Training Course on Smart Water Harvesting and Storage Technologies

Professional Development Training Course Outline

Category	Agriculture	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

With increasing climate variability, rising water scarcity, and unsustainable usage of freshwater resources, Smart Water Harvesting and Storage Technologies have become essential for sustainable development. Training Course on Smart Water Harvesting and Storage Technologies introduces cutting-edge, climate-resilient water management strategies designed to optimize water collection, improve water storage efficiency, and enhance agricultural productivity and water security. By leveraging innovative digital tools, smart irrigation, and community-based solutions, participants will learn how to implement sustainable water solutions tailored to diverse environments.

This course is ideal for water resource managers, agricultural officers, engineers, and climate change professionals. With hands-on modules and real-life case studies, the training empowers participants to build climate-smart water systems using IoT-enabled monitoring, GIS-based planning, and cost-effective storage technologies such as percolation tanks, rooftop rainwater systems, and recharge pits. The program ensures learners develop skills that are actionable, data-driven, and environmentally sustainable.

Programme Curriculum

Training Course on Smart Water Harvesting and Storage Technologies

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Course Objectives

1. Understand climate-smart water harvesting systems.
2. Identify low-cost, high-impact rainwater collection technologies.
3. Implement IoT-enabled water monitoring and storage systems.
4. Analyze data-driven water budgeting and planning tools.
5. Design rooftop rainwater harvesting systems for urban settings.
6. Evaluate recharge well and percolation tank efficiencies.
7. Promote decentralized and community-led water harvesting.
8. Integrate smart irrigation systems with water storage planning.
9. Apply GIS and remote sensing in water resource mapping.
10. Optimize water use efficiency using AI and automation tools.
11. Design drought-resilient storage systems for semi-arid regions.
12. Ensure water quality through smart filtration and testing tools.
13. Develop policy and finance models for water harvesting projects.

Target Audiences

1. Water Resource Managers
2. Agricultural Extension Officers
3. Environmental Engineers
4. Climate Change Practitioners
5. Urban Planners
6. Rural Development Officers
7. NGOs and Community Leaders
8. Students and Researchers in Environmental Studies

Course Duration: 5 days

Course Modules

Module 1: Introduction to Smart Water Harvesting

- Overview of water scarcity and climate impacts
- Principles of sustainable water harvesting
- Role of technology in smart water collection
- Classification of traditional vs. smart systems
- Key policy and institutional frameworks
- **Case Study**: Smart rainwater harvesting in Rajasthan, India

Module 2: Rainwater Collection Technologies

- Rooftop harvesting systems design
- Rain barrels, ferrocement tanks, and storage options
- First flush devices and filtration units
- Economic and environmental benefits
- Design calculations and water budgeting
- **Case Study**: Rooftop harvesting in Nairobi schools

Module 3: Smart Storage Solutions

- Groundwater recharge wells
- Percolation tanks and check dams
- Underground and above-ground storage tanks
- Materials selection and cost analysis
- Water retention and loss prevention techniques
- **Case Study**: Decentralized storage tanks in Ethiopia

Module 4: IoT & Automation in Water Monitoring

- Sensors for real-time water level tracking
- Smart meters and automated valves
- Data analytics for water demand forecasting
- Remote monitoring via mobile apps
- Integration with irrigation and alarm systems
- **Case Study**: IoT-based system in Maharashtra farms

Module 5: GIS and Remote Sensing for Water Mapping

- Basics of GIS and satellite imagery
- Watershed mapping and digital elevation models
- Identifying suitable harvesting sites
- Monitoring catchment area changes
- Data interpretation using open-source tools
- **Case Study**: GIS planning in Kenya’s arid zones

Module 6: Smart Irrigation Systems

- Drip and sprinkler system planning
- Soil moisture sensors and automation
- Energy-efficient pumps and solar integration
- Water-efficient crop planning
- Impact assessment and yield optimization
- **Case Study**: Precision irrigation in Israel

Module 7: Community-Based Water Management

- Community mobilization and training
- Gender roles in water harvesting
- Operation and maintenance models
- Participatory water governance
- Capacity-building frameworks
- **Case Study**: Community-led tanks in Uganda

Module 8: Financing & Policy for Water Projects

- Government and NGO funding sources
- Public-private partnership models
- Cost-benefit analysis for harvesting projects
- National water policies and incentives
- Preparing funding proposals and reports
- **Case Study**: World Bank-funded water project in Tanzania

Training Methodology

- Interactive lectures and real-world demonstrations

- Hands-on technical workshops with tools and models
- Case study analysis and group presentations
- GIS lab sessions and IoT integration demos
- Pre-and post-assessment evaluations
- Field visits (optional, depending on delivery format)

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com