

Experts Dialogue on Challenges in Designing and Implementing CityWide Inclusive Sanitation (CWIS) Projects

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Activities of ISO TC224/WG8 on Onsite Domestic Wastewater Management

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The Global Sanitation Reality

3.8 Billion

people use ODWS



3.5 Billion

connected to sewers



Achieving SDG 6.2 (universal sanitation) and SDG 6.3 (water quality) is mathematically **impossible without engineering and standardizing decentralized systems**. ODWS are not temporary alternatives; they are permanent, vital urban infrastructure.

The Genesis of ISO TC224/WG8

2002

ISO TC224 established (Drinking water, wastewater, and stormwater systems).

2011

WG8 (Onsite domestic wastewater management) established specifically to bridge the global standards gap for decentralized systems, shifting the paradigm from precarious housing to engineered infrastructure.

Supported by the Japan Education Center of Environmental Sanitation (JECES).

Present

Development of a comprehensive suite of interconnected ISO standards governing the entire ODWS lifecycle.

The ODWS ISO Triad: An Integrated Framework

The Sanitation Pillar Model

The Hardware (Creation): ISO 26071

Scope: Planning, Design, Manufacturing, and Construction of ODWS.

Role: Translates management goals into physical reality. Governs structural integrity, hydraulic flow, and environmental safeguards to prevent physical failure.

The Foundation: ISO 24521:2025

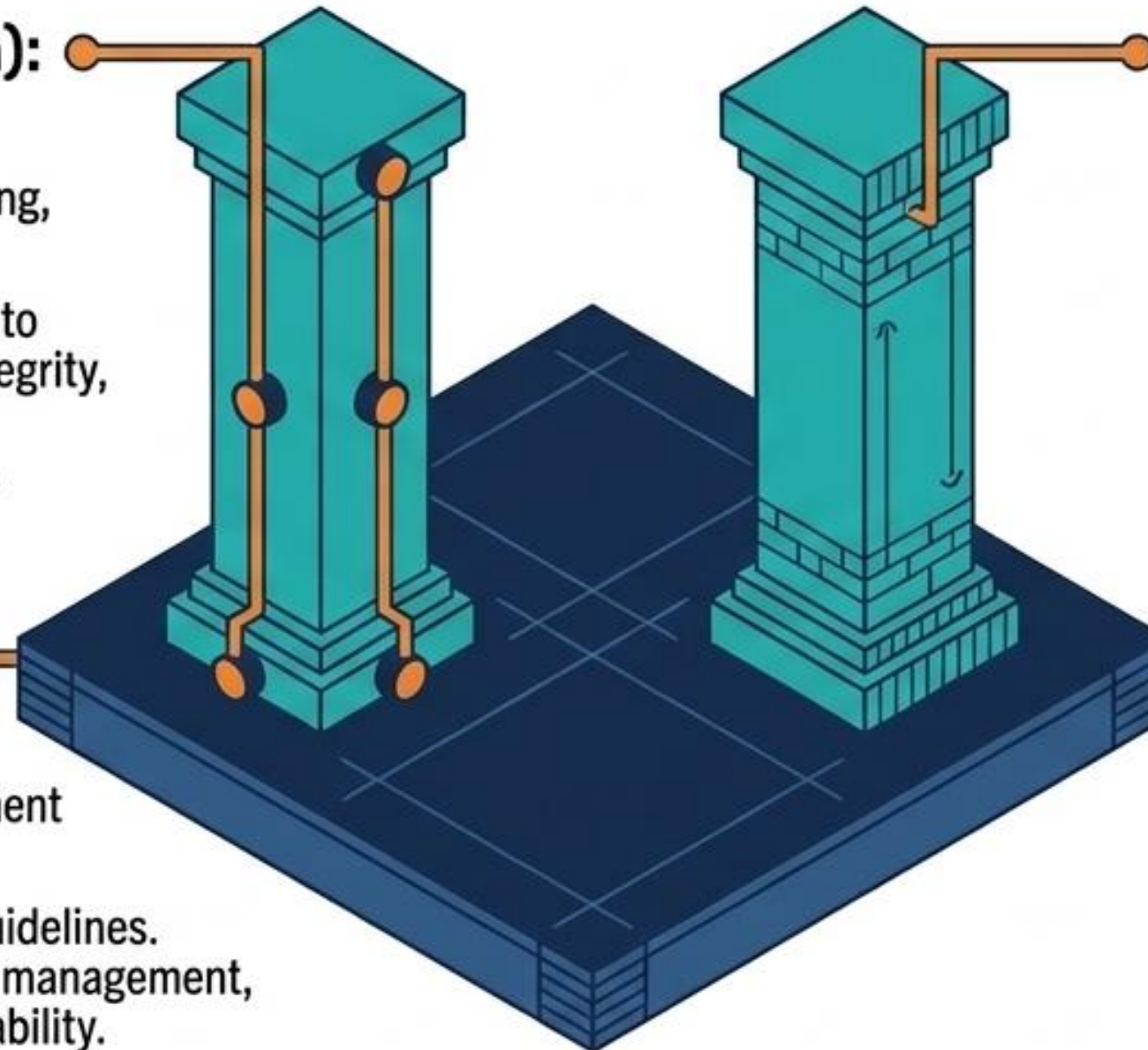
Scope: General Principles & Management of ODWS.

