

Justice and sanitation well-being: an analysis of frameworks in the context of slippage, based on findings from Shravasti, Uttar Pradesh, India

Kopal Khare * and Lavanya Suresh 

Department of Humanities and Social Sciences, Birla Institute of Technology and Science Pilani, Hyderabad Campus, Shamirpet-Keesara Road, Jawahar Nagar, Shamirpet, Hyderabad, Telangana 500078, India

*Corresponding author. E-mail: p20160019@hyderabad.bits-pilani.ac.in

 KK, 0000-0002-4316-2486; LS, 0000-0002-2202-2433

ABSTRACT

Access to safe drinking water and adequate sanitation is considered as a basic human right. Swachh Bharat Mission – Gramin (Rural), launched by the Government of India in 2014, is hailed as an attempt towards that direction. On 2nd October 2019, India was declared free from open defecation, with rural households having full toilet coverage. However, despite Government claims, the existing literature indicates the presence of slippage: where households practice open defecation despite having access to toilets. Equating progress in sanitation interventions with mere toilet provision presents a partial assessment of sanitation. To address the gap, the ‘Sanitation Well-being’ framework, based on Amartya Sen’s concept of justice, has been proposed. It identifies slippage as an outcome of various underlying factors across the sanitation life-cycle. The framework provides a lens to analyse existing frameworks and secondary data sets and finds that they do not capture the dynamism inherent in the sector. The efficacy of the framework has been tested in the rural district of Shravasti, Uttar Pradesh, India, through the rapid rural appraisal method. Through our investigation, we found that slippage exists in the field, and that the framework is a feasible instrument to assess sanitation as a comprehensive phenomenon.

Key words: capability approach, justice, open defecation, rural sanitation, slippage, Swachh Bharat Mission

HIGHLIGHTS

- Toilet coverage is an insufficient measure to evaluate progress in sanitation.
- Slippage is an occurrence, where people practice open defecation despite having access to toilets.
- The proposed framework captures the retrospective nature of sanitation unlike existing frameworks and datasets.
- It studies well-being through expansion in people’s ability to experience sustained sanitation outcomes.
- The existence of slippage is verified and the framework identifies potential areas of slippage.

INTRODUCTION

Ensuring adequate water and sanitation in rural areas is one of the primary goals in a developing country like India. Towards these aims, the Swachh Bharat Mission (SBM) was launched by the Government of India in October 2014 to provide universal access to toilets. There are two sub-missions under the program for urban and rural areas. The rural component of the program focuses on ensuring cleanliness by declaring Gram Panchayats (village units) Open Defecation Free (ODF) and ensuring Solid Liquid Waste Management activities (SLWM), which involve disposing of waste and fecal sludge management. A panchayat is declared ODF when there is an absence of fecal matter, and provisions exist for the safe disposal of human waste (Ministry of Drinking Water and Sanitation 2018a). The strategy for implementation is Community-Led Total Sanitation (CLTS), which encourages toilet adoption by bringing about behavioural changes such that people adopt better sanitation practices. It uses a combination of triggering activities like collective action, self-mobilisation, shock, disgust, and shame (Kar & Chambers 2008; Galvin 2015; Ministry of Drinking Water and Sanitation 2018b).

India has adopted the CLTS approach since the early 2000s onwards, and on 2nd October 2019, the country was declared open defecation free under the SBM program (The Hindu 2019). However, the progress being measured by full toilet coverage has a flawed premise, and the community responses are likely to change as time passes (Khare & Jose 2020). According to

This is an Open Access article distributed under the terms of the Creative Commons Attribution Licence (CC BY 4.0), which permits copying, adaptation and redistribution, provided the original work is properly cited (<http://creativecommons.org/licenses/by/4.0/>).

