, participants will be able to:

1.   Outline the importance of Employability Skills for the current job market and future of work
2.   List different learning and employability related GOI and private portals and their usage
3.   Research and prepare a note on different industries, trends, required skills and the available opportunities

Constitutional values – Citizenship Duration: 1.5 Hours

4.   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
5.   Demonstrate how to practice different environmentally sustainable practices

Becoming a Professional in the 21st Century Duration: 5 Hours

6.   Discuss relevant 21st century skills required for employment
7.   Highlight the importance of practicing 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
8.   Create a pathway for adopting a continuous learning mindset for personal and professional development

Basic English Skills Duration: 10 Hours

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

Career Development & Goal Setting Duration: 4 Hours

12.   Create a career development plan
13.   Identify well-defined short- and long-term goals

Communication Skills Duration: 10 Hours

14.   Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette
15.   Write a brief note/paragraph on a familiar topic
16.   Explain the importance of communication etiquette including active listening for effective communication
17.   Role play a situation on how to work collaboratively with others in a team

Diversity and Inclusion Duration: 2.5 Hours

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

Financial and Legal Literacy Duration: 10 Hours

20.   Discuss various financial institutions, products, and services

21. Demonstrate how to conduct offline and online financial transactions, safely and securely and check passbook/statement
22. Explain the common components of salary such as Basic, PF, Allowances (HRA, TA, DA, etc.), tax deductions
23. Calculate income and expenditure for budgeting
24. Discuss the legal rights, laws, and aids

Essential Digital Skills Duration: 20 Hours
25. Describe the role of digital technology in day-to-day life and the workplace
26. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
27. Demonstrate how to connect devices securely to internet using different means
28. Follow the dos and don'ts of cyber security to protect against cyber crimes
29. Discuss the significance of displaying responsible online behavior while using various social media platforms
30. Create an e-mail id and follow e- mail etiquette to exchange e -mails
31. Show how to create documents, spreadsheets and presentations using appropriate applications
32. utilize virtual collaboration tools to work effectively

Entrepreneurship Duration: 7 Hours
33. Explain the types of entrepreneurship and enterprises
34. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
35. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
36. Create a sample business plan, for the selected business opportunity

Customer Service Duration: 9 Hours
37. Classify different types of customers
38. Demonstrate how to identify customer needs and respond to them in a professional manner
39. Discuss various tools used to collect customer feedback
40. Discuss the significance of maintaining hygiene and dressing appropriately

Getting ready for apprenticeship & Jobs Duration: 8 Hours
41. Draft a professional Curriculum Vitae (CV)
42. Use various offline and online job search sources to find and apply for jobs
43. Discuss the significance of maintaining hygiene and dressing appropriately for an interview
44. Role play a mock interview
45. List the steps for searching and registering for apprenticeship opportunities

Module 9: Process of supervising watershed planning and implementation

Mapped to AGR/N6641 v1.0

Terminal Outcomes:

- Explain ways to read and analyse the relevant maps.
- Explain the process of supervising watershed planning and preparing the DPR.
- Describe the process of supervising the implementation.

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Describe the watershed concept, including the ridge area, ridge line, drainage line, etc. - Describe the process of compiling data and preparing a DPR. - Elucidate the significance of geohydrology in watershed planning. - Describe the procedures related to socio-technical concepts and practices in participatory and integrated watershed management. - Discuss the relevant watershed planning exercises followed by the organization. - Explain the soil and water conservation technologies, social mobilization tools, research methodologies and the appropriate watershed planning tools. - Explain the basics of handling teams of different expertise. - Explain how to calculate the watershed area on the toposheet. - Explain the use of different types of maps in watershed planning. - Describe the process of assessing the quality of water. - Explain the importance of explaining the DPR to the field functionaries. - Explain the importance of presenting the DPR to the community and watershed committee. - Discuss the relevant worksite management practices, such as layout	- Demonstrate how to read and analyse the toposheet, cadastral, spatial and other thematic maps. - Demonstrate the process of demarcating the watershed boundary on toposheet. - Demonstrate the process of carrying out a detailed technical survey, e.g. L-section, cross-section, and estimation of major water harvesting structures. - Prepare sample seasonal calendar for the implementation of watershed interventions. - Demonstrate the process of verifying completion of work and preparing the work completion report. - Demonstrate the process of preparing of payment sheet and disbursement of wages.

marking, labour management, work allotment, measurements, etc. • List the different records to be maintained by field functionaries. • Describe the process of verifying the completion of work and preparing the work completion report.	