Role: The overarching management guidelines. Focuses on stakeholder relations, risk management, and overall socio-economic system viability.

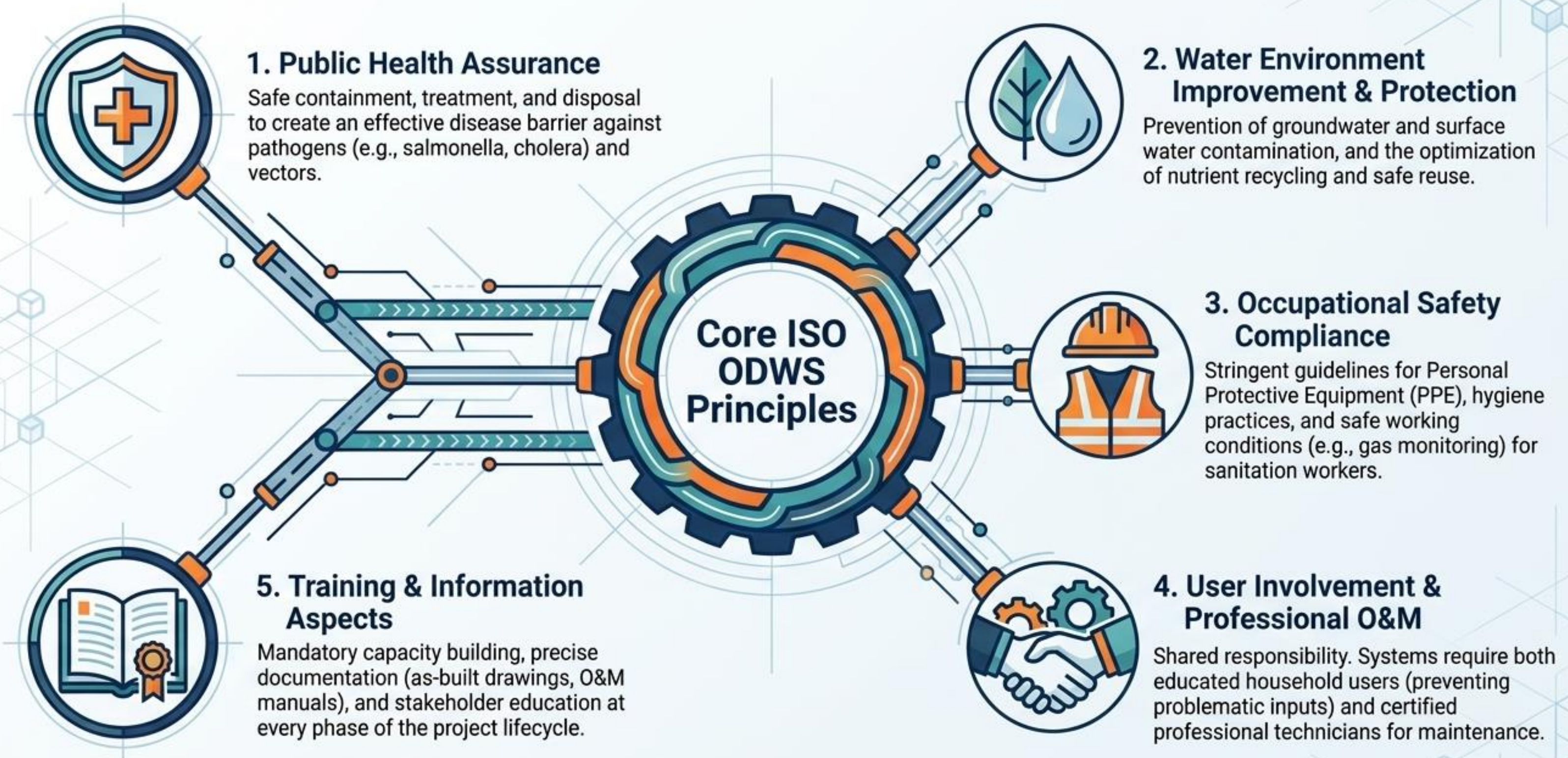
The Software (Action): ISO 24525:2022

Scope: O&M Planning and Work Content.

Role: Governs long-term functionality. Specific technical instructions for routine operation, reactive maintenance, and safe sludge handling.