the 76th round of the National Sample Survey, approximately 28.7% of rural Indian households still lack toilets (Ministry of Statistics and Program Implementation 2018). A study conducted by Water Aid in 2017 stated that around a third of the functional toilets under the SBM gradually became unused for reasons such as the absence of a facility to trap fecal matter, and the source of drinking water being too close to the toilet (Misnaming Toilets 2018). Another study conducted by Gupta *et al.* (2020) reports the findings of a sampled panel survey conducted from October 2014 to 2018 in four states – Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh. It states that despite increased toilet coverage in rural households, around 50% of the sampled households and 56% within those have at least one person who practices open defecation. The reasons are the fear of pit fill, and aversion among rural Indian households to manual pit emptying, discontinuation of mobilisation activities once the toilets are constructed, adoption of coercive methods to build toilets, and lesser preference for toilets constructed on a contract basis. Reddy *et al.* (2010) defined slippage as a condition where there is open defecation in rural areas despite having access to toilets, as is rightly pointed out in the findings above. It is understood as the falling back of a household to unhygienic preferences, post provision of toilets. Evaluation for slippage starts from six months to one year after a particular region is verified and certified as ODF. According to the study, 30% of households all over India had slipped back. The reasons listed are water source failure, operation and management of infrastructure, absence of institutional arrangements, and mismanagement of resources. Snehalatha *et al.* (2014) studied households across 21 villages in Andhra Pradesh and reported 60% of the villages practiced open defecation after being certified as ODF. The primary reasons reported by the study were: a drop in the sensitisation and mobilisation programs post the ODF status, lack of water to flush, bad smell and suffocation when using the toilets, aversion to manual pit emptying and coercion. As discussed in the literature above, it is observed that the condition of slippage persists despite infrastructure being created. Slippage is a crucial aspect of sanitation interventions that has not been given enough attention.

There is an emerging body of work that links water and justice and challenges the limited interpretation of ‘water’ being just a resource necessary for human living. Goff & Crow (2016) and Jepson *et al.* (2017) emphasise on the wider needs of water supply other than merely for drinking purposes. For example, having access to portable water increases women’s ability to participate more in the labour market. Proximity and readily-available water directly increase the capability of women to pursue economic activities such as home-based/unorganised businesses when time is effectively saved. Similarly, Mehta (2014) and Gimelli *et al.* (2018) argue that water cannot be perceived merely as a chemical compound or only understood in terms of how much cubic meters are available but rather as a hydro social process resource, defining social and political relations. It also suggests that access to water is deeply unequal due to a number of reasons: financial and cultural, gender, caste or ethnicity. These studies identify the relationship between water supply and justice, but fail to address the specific gaps present in the sanitation sector when considered as a standalone intervention. The literature on sanitation and justice, and specifically on the prevention of slippage in sanitation interventions, is limited, and sanitation policies focus on the limited interpretation of sanitation as an infrastructural provision alone.

In this paper, Amartya Sen’s concept of justice has been used as a theoretical frame to provide us with a set of criteria to understand sanitation well-being from a holistic perspective. For Sen, justice does not end at setting up the institutions and making the resources available, but the kind of lives people actually lead post such arrangements also matters (Sen 2009). Therefore, sanitation well-being is understood as the sum of enabling or disabling systemic conditions under which sustained sanitary outcomes are pursued. If not, then slippage manifests as an outcome. We propose a framework called the Sanitation Well-being Framework, grounded in the understanding of justice proposed by Sen, wherein we link justice and sanitation in the context of slippage.

The first objective of the paper is to review data sets and existing analytical frameworks in sanitation through the lens of the proposed Sanitation Well-being Framework. The second objective of the paper is to present the findings from the field study conducted to test the proposed Sanitation Well-being Framework in the rural district of Shravasti, in the state of Uttar Pradesh in India.

METHODS

The paper is divided into three parts. The first part discusses the concept of justice provided by Sen and develops the Sanitation Well-being Framework. It builds a case that the proposed framework is instrumental in perceiving sanitation as a phenomenon by identifying injustice emerging in the form of slippage, which is an outcome of several disabling factors across the sanitation life-cycle that a household experience.

