International Journal of Standardization Research
Volume 16 • Issue 1 • January-June 2018

Addressing Sustainability of Sanitation Systems:
Can it be Standardized?

Markus Starkl, BOKU Wien, Vienna, Austria
Norbert Brunner, CEMDS, Vienna, Austria
Andreas Werner Helmut Hauser, TÜV SÜD Asia Pacific Pvt. Ltd., Singapore
Magdalena Feil, TÜV SÜD Industrie Service GmbH, München, Germany
Hamanth Kasan, Rand Water, Johannesburg, South Africa

ABSTRACT

Recently, a technical draft of the international standard ISO/DIS 30500 for non-sewered sanitation systems has been developed (publication expected for 2018). Its innovative feature is the inclusion of sustainable aspects. This article discusses the motivation behind this standard and explores to what extent sustainability can be standardized. This research was based on the development of a concept-standard for sustainable sanitation and on surveys of experts working in sanitation and standardization.

KEYWORDS

Concept Standard, Consultations, ISO, Sanitation, Stakeholders, Sustainability Principles

1. INTRODUCTION

Lacking household-level access to safe water and hygienic toilets is still a global problem, affecting a third of the world population in 2015 (Cumming et al., 2014). The United Nations Sustainable Development Goal 6 asks governments to 'ensure access to water and sanitation for all', as 'due to bad economics or poor infrastructure, every year millions of people, most of them children, die from diseases associated with inadequate water supply, sanitation and hygiene' (UNO, 2018). The International Organization for Standardization (ISO) has developed several standards to support the realization of this goal (Naden, 2018).

The most recent contribution is the Draft International Standard ISO 30500 on non-sewered sanitation (ISO, 2017). It has been developed in view of the limitations of conventional approaches towards increasing toilet coverage: Millions of people live in rapidly growing irregular settlements (slums) without connections to sewers and with no community toilets in their immediate neighborhood, resulting in the widespread practice of open defecation (Brunner et al, 2015). The conventional approach, providing them with sewer connections and wastewater treatment at the end of the pipe,

DOI: 10.4018/IJSR.2018010103

may not always be viable, as recent case studies confirmed for India: 58 sanitation systems either were not fulfilling national standards or their costs were not affordable for slum dwellers (Starkl et al., 2018). Further, alternative low-cost systems often were not accepted (destroyed) by the users, e.g. as they considered these systems as inferior (Brunner et al., 2010a). In response, the Bill and Melinda Gates Foundation (BMGF) has asked for radical technology transformation (Re-invent the toilet challenge) and industry developed various types of non-networked sanitation systems (Cheng et al., 2018). However, to ensure the technical functionality of the new systems and let technology users rest assured that these systems are technically mature, the need to develop a technical standard was identified (Starkl et al., 2015).

In order to tackle such issues, in 2015 the BMGF contracted a project to develop a private technical standard on non-sewered sanitation systems. Based on the work for this private technical standard, in June 2016 the American National Standards Institute (ANSI) organized an international workshop which led to an International Workshop Agreement that was published in September 2016 (IWA-24, 2016). In a next step, ISO established a Project Committee (PC 305) to develop the draft international standard ISO/DIS 30500. The experts participating came 'from 31 countries worldwide representing a broad range of stakeholder categories, such as industry, government, academia and non-governmental organizations' and they were supported by the African Water Association and the Toilet Board Coalition (Lewis, 2017; Roberts, 2017). The public enquiry about the draft international standard (ISO/DIS 30500) started on 19 January 2018 and the voting finished in April 2018. As per the voting results the DIS has been approved, and the final standard is expected to be published later this year.

2. GOAL OF THE PAPER

The paper contributes to the persistent discussion of how much ethical, social, economic, environmental and organizational issues can be addressed in a technical standard. This paper asks this question in the context of sustainable sanitation.

First, in order to identify possible barriers towards addressing sustainability in a technical standard, the paper summarizes the approach taken to address sustainability issues in the new technical standard ISO/DIS 30500. It should be noted that this draft standard has been designed as a product standard for industry. It acknowledged the well-established importance of sustainability aspects for sanitation and developed general guidance and recommendations for sustainability aspects such as cultural requirements, operation and maintenance, or affordability by the intended users. However, it did not go into context specific sustainability details, which might be considered at the implementation level of a sanitation project.

Second, in order to explore, what more could be done, the paper proposes an additional standard focusing on the assessment of sustainability of sanitation systems and asks, if such a standard could be beneficial. This proposal was informed from ISO Guide 82:2014 on sustainability (ISO, 2014) and the standard ISO 13065 about sustainability criteria for bioenergy (ISO, 2015a). This standard addresses a general issue, sustainability, by means of principles that focus on guidance rather than on stringent quantitative thresholds. (In a similar way, the general issue of product safety was addressed by ISO Standard 10377: ISO, 2013.) As experience has shown, project failures in the sanitation sector often occurred during the implementation phase due to negligence of context-specific economic, social and institutional sustainability aspects (Ramos-Mejía et al., 2017; Starkl et al., 2013b). Therefore, the question arose, whether an additional standard on sustainability of sanitation systems might be useful and which sustainability aspects such a standard should address. The authors therefore tried to sketch a framework on which a sustainability standard for (non-sewered) sanitation could be based on.