



# ISO standards for Non-Sewered Sanitation (NSS)

## Webinar Series- Summary Report

May 2024

# ISO standards for Non-Sewered Sanitation (NSS)

**Webinar Series: September 2023 to April 2024**

Center for Water and Sanitation (CWAS), CRDF, CEPT University;  
Global Sanitation Center of Excellence (GSCoE)- IIT Palakkad and  
Bill and Melinda Gates Foundation (BMGF)

May 2024

## Background

Globally 3.6 billion people lack access to safely managed sanitation services (World Bank, 2022). A large population dependent on non-sewered sanitation practices. International Standards Organisation (ISO) play a significant role in all aspects of services, goods, production and more. It plays a crucial role in ensuring sanitation practices are effective, efficient and safe. By creating international sanitation standards, human health, safety, and the environment can be protected (ANSI sanitation).

The ISO standards for non-sewered sanitation services across the sanitation chain i.e., for access, conveyance and treatment are available. ISO 30500, 2018 provides standards on household non-sewered sanitation systems while ISO 24521 standards are for publicly and privately operated basic onsite domestic wastewater services. ISO 31800 standard published in 2020 focuses on community scale non-sewered sanitation systems, it captures the aspects of faecal sludge treatment. These standards work collectively to improve health, reduce the environmental impact of gaps in sanitation service chains, and offer affordable options for users and communities to help change the lives of billions of people.

These standards for sanitation, though available but are not adopted and included in their regulations in many countries. There is a need for awareness and understanding of these standards which will support in building robust sanitation systems. In this context, a series of webinars were organized to understand the ISO standards available across the non-sewered sanitation value chain.

The webinars were organized by Center for Water and Sanitation (CWAS), CRDF, CEPT University in partnership with Global Sanitation Centre of Excellence (GSCOE), Indian Institute of Technology, Pallakad, and the Bill and Melinda Gates Foundation (BMGF).

## Webinar details

Four webinars were organized covering all the ISO standards available for Non-sewered sanitation. The webinar series initiated with introduction to ISO standards across the non-sewered sanitation value chain, following three webinars focusing on details of each ISO- ISO 30500, ISO 24521 and ISO 31800. ISO experts involved in developing of the standards, certification of standards, implementers of the standards were the key speakers of these webinars. The webinars were conducted for the global audience, particularly the global south. The webinars saw a wide range of participation from across the globe. More than 940 participants registered for these four webinars from over 69 countries. These participants represented 440 unique organizations. The categories of organizations were academics (19%), research (12%), consultancy (38%), government organizations (18%), NGOs (6%), and

multilateral development agencies, donor agencies, etc (7%). [Link](#) to all the four webinars- videos and presentations.