The second part reviews secondary data sets and existing frameworks through the lens of the proposed framework. There are four secondary data sets available at present at the country and global level – Census 2011 ([Ministry of Home Affairs Government of India 2011](#)), National Family Health Survey 2015–16 ([IIPS and ICF 2017](#)), National Sample Survey 76th Round ([Ministry of Statistics and Program Implementation 2018](#)) and World Health Organization and the global database of the United Nations Children Fund Joint Monitoring Program ([WHO & UNICEF Joint Monitoring Program 2017a](#)). Out of these, we have looked at two data sources: the first is the India Demographic Health Survey, also known as the National Family Health Survey 2015–16 (NFHS-4), a multi-round survey conducted all over India, with ‘households’ as a unit of inquiry. It collects information on sanitation, health, and nutrition for the sampled population. The data is extracted in two ways: (i) Data has been collected from the report that presents information on coverage of facilities in rural areas in terms of the toilet services provided. The services have three major categories – improved, shared, and unimproved. Each category is further disaggregated by categorisation into the flush type and the kind of toilet pits available in the households; and (ii) The data on social hierarchies like social background, wealth groups, and religion for rural India has been calculated from the data set made available on the India Demographic Household Surveys ([The Demographic Health Survey 2016](#)). The software tool used for calculation is SPSS version 20. The second source of data is the [World Health Organization and the United Nations Children Fund Joint Monitoring \(2017a\)](#) database, which provides country-wise data concerning water, sanitation, and hygiene across rural and urban divisions. It is filtered down to the rural India level. The WHO-UNICEF database aggregates estimates from four types of sources from a particular country: (1) Census of individuals living in a country; (2) Household surveys (nationally representative household as subsets); (3) Administrative datasets, such as baseline surveys conducted by government and non-government entities; (4) Other datasets may be available such as compilations by international or regional initiatives ([WHO & UNICEF Joint Monitoring Program 2018](#)). Hence, NFHS-4 forms a part of this database but is presented here separately for two reasons: (1) We are looking at the categories that are qualitatively used to interpret the status of sanitation, and (2) They were released after the launch of SBM, which makes the categories comparable. The program suggests a framework called the sanitation service ladder. It aggregates data across five types of service levels of toilet provision – safely-managed, basic, limited, unimproved, and open defecation; and provides data for these categories ([WHO & UNICEF Joint Monitoring Program report 2017b](#)).

This is followed by the analyses of existing frameworks that are used in assessing sanitary conditions. A total of five different frameworks have been reviewed: a model of the Health Impact Pyramid ([Frieden 2010](#)); the political ecology framework ([O’ Reilly & Louis 2014](#)); the service ‘ladder’ framework by the [WHO & UNICEF Joint Program Monitoring Report \(2017b\)](#); the Integrated Behavioural Model for Water Sanitation and Hygiene framework by [Dreibelbis *et al.* \(2013\)](#); and the Sustainable Sanitation and Hygiene for All framework ([Apanga *et al.* 2020](#)).

The third part provides the findings from the field test of the Sanitation Well-being Framework in the rural district of Shravasti, Uttar Pradesh, using the Rapid Rural Appraisal method. The method enables a researcher to collect information within a short period ([Chambers 1981, 1994](#)) by using participatory rural appraisal tools. The tools which we used were social and resource mapping and interviewing key informants.

The Swachh Bharat Mission guidelines provide for engaging a Civil Society Organisation (CSO) to mobilise people to adopt the use of toilets ([Ministry of Drinking Water and Sanitation 2018a](#)). The Aga Khan Foundation is the CSO, working in the district under the program. The organisation and Gram Pradhan were identified as gatekeepers ([Creswell 2017](#)) in our field site which introduced us to the panchayats they engage with. The CSO field coordinators have worked closely with the Gram Pradhan in conducting awareness-building activities in the villages. They provided access to key informants on the basis of the network that they had developed so far. The key informants interviewed were the Gram Pradhan and members of the District Resource Group and the community involved in Nigrani Samitis. The participants gave their written consent to include information on themselves and were completely anonymised.

We calculated data for open defecation across districts using the National Family Health Survey 2015–16 ([International Institute for Population Sciences \(IIPS & ICF\) 2017](#)) to identify the field site. Shravasti figures in the bottom five districts in India when ranked on their ability to eliminate open defecation. In Shravasti, 89.5% of the rural population practice open defecation. Contradictory to this data, the Government of India’s 2020 data on the Management Information System on Sanitation ([Ministry of Drinking Water and Sanitation 2020](#)) claims that the district is free from open defecation. This contradiction makes this district an ideal field site to study slippage. The study focused on two Gram Panchayats (GP) in the district – Bhikharipur Masahi (Gilaula Block) and Kanjadwa (Ekona Block), which were declared open defecation free one year before the study was conducted in October 2019. However, many other Gram Panchayats were declared

ODF. The selection of these two GPs from among the others was made based on the advice of the gatekeeper and key informants.