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

ASCI
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N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

Module 10: Process of supervising springshed planning and implementation

Mapped to AGR/N6642 v1.0

Terminal Outcomes:

- Describe the process of reading and analysing the relevant maps.
- Explain the process of supervising springshed planning and preparing the DPR.
- Describe the process of supervising the implementation.

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the watershed concept, including the ridge area, ridge line, drainage line, etc. - Describe the process of compiling data and preparing a DPR. - Explain the significance of geohydrology in watershed planning. - Describe the procedures related to socio-technical concepts and practices in participatory and integrated watershed management. - State the relevant watershed planning exercises followed by the organization. - Explain the basics of handling teams of different expertise. - Describe the process of demarcating the springshed boundary and calculating the springshed area. - Explain the use of different types of maps in springshed planning. - Explain how to conduct baseflow measurement, survey, site selection and cost estimation. - List different types of data required for the preparation of a DPR in a springshed project. - Explain how to summarize the DPR to the field functionaries. - Explain the importance of presenting the DPR to the community and springshed committee. - Discuss the relevant worksite	- Demonstrate how to read and analyse the toposheet, cadastral, spatial and other thematic maps. - Show how to demarcate the springshed boundary. - Show how to calculate the springshed area. - Demonstrate the use of different maps in springshed planning. - Demonstrate the process of carrying out detailed technical surveys for spring chamber, catchment protection measures, diversion-based water distribution system, and estimation of different water conservation and distribution structures. - Show how to summarize the DPR to the field functionaries. - Prepare sample seasonal calendar for the implementation of springshed interventions - Demonstrate the process of verifying completion of work and preparing the work completion report. - Show how to prepare payment sheet and disbursement of wages.

| management practices in springshed resource management, such as layout marking, labour management, work allotment, measurements, etc. | |

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

Module 11: Process of supervising the planning and implementation of groundwater resource development

Mapped to AGR/N6643 v1.0

Terminal Outcomes:

- Describe the process of reading and analysing the relevant maps.
- Explain the process of supervising the groundwater resource development planning.
- Explain the process of supervising the preparing the DPR.
- Describe the process supervising the implementation.

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the use of different types of relevant maps in groundwater resource development planning. - Describe the process of conducting field surveys, selecting appropriate sites and estimating the costs for groundwater resource development. - Describe the process of assessing the quality of groundwater. - List different types of data required for the preparation of a DPR for groundwater resource development. - Describe the process of conducting technical surveys for recharge and discharge structures, - catchment protection measures, water distribution/ sharing systems, and estimation of different water conservation and distribution structures. - Explain the importance of presenting the explaining the DPR to the community, groundwater management committee or other relevant committees. - Discuss the relevant worksite management practices, such as layout marking, labour management, work allotment, measurements, etc. - Explain how to maintain different types of records, such as the cashbook, ledger, stock register, attendance	- Demonstrate how to read and analyse the aquifer, geological, cadastral, spatial and other thematic maps. - Show how to analyse the water table contour lines. - Demonstrate the process of carrying out detailed technical surveys for recharge and discharge structures, catchment protection measures, water distribution/ sharing system, and estimation of different water conservation and distribution structures. - Show how to assist in compilation and analysis of data for DPR preparation. - Demonstrate the process of summarizing the DPR to the field functionaries. - Prepare sample seasonal calendar for the implementation of groundwater resource development interventions. - Demonstrate the process of verifying completion of work and preparing the work completion report. - Demonstrate the process of preparing payment sheet and disbursement of wages.

sheet, measurement book, etc.	