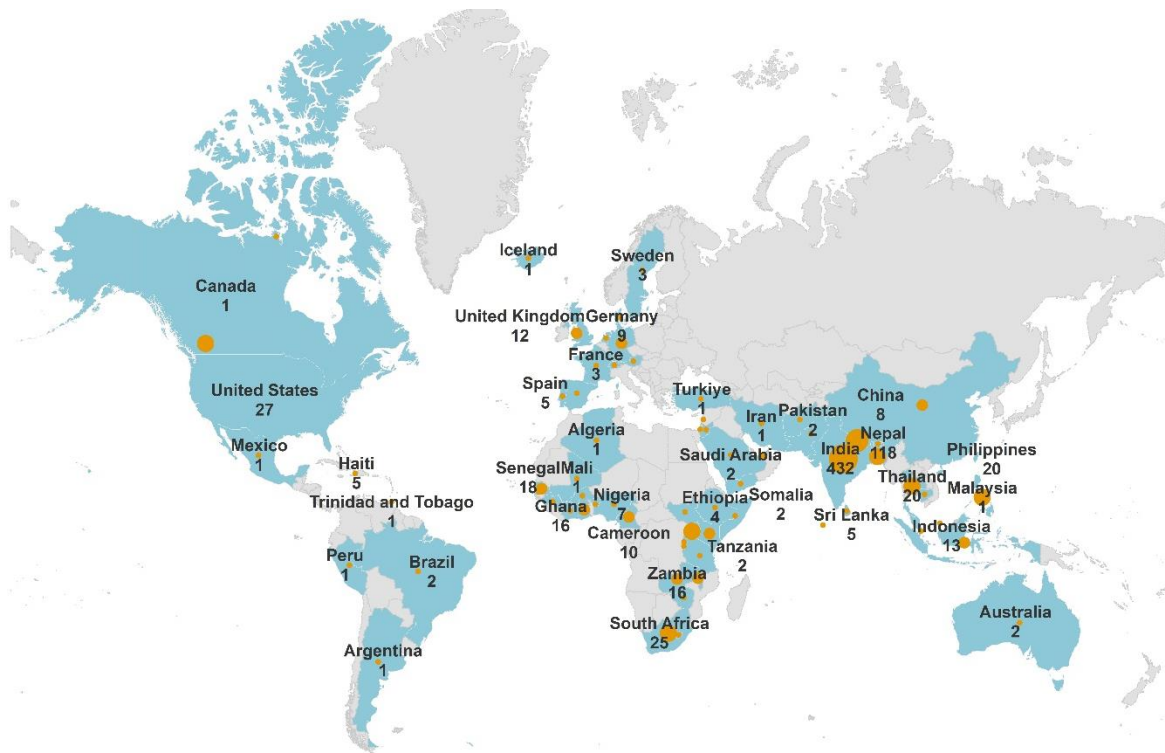


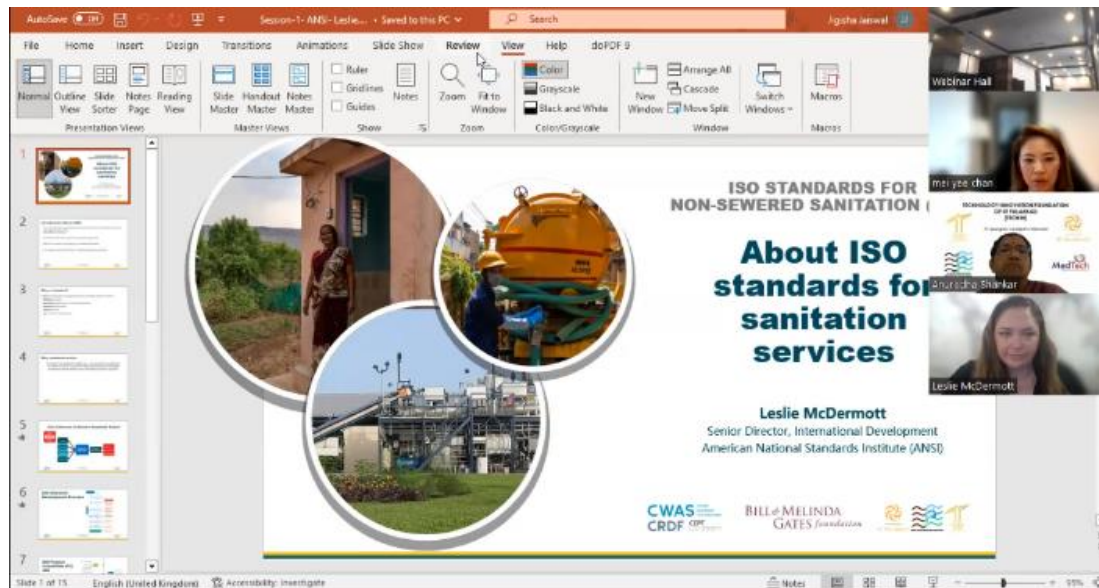
Figure 1: Participants in the four webinars from across the globe

The details of each webinar is mentioned below:

### Webinar 1: Introduction to ISO standards across the NSS chain, 12th September 2023, 16:30 to 18:30 (IST)

The first webinar was an introduction the webinar series on ISO standards for Non-sewered sanitation. The speakers briefed about the availability and need of ISO standards for non-sewered sanitation. Glimpses of ISO 30500, ISO 24521 and ISO 31800 was provided. The experience and learnings of ISO 24521 and 30500 adoption process in Nepal was discussed briefly.





The speakers and moderator of the session are as below. Link for all the presentations of the webinar [here](#).

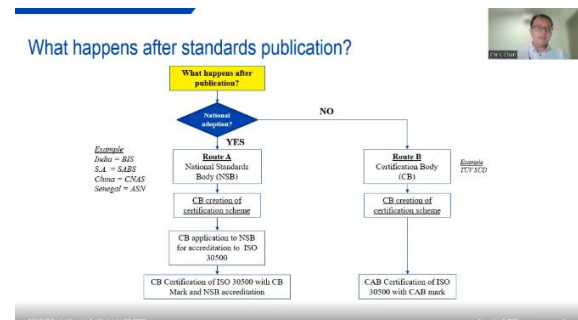
- Moderator: Prof. Dinesh Mehta, Center Head, Center for Water and Sanitation (CWAS), CRDF, CEPT University, India
- Mr. Sun Kim, ISO PC 305 Chair, Non-Sewered Sanitation (NSS) Standards and Compliance, United States of America
- Ms. Leslie Mc Dermott, Senior Director- International Development, American National Standards Institute, United States of America
- Ms. Jyoti Joshi Bhatta, Deputy Director General, Nepal Bureau of Standards and Metrology (NBSM), Nepal
- Ms. Mei Yee, Senior Programme Manager, TÜV SÜD, Singapore