Part I: Sen's concept of justice as a theoretical framework to analyse manifested injustice in sanitation

Sen's justice shares the core concerns of development theory. Development, according to Sen, cannot be measured as resources made available to the people. Instead, development is concerned with human lives, what people are free to do, or are capable of doing (Sen 2009; Tully 2013). Sen's understanding of justice draws from Adam Smith, Wollstonecraft, Bentham, Mill, and Marx. He critiques justice based on the social contract as articulated by Hobbes, Locke, Rousseau, Kant, and Rawls (Brown 2010) that requires arriving at a social contract between the citizens and the state in order to create a social order, through which the chaotic circumstances which had prevailed in its absence can be prevented. It is followed by the creation of institutions resulting from adherence to these previously agreed-upon ideal principles (Sayre-McCord 2000). He says such theories are transcendental in nature and focus solely on setting up ideal and perfect institutions with a view to achieve ideal outcomes (Sen 2009). He questions the underlying assumption in two ways: (1) Getting the institutions right often does not translate into it actually working in real-world societies; and (2) A specific behavioural response may not necessarily result from a created institution. Therefore, for him, in a society there should be an attempt to reduce injustices on a continuous basis rather than acknowledging and promoting the ideal of justice (Sen 2006). To bring this idea into fruition, one has to look at both the 'culmination' and the 'comprehensive' outcomes a specific development alternative produces (Sen 2009). It means that not only are the final outcomes necessary but also that the process that has been adopted while reaching those outcomes should also be reviewed. Sen calls it the realisation-focused perspective, which tries to capture manifest injustices that are inherent in the translation of a developmental activity into outcomes, rather than merely consider the static results it has to offer (Sen 2009).

This proposition of justice by Sen is grounded in the capability approach. The capability approach looks at welfare as an avenue for the acknowledgment and improvement of people's substantive freedoms and the ways of promoting the same (Sen 2000). Capability is defined as an individual's actual ability and freedom to pursue what matters most to him or her. It focuses on the real opportunities an individual can command rather than owning specific resources alone. The concept of development through this approach is understood as 'freedom', which ensures that a concept of development should go beyond a resource-led definition of progress (Sen 1992 as cited in Frediani 2010). For Sen, well-being is assessed by the capability set. A capability set comprises the states of beings and doings, that is, what an individual may value to do and to be. The alternative combinations of beings and doings are known as functionings. A person's achievement is evaluated by the extent to which these functionings have been achieved, or the alternative choices that have been made available to claim valued preferences (Sen 1992, 2000; Srinivasan 1994). To illustrate the relationship between capability and functionings, Sen uses an example of fasting and starving as functionings. The state of being is the same for both the situations; that is, of being without food. However, in the former situation, a person chooses to deny food, while in the latter situation, the person is denied enough food. Therefore, well-being is rightly assessed when there is an ability to convert resources into preferred outcomes. Hence, capability is the ability to choose from a set of functionings and the freedoms to achieve those functionings that one desires (Sen 1992; Sugden 1993; Tomer 2002; Frediani 2010). It is argued that the capability set is congruent to the budget set in commodity space and represents an individual's capacity to buy a commodity, in the functioning space, it offers the combination of 'possible livings' one has a reason to value (Sen 2013).

Capability thus is the sum of multiple options that one can choose from. The more the capability set of a person is expanded, the more freedom they command to achieve those ends that they value the most. This freedom of choice provides an intrinsic form of justice. For Sen, it is necessary to determine the criteria that should be looked at while assessing justice. He calls it 'informational focus' (Sen 2009) or the attributes that one has to focus upon while evaluating how just circumstances and outcomes are. The aforementioned approach of capability sets and the resulting valued functionings are the materials of justice. It is also the informational focus that produces a basis while determining the justness of a situation (Sen 2009). Therefore, it offers a form of operational justice that involves increasing the capabilities of people, which will then translate into development outcomes.