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

Module 12: On-the-Job Training

Mapped to Water Resource Supervisor

Mandatory Duration: 120:00	Recommended Duration: 00:00
Location: On-Site	

Terminal Outcomes

- Explain different ways of conducting IEC activities and the materials used.
- Conduct a need assessment in the learners' project areas.
- Prepare the training modules and calendar.
- Compile and organise the data for analysis.
- Use various government services online or through UMANG mobile app, such as Aadhaar updates, Voter ID applications, passport applications, driver's license appointments, etc.
- Use the social networking websites and mobile apps to access the relevant information and connect with other social media users.
- Recycle the recyclable waste and dispose of the toxic and non-recyclable waste following the appropriate methods.
- Use the PPE and implement it as applicable to the workplace.
- Read and analyse the aquifer, geological, cadastral, spatial and other thematic maps.
- Carry out detailed technical surveys for recharge and discharge structures, catchment protection measures, water distribution/ sharing system, and estimation of different water conservation and distribution structures.

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Diploma	Diploma in Natural Resource Management/ Watershed Management/ Commerce/ Agriculture/ Agriculture Engineering/ Civil Engineering/ Agri-Business Management	3	Watershed Management	0		
Graduate	Graduate in Natural Resource Management, Commerce/ Agriculture/ Agriculture Engineering/ Civil Engineering/ Agri-Business Management	2	Watershed Management	0		For school Program minimum qualification of Trainer should be Graduate (in Natural Resource Management, Commerce / Agriculture/ Agriculture Engineering/ Civil Engineering/ Agri-Business Management). Their Teaching experience will be considered industry experience
Post Graduate	Post Graduate in Natural Resource Management, Commerce/ Agriculture/ Agriculture Engineering/ Civil Engineering/ Agri-Business Management	0	Watershed Management	0		

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "**Water Resource Supervisor**", mapped to QP: "AGR/Q6605, v2.0", 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 Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduation	B. Sc (Environmental Science & Ecology/ Agriculture/ Geoscience/ Natural Resource Management/ Biological Sciences/ Ecology and Conservation/ Agriculture engineering/ Agriculture or related streams and fields)	5	In Watershed/ Agriculture/ Agriculture engineering/ Environmental engineering/ Ecology/ Natural Resource Management/ Geoscience/ Civil Engineering or related streams and fields			Practical skills and knowledge required in Watershed management
Graduation	B. Tech (Agricultural engineering and related streams)	5	In Watershed/ Agriculture/ Agriculture engineering/ Environmental engineering/ Ecology/ Natural Resource Management/ Geoscience/ Civil Engineering or related streams and fields	0		Practical skills and knowledge required in Watershed management
Post-Graduation	M. Tech (Agricultural engineering and related streams)	2	In Watershed/ Agriculture/ Agriculture Engineering/ Environmental engineering/ Ecology/ Natural Resource Management/ Geoscience/ Civil Engineering or related streams and fields			Practical skills and knowledge required in Watershed management
Post-Graduation	M Sc (Agriculture/ Environmental Science & Ecology/ Geoscience/ Natural Resource Management/ Biological Sciences/ Ecology and Conservation/	2	In Watershed/ Agriculture/ Agriculture Engineering/ Environmental engineering/ Ecology/ Natural Resource Management/ Geoscience/ Civil	0		Practical skills and knowledge required in Watershed management

	Agriculture engineering/ Agriculture or related streams and fields)		Engineering or related streams and fields			
PhD	PhD (Agriculture/ Environmental Science & Ecology/ Geoscience/ Natural Resource Management/ Biological Sciences/ Ecology and Conservation/ Agriculture engineering/ Agriculture or related streams and fields)	1	In Watershed/ Agriculture/ Agriculture Engineering/ Environmental engineering/ Ecology/ Natural Resource Management/ Geoscience/ Civil Engineering or related streams and fields			Practical skills and knowledge required in Watershed management

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "**Water Resource Supervisor**", mapped to QP: "AGR/Q6605, v1.0", 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. <u>Multiple Choice Questions</u>: To assess basic knowledge (Objective/Subjective)
2. <u>Viva:</u> To assess awareness on processes (Oral and/or written questioning)
3. <u>Practical:</u> 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.

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:
  - o Signed Attendance sheet
  - o Assessor feedback sheet

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