## Webinar 2: Detailed presentation on ISO 30500: 2018- Non-sewered sanitation systems, 7th November 2023, 16:30 to 18:00 (IST)

The second webinar covered the details of ISO 30500- “Prefabricated integrated treatment units — General safety and performance requirements for design and testing”. The unit is a prefabricated integrated treatment unit, comprising frontend (toilet facility) and backend (treatment facility) components that a) collects, conveys, and fully treats the specific input within the system, to allow for safe reuse or disposal of the generated solid, liquid, and gaseous output, and b) is not connected to a networked sewer or networked drainage systems. The webinar captured the need and scope of ISO



30500. The technical requirements for qualifying under the ISO 30500 were discussed in detail along with its certification process. Moreover, country examples of USA, South Africa were discussed where



## ISO 30500

- **Prefabricated, Factory built**
  - Minimize variations and performance
  - Systems can be certified
- **Able to operate in the majority of climates and geographies**
  - 5 to 50°C, 20 to 100% relative humidity, 0 to 2,500 m altitude
  - Water and technical tightness
- **Fully treat on-site**
  - Human enteric pathogens
  - Environmental parameters for effluent, gas emissions, odor, noise,
- **No desludging**
  - Effluent safe for discharge
  - Removal of ash or dry solids only
- **Enable lower unit cost via mass production**
  - Low installation cost via prefabricated units



ISO 30500 is adopted.

The speakers and moderator of the session are as below. Link for all the presentations of the webinar [here](#).

- Moderator: Dr. Sarosh Kothandath, Project Manager, Technology Innovation Foundation of IIT-Palakkad (TECHIN), India
- Mr. Sun Kim, ISO PC 305 Chair, Non-Sewered Sanitation (NSS) Standards and Compliance, United States of America
- Ms. Leslie Mc Dermott, Senior Director- International Development, American National Standards Institute, United States of America
- Mr. Chris Chan, Manager Projects, TÜV SÜD, Singapore

## Webinar 3: Detailed presentation on ISO 24521:2016- Guidelines for the management of basic on-site domestic wastewater services, 20th February 2024, 18:00 to 19:30 (IST)

The third webinar covered the details of ISO 24521- Guidelines for the management of basic on-site domestic wastewater services. The standard provides guidance using appropriate technologies in their entirety at any level of development. It includes the following: guidelines for the management of basic on-site domestic wastewater services from the operator's perspective, including maintenance techniques, training of personnel and risk considerations; guidelines for the management of basic on-site domestic wastewater services from the perspective of users; guidance on the design and construction of basic on-site domestic wastewater systems; guidance on planning, operation and maintenance, and health and safety issues. The webinar captured the scope, content and overview of the standard. It also discussed Nepal's adoption process, its licensing process and pilot implementation of the standard in Mahalaxmi Municipality of Nepal.

### ISO 24521:2016 1 Scope



Supplements and used in conjunction with ISO 24521:2016  
**Guidelines and guidance for basic ODWS:**

- Management from Operator's perspective
- Management from User's perspective
- Design and Construction
- Planning, O & M, Health & Safety

#### Exclusions:

- Limits of acceptability for wastewater discharged into receiving water body
- Analytical methods
- Management structure
- Content of contracts

#### Applicable to:

- publicly and privately operated basic ODWS
- black and grey water
- one or more dwellings

Note: ODWS = On-site Domestic Wastewater Systems

CWAS  
CRDF

BILL & MELINDA  
GATES foundation



### Key Process of National Adoption ISO 24521 and ISO 30500

Final recommendation by Technical Committee

- Recommendation for public comments.

ISO 24521 Guideline Adopted by NBSM as National Standard - 17 January 2020

- 102<sup>nd</sup> Assembly of Nepal Standard Council formally announced the approval of the guideline.
- The standard is available as NS/ISO 24521

ISO 30500 in final approval process from NBSM Council

CWAS

CRDF

NSM

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The speakers and moderator of the session are as below. Link for all the presentations of the webinar [here](#).