We have attempted to incorporate this idea of justice into a framework to understand sanitation. The mainstream resource-led vision of sanitation that drives policy efforts has not achieved its intended objective, as in most cases it is found that there is either partial access to toilets or toilets being abandoned after they have been constructed. Sen's approach provides a lens to understand the reason behind this phenomenon, wherein understanding the expansion of capabilities can help us inquire into

the sanitation well-being of individuals. It moves the focus away from the distributional equity of goods alone. It mandates the identification of those spaces where certain unfreedoms prevail and aims at removal of the same through public action, participation, enhancement in the capability of people to be able to decide. It will also help us widen the understanding of slippage, which entails concentrating not only on the absence or presence of toilets, but upon how the gradual abandonment of toilets takes place. It may be because of technical, social, cultural, environmental, and structural reasons. We need to look at the underlying injustices in sanitation interventions across a different section of people belonging to different class, caste, religion, gender, age and region. The occurrence of slippage also becomes an indicator of underlying injustice that is inherent in a seemingly simplistic everyday activity. Therefore, Sen’s view on justice enables the assessment of sanitation well-being by shifting focus to the nuanced and everyday influences governing sanitation uptake.

Proposing the sanitation well-being framework

In this paper, a new framework has been proposed called the Sanitation Well-being Framework, which uses Sen’s idea of justice as its theoretical underpinning. The Sanitation Well-being Framework has been adapted from the framework formulated by Dwipayanti *et al.* (2017), called the Ottawa Charter for Sanitation Services (OCSS henceforth). The OCSS framework is a combination of the ecological model and sanitation service stages to assess sanitation outcomes. The OCSS presents a five-stage sanitation life-cycle, which is understood as the levels of escalation a household experiences in water and sanitation uptake. These are acceptance (intention to build a toilet); construction (building a toilet); utilisation (continuous use by a family); maintenance (routine cleanliness and repair); and, safe disposal (reliable waste containment and disposal).

The inclusion of the sanitation life-cycle in the framework makes it a unique venture. The OCSS framework borrows five elements – personal, cultural, environment, structural, and service – from the Ottawa Charter proposed by the World Health Organization back in 1986, and places these elements (with their sub-elements respectively, illustrated in detail in Figure 1)

