Professional Borehole Drilling Procurement & Contract Management Syllabus

Course Overview

Access to clean water depends on more than good intentions—it depends on good project management. When borehole drilling projects fail, communities often return to unsafe water sources. Poor procurement, weak contracts, and incomplete documentation are among the most common reasons projects fail.

This course follows a fictional character, Adisa, a project manager and her team at a non-governmental organization (NGO) called Aqua Reach, as she manages a borehole drilling project from start to finish. Across six units, you will learn how to plan a team, run a fair procurement process, award a contract, supervise drilling, and close out a project properly.

The course draws on the UNICEF Borehole Drilling Toolkit and expert practices in water, sanitation, and hygiene (WASH) project management.

Who this Course is For

This course is designed for professionals working in borehole drilling project management in low- and middle-income country contexts. This includes staff at service providers (NGOs, government agencies, and private utilities), staff at surveillance and regulatory agencies, and development partners who advise governments or manage water programs.

Relevant roles include project managers, field engineers, drilling supervisors, hydrogeologists, finance officers, and WASH specialists.

What You'll Learn (Course Outcomes)

Upon completing this course, you'll be able to:

Explain the key responsibilities of a borehole drilling project manager across all phases of a project.

Build a project team with clearly defined roles and a realistic schedule.

Review hydrogeological reports and verify that site assessments meet national standards.

Prepare a procurement plan and manage pre-bid and post-bid activities.

Conduct a fair, transparent bid evaluation and award a drilling contract.

Oversee project implementation, including site verification, mobilization, and active drilling supervision.

Complete proper project closeout, including documentation, demobilization, and lessons learned.

How You'll Learn

This is a **self-paced online** course. It uses a **scenario-based learning** approach which builds not only technical knowledge, but also the professional judgment needed to hold standards under pressure. You'll follow Adisa and her team as they navigate common challenges in a borehole drilling project. Each unit presents **realistic decisions**, **conversations**, and **problems** that reflect what practitioners encounter in the field.

Learning activities include **interactive exercises**, **branching decision scenarios**, **role-play conversations**, **knowledge checks**, and **reflections** that will help you connect the team's case to your own professional context. You will be prompted to download and use a Procurement Plan Guide for parts of the course. and **downloadable field tools** are also available within the course or in the Course Resources section.

Format: Online, independent study, self-paced
Time Commitment: Approximately five hours per week for up to six weeks
Language: English
Prerequisites (Highly Recommended): Introduction to the Science of Groundwater, Introduction to Borehole Drilling Projects

Participation: Though you will study the content on your own time, you are required to engage in active discussions in every unit. These discussions will enrich your understanding of the content and allow you to interact with other professionals.

Course Outline

Unit 1 | Understanding Your Role in Borehole Drilling

The seven phases of a drilling project; the project manager's responsibilities; the role of contracts; the link between transparent procurement and project success; recordkeeping and documentation.

Unit 2 |Building a Team and Closing the Gaps

Building a project team with clear roles; creating a project schedule; reviewing hydrogeological reports and site assessments; community engagement; national regulations and permits.

Unit 3 | The Procurement Plan and Pre-Bid Activities

Preparing a procurement plan; contractor prequalification; bills of quantities (BOQ); technical specifications; the invitation to bid (ITB); document consistency checks.

Unit 4 | Project Procurement and Contract Award

Pre-bid meetings; bid evaluation using technical and financial criteria; contractor verification; contract finalization; roles of the evaluation committee; contract review and approval.

Unit 5 | Project Implementation – Drilling

Post-contract preparation; site verification; premobilization inspection; mobilization and safety setup; drilling supervision; authorizations and progress monitoring; pumping tests and water quality.

Unit 6 | Project Wrap-Up

Project closeout requirements; handling unsuccessful boreholes; demobilization and supervisor sign-off; data management and recordkeeping; final reporting; lessons learned.

Completion and Certificate

To receive a Certificate of Completion, you must meet all three of the following requirements:

Complete all lessons and activities.

Discussions: Your discussion posts must be 75–150 words. You must also respond to at least one post from another participant.

Final Exam: You must score 80% or higher to pass. You may take the exam as many times as needed.

Acknowledgments

This course was made possible through the collaboration and support of subject matter expertise and a broad-based advisory from the industry.

Content draws on internationally recognized guidance from the Rural Water Supply Network (RWSN) and the UNICEF Drilling Toolkit, adapted for professional training in procurement and contract management, and borehole drilling supervision.