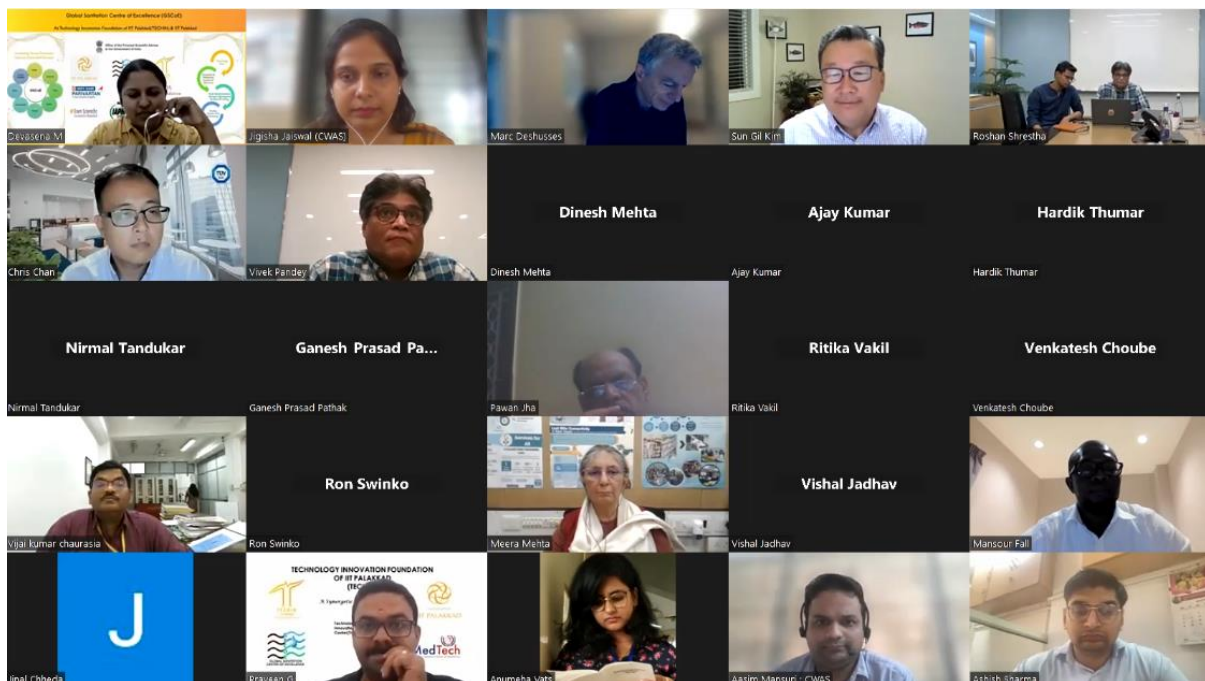
- Moderator: Mr. Sun Kim, ISO PC 305 Chair, Non-Sewered Sanitation (NSS) Standards and Compliance, United States of America
- Mr. Alok Kumar Mishra, Director, Nepal Bureau of Standards and Metrology, Nepal

- Ms. Bhavna Sharma, Executive Director, Environment and Public Health Organization, Nepal
- Mr. Frederick Cate, Co-convener WG 8- Onsite domestic wastewater management ISO TC 22, United States of America
- Mr. Ron Swinko, Executive Director, EcoThrive Initiatives, Inc., United States of America
- Ms. Rosy Singh, Project Manager, Environment and Public Health Organization, Nepal

## Webinar 4: Detailed presentation on ISO 31800:2020- Faecal sludge treatment units

4th April, 17:00 to 18:30 (IST)

The fourth webinar covered the details of ISO 31800- Faecal sludge treatment units- Energy independent, prefabricated, community-scale, resource recovery units- Safety and performance requirements. The standard specifies requirements and test methods to ensure performance, safety, operability and maintainability of community-scale resource recovery faecal sludge treatment units that serve approximately, but not limited to, 1,000 to 1,00,000 people. The standard applies to treatment units that: a) primarily treat faecal sludge; b) are able to operate in non-sewered and off-grid environments; c) are prefabricated; d) exhibit resource recovery capability (e.g. recovering energy, reusable water, soil amendment products), and are capable of being energy neutral or energy net positive.



The webinar covered the need, scope, technical requirements of the standard and detailed out the certification process. The potential application of the standard with combustion and pyrolysis example



and supercritical water oxidation FSTU by 374Water examples were also discussed. The status of adoption of the standard was discussed in the webinar. The speakers and moderator of the session are as below. Link for all the presentations of the webinar- [here](#).

- Moderator: Dr. Devasena M, Chief Technical Officer, Global Sanitation Center of Excellence- IIT Palakkad, India
- Mr. Chris Chan, Manager Projects, TÜV SÜD, Singapore
- Mr. Sun Kim, ISO PC 305 Chair, Non-Sewered Sanitation (NSS) Standards and Compliance, United States of America
- Mr. Mansour Fall, PMP- Liaison officer at FSMA, Senegal
- Prof. Marc Deshusses, Professor- Civil and Environmental Engineering and Global Health, Duke Global Health Institute, United States of America