Shared Principles Across the ISO Triad



Scaling the Technology: Basic vs. Advanced ODWS

	Basic ODWS	Advanced ODWS
Objectives	Primary treatment and organic degradation in anaerobic conditions; cost-effective public health protection; simple user operation.	Higher effluent quality; enhanced nutrient/pathogen removal; protection of sensitive environments (high water tables); safe resource reuse.
Technologies	Ventilated Improved Pit (VIP) latrines, simple dry toilets, basic septic tanks. Relies on gravity flow and passive treatment.	Aerobic Treatment Units (ATUs), Membrane Bioreactors (MBR), Combined anaerobic and aerobic systems. Utilizes mechanical aeration and engineered media.
Management Profile	Minimal reliance on mechanical/electrical parts. Managed by users with basic instruction and periodic professional emptying.	Requires skilled, certified operators; regular monitoring of mechanical/electrical components; structured, preventative maintenance schedules.

ISO 24521:2025 – The Management Blueprint



ISO 24525:2022 – The Operation & Maintenance Engine



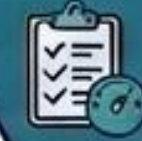
1. Scope

Practical guidance and specifications for the physical, day-to-day operation and maintenance of onsite systems.



2. Prep & Implementation

Factoring design, manufacturing, and construction realities into O&M viability (e.g., ensuring physical access for vacuum trucks).



3. Operation & Maintenance

Detailed procedures for routine operational checks, reactive maintenance fault-finding, and defining owner vs. operator responsibilities.



4. Regular desludging and safe disposal/recycling

Plans and instructions for the safe handling of wastewater/sludge, encompassing both mechanized and motorized transport.



5. Treatment & Dispersal/Recycling

Guidelines for managing receiving facilities, centralized sludge plants, and the safe land application of treated residuals.



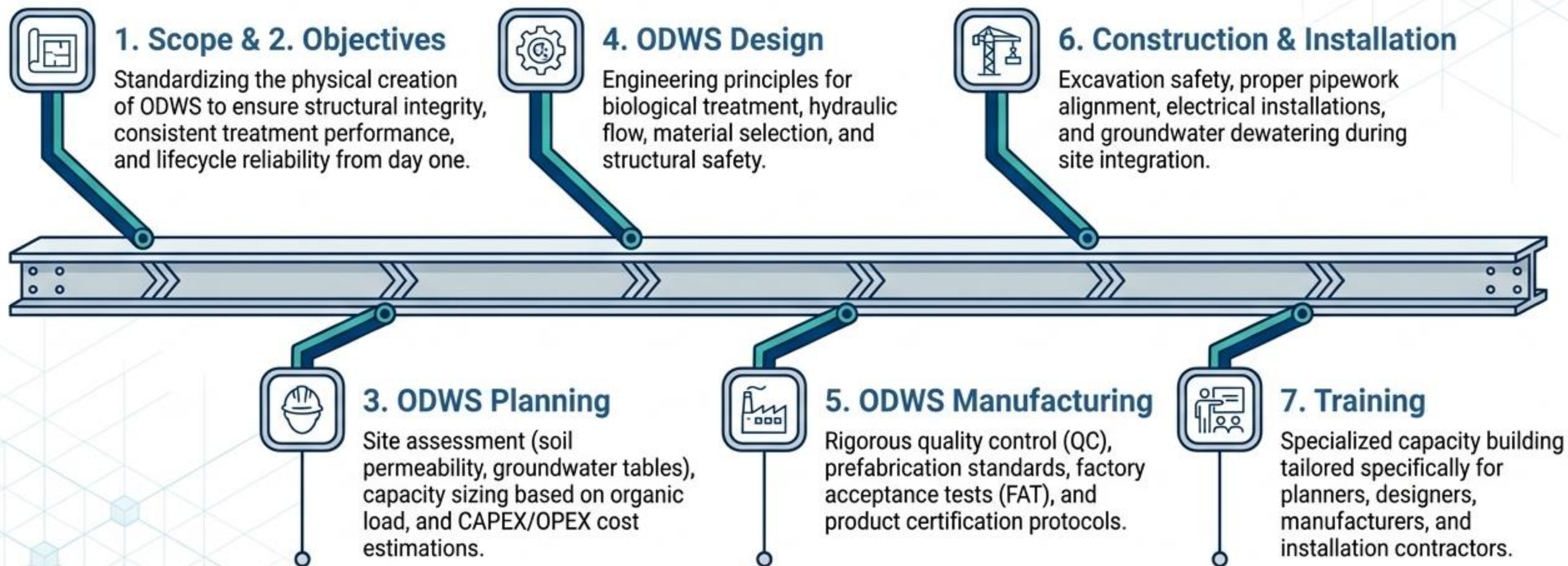
6. Disinfection & Microorganism Removal

Protocols for pathogen reduction (bacteria, viruses, parasites) prior to the safe environmental release or reuse of treated effluent.

ISO CD 26071 – The Project Delivery Lifecycle

Project Leader: Japan (Currently in CD voting phase).

Project Delivery Timeline



Key Issues for the Introduction of CWIS



Standardizing the Decentralized Future.

ISO TC224/WG8 provides the essential engineering and management blueprints to make City-Wide Inclusive Sanitation a safe, equitable, and sustainable reality.

**Thank you for your attention.
We welcome your questions
during the Expert Dialogue.**

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