

## PROPOSAL FOR AN ISO INTERNATIONAL WORKSHOP AGREEMENT ON SUSTAINABLE NON-SEWERED SANITATION SYSTEMS

---

### INTRODUCTION

The following proposal is for an ISO International Workshop Agreement (IWA) on sustainable non-sewered sanitation systems. These reinvented toilets, or “next-generation” toilets remove pathogens completely but do not require a sewer or water connection or electricity, cost less than 5 cents per user per day, and are designed to achieve point-of-use reuse to meet individuals’ health and safety needs and environmental concerns. The proposal includes a purpose and justification, a list of organizations that may be interested, an estimate of the number of meetings and a preliminary workshop plan.

### PROPOSING / SPONSORING ORGANIZATIONS

The Bill and Melinda Gates Foundation, a private grant-making foundation based in the United States and operating in more than 100 countries, is committed to the goal of enabling universal access to sustainable sanitation services by supporting the development of radically new sanitation technologies as well as markets for new sanitation products and services.

As the U.S. member body to ISO, it is proposed that the American National Standards Institute (ANSI) would serve as the Secretariat of record and, together with the Foundation, will also provide logistical support for the workshop.

### PURPOSE AND JUSTIFICATION

According to the World Health Organization (WHO), an estimated 2.5 billion people have no access to safe, clean toilets and 1 billion are forced to defecate in the open. The devastating consequences of these practices include an estimated 1 million preventable deaths per year, primarily from dysentery-like diarrheal diseases.<sup>1</sup>

In March 2013 the UN issued a global call to action for the comprehensive elimination of the practice of open defecation by 2025. According to the UN, countries where open defecation is most common have the highest levels of child death and disease, as a result of ingesting human fecal matter that has entered the food or water supply.<sup>2</sup> A lack of safe, private toilets is also associated with the highest overall levels of malnutrition, poverty, and disparity between rich and poor, and makes women and girls vulnerable to violence.<sup>3</sup> Universal toilet access is the only acceptable goal, and it is achievable.

“Next-generation toilets” are a practical solution to address sanitation-related death and disease. These toilets remove pathogens and other harmful content from waste before disposal or reuse but do not require traditional infrastructure: sewer, water connection, nor electricity. It is also important that the toilets cost less than 5 cents per user per day – making them workable for even the least-developed of communities.

Some national standards and other guidelines have been developed that apply to certain elements of reinvented toilets, or to separate but related technology. However, no international standard has been found to contain the commonly accepted criteria by which to measure the performance of reinvented toilets. Such an international standard would enhance efforts to widely manufacture, market and deploy the technology where it is needed most.

---

<sup>1</sup> World Health Organization (WHO), Sanitation Factsheet, <http://www.who.int/mediacentre/factsheets/fs392/en/>

<sup>2</sup> United Nations, [http://www.un.org/waterforlifedecade/waterforlifevoices/open\\_defecation.shtml](http://www.un.org/waterforlifedecade/waterforlifevoices/open_defecation.shtml)

<sup>3</sup> United Nations, <http://www.un.org/millenniumgoals/pdf/MDG%20Report%202012.pdf>

Based on these considerations, and the fact that no ISO Technical Committee currently exists to address reinvented toilets, ANSI and the Gates Foundation propose to take the first step by developing an IWA. Partners and grantees of the Foundation consist of stakeholders from around the globe, including developing countries, and a specific effort will be made to encourage participation from developing countries in the ISO activity. Once developed, the IWA may serve as the basis for a new international standard developed through an ISO project committee. Since there is currently a lack of any reference document for the new technology, an IWA is proposed as the most efficient starting point. While the IWA effort is being organized and is taking place, ANSI will also be submitting to ISO a new work item proposal to lead to the formation of the project committee to develop the eventual ISO standard. The IWA and the NWIP will overlap, but this will allow the expedited establishment of the project committee to be ready to begin work on the ISO standard when the IWA is completed and published. Having the IWA published is desirable to allow relevant products to be developed, tested and marketed while the ISO standard is being finalized.

## RELEVANT DOCUMENTS

While no international standard covering criteria for reinvented toilets was found in a literature search, TÜV SÜD AG, a global technical service organization active in testing, inspection and certification, headquartered in Germany and operating in many countries, including Singapore, is currently working on a draft private standard in the area. At this time it is anticipated the private standard will be published in May 2016, and would be provided to IWA participants as a base document. It is anticipated that TÜV SÜD's private technical standard defines criteria to qualify sanitation systems sufficiently especially in terms of safety, functionality, reliability, maintainability, usability, and that the discharge (treated effluent) are compliant with leading practices. The aim of the private technical standard is to ensure safety aspects related to the operation of the sanitation systems in the intended areas of use and that the treated discharged products pose no user, operator health or environment risks. The standard is applicable to individual and community sanitation systems which are self-contained, meet defined discharge requirements, and aim for sustainability regardless of the on-site treatment technology. This standard should not restrict innovation, yet provide clear criteria for designers and developers. Guidelines for selection, installation, maintenance & operation are not addressed by this standard.

In addition, ANSI has identified the following documents that may be of relevance, in whole or in part, to the project:

- AS/NZS 1546.2: On-site domestic wastewater treatment units; Part 2: Waterless composting toilets
- DIN EN 12566-3: Small wastewater treatment systems for up to 50PT – part 3: Packaged and/or site assembled domestic wastewater treatment plants
- NSF/ANSI 41: Non-liquid saturated treatment systems
- [NSF/ANSI 40: Residential wastewater treatment systems](#)
- [ISO 24511: activities related to drinking water and wastewater services – Guidelines for the management of wastewater utilities and for the assessment of wastewater services](#)
- [EN 997: WC pans and WC suites with integral trap](#)
- [WHO Guidelines for the safe use of wastewater, excreta and grey water](#)

## INTERESTED ORGANIZATIONS

The following organizations have indicated their interest in participating in the IWA:

- Bill and Melinda Gates Foundation
- TÜV SÜD AG

- International Association of Plumbing and Mechanical Officials (IAPMO)
- National Sanitation Foundation (NSF)
- Kohler
- California Institute of Technology
- RTI International
- Cranfield Univeristy
- Loughborough University
- AIT (Asian Institute of Technology)

In addition ANSI would encourage participation from:

- National government agencies (e.g. those involved in improving public sanitation)
- National standards bodies
- Reinvented toilet prototype developers and/or commercial partners
- Public health and clean water NGOs
- Companies, academia and other affected stakeholders

### **WORKSHOP PLAN**

ANSI proposes to hold a two-day meeting in late June 2016 at a location in either Singapore or Europe (exact date and venue to be confirmed). Follow-up from the workshop will be conducted online and via email correspondence. Expected date of publication of the IWA will be late August or early September 2016.

For your information, it is expected that ANSI will submit the NWIP for the project committee to develop the ISO standards by the end of January 2016. The first meeting of the new project committee is expected to be held in late October 2016.