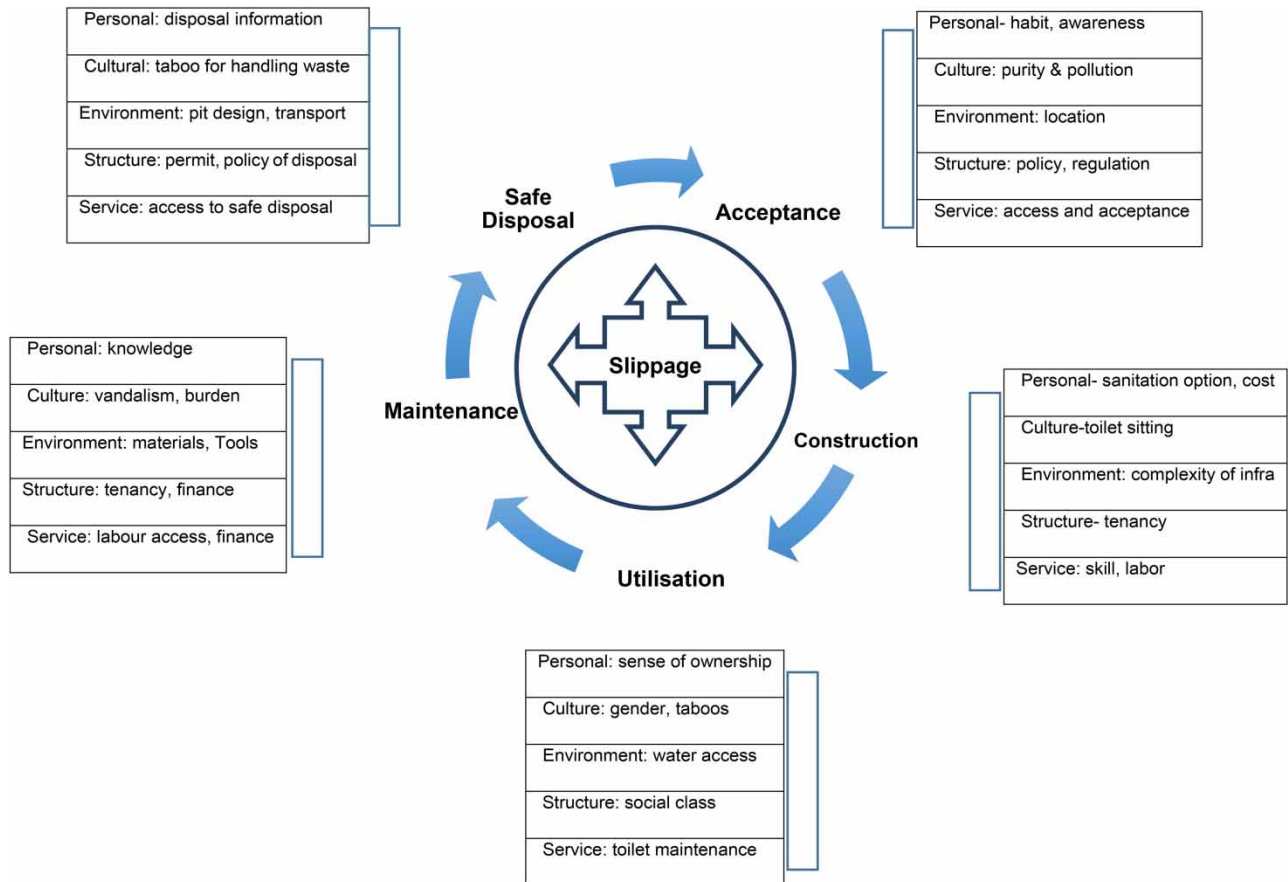


Figure 1 | Sanitation well-being framework. Adapted from Ottawa Charter for Sanitation Services (Dwipayanti *et al.* 2017), modified by authors.

within each stage of the sanitation life-cycle to arrive at a matrix (Dwipayanti *et al.* 2017). However, it still misses the essential point of capturing the backwards and forwards movement in the retrospective character of sanitation. It does not consider that escalation is not linear and that preferences may fall back or escalate due to certain disabling or enabling factors. Therefore, we modified the OCSS framework by adding the concept of slippage to capture a more comprehensive aspect of sanitation and called it the Sanitation Well-being Framework (see Figure 1). Slippage is depicted as a movement backward due to a failure in the achievement of the five corresponding elements.

It is crucial to understand that if any of these elements fail at any level of the cycle, a backwards movement in hygienic behaviour occurs. To illustrate the point, say if a household has access to a toilet but cannot utilise it in the long run due to environmental reasons, that is, lack of sufficient water to flush the fecal matter, and hand-wash. This may make the household members abandon the toilet in the long run and go back to open defecation. Therefore, the experience of sanitation slips back to just possessing toilets and not being able to use them effectively. By taking cognisance of the retrospective character of sanitation, we understand that slippage here is a manifest injustice resulting from a failure in circumstances and procedures that can occur both at an institutional and individual level. The Sanitation Well-being Framework not only identifies it as revealed injustice that has been present despite six decades of sanitation intervention in India (Khare & Jose 2020), but also helps in tracing the gradual abandonment of toilets owing to different factors. It is defined as the reversal of hygienic preferences. However, there is no concrete ground to observe the reversal, and to understand through which path this may happen. The sanitation life-cycle provides a concrete path across which one can identify the movement from hygienic to unhygienic status. It points towards the character of slippage emerging not only as visible fecal matter in the environment, despite households having access to toilets, but also an individual's or a household's degenerated sanitation response to the failed personal, cultural, environmental, structural, and service factors. The factors are inherent in the procedural aspect of the implementation of the program. The social justice lens identifies the five elements in the framework, scaled along with the sanitation life stages as the capability set, which determines slippage and tries to understand sanitation as a phenomenon. It helps us know where the opportunities and freedoms are lacking while assessing sanitation well-being. Having access to toilets regularly and to sound, safe disposal facilities, being in an environment free of contamination, prioritising sanitation through reasoned debate, and protection from coercive practices are potential examples of preferred states of beings and doings.

Part II: Review of data sets and existing frameworks

Data sets

In this section, we reviewed two data sets through the social justice lens as applied in sanitation. From the National Family Health Survey 2015–2016 (NFHS-4) we looked at data from rural India (the National Family Health Survey (2015–2016) sample is a stratified two-stage sample. The 2011 census served as the sampling frame for selecting Primary Sampling Units, consisting of 601,509 households). We focused on the type of toilet facility, categorised as improved, shared facility, unimproved and open defecation with no facility. The report defines improved toilet facility as when the toilet is not shared by two or more households (IIPS and ICF 2017); unimproved is defined as 'Pit latrines without a slab or platform, hanging latrines or bucket latrines' (WHO & UNICEF Joint Monitoring Program report (2017b)). These categories are judged based on the information on how the fecal matter is disposed of (Table 1). In rural India, the improved facility is limited to 37%, while the shared facility is around 6%, unimproved facilities make up 3%, while open defecation rates in rural India stand at 54% (Table 1).

Within the improved toilet facility, the maximum percentage of fecal matter is stored in septic tanks. The current technological preference concerning human waste containment and disposal in SBM is the twin leach pit toilet (Ministry of Drinking Water and Sanitation 2016). However, the technology is used by only 0.1% of the population, despite the policy push.

Another finding calculated from the data set (The Demographic Health Survey 2016) presents the extent of open defecation practiced among people belonging to different social hierarchies. As depicted in Table 2, there are three major categories – religion, caste, and class groups; the category class groups are taken from the wealth index (rural) provided in the dataset where households are given scores based on the consumer goods they own. For details, see the NFHS-4 report (IIPS and ICF 2017).

Open defecation is highest within the population belonging to the Hindu religion, 58%, as compared to the Sikh population which is 8%. In the second category, 73% within the Scheduled tribe has the highest percentage of people practicing open defecation as opposed to 33% in the General caste population. In the class groups, we can see that 93% within the poorest households practice open defecation compared to only 6% within the population belonging to the richest category.

Table 1 | Type of toilet facility across rural India

	Type of toilet facility	%
A	Improved, not shared facility	36.7
	Flush/pour-flush to the piped sewer system	1.4
	Flush/pour-flush to the septic tank	22.1
	Flush/pour-flush to the pit latrine	7.7
	Ventilated improved pit (VIP) latrine/biogas latrine	0.7
	Pit latrine with slab	4.6
	Twin pit, composting toilet	0.1
B	Shared facility	6.1
	Flush/pour-flush to the piped sewer system	0.2
	Flush/pour-flush to the septic tank	3.4
	Flush/pour-flush to pit latrine Ventilated improved pit (VIP) latrine/	1.4
	biogas latrine	0.2
	Pit latrine with slab	1
C	Twin pit, composting toilet	0
	Unimproved	3.1
	Flush/pour-flush not to sewer/septic tank/pit latrine	0.6
	Pit latrine without slab/open pit	1.9
	Dry toilet	0.6
D	Other	0.1
	No facility/uses open space/field	54.1

Source: NFHS-4 report.

Table 2 | Open defecation within religion, caste, and class across rural India

	Parameters	%
A	OD within each religion	
	Hindu	57.9
	Muslim	36.6
	Christian	30.6
	Sikh	8.4
	Buddhist/Neo Buddhist	45.0
B	OD within each social background	
	Scheduled tribe	73.1
	Scheduled caste	62.6
	Other Backward Class	56.3
	Do not Know	51.3
	None of the above	32.5
C	OD within each class group	
	Poorest	92.6
	Poorer	62.7
	Middle	74.3
	Richer	34.8
	Richest	6.1

Source: Calculated from NFHS-4 data set.

The World Health Organization and the United Nations Children Fund Joint Monitoring (2017a) database provides global-level information on sanitation status across rural and urban sectors. The database is based on the concept known as the Service Ladders, wherein the rungs of the various service levels in toilet provisions are: safely managed, basic, limited, unimproved, and open defecation. The definitions for each category are given in Table 3 (WHO & UNICEF Joint Monitoring Program 2017b). The service levels reflect access to toilets from the best to the worst. In rural India, 36% of the households practice open defecation, while 39% have access to safely-managed toilet services.

The focus of these two datasets is on the type of toilet and disposal facility. In the sanitation life-cycle, this information is captured by the environment and service elements (Figure 1). The disparity in the data within the categories is glaring. Still, it does not provide us with the reason behind such disparities, which can occur at any point in the sanitation life-cycle. It does not capture information on households that have toilets but still resort to open defecation. Personal, cultural, structural, environmental, and utilisation issues across the sanitation life-cycle inform such disparity that cannot be known from quantitative data. It requires a detailed inquiry into the lives of households and people to understand what allows one group to have better access to the toilets as compared to others.

Analytical frameworks

Here we review five existing frameworks proposed in the last decade to assess the sanitation situation from 2010 onwards. The details are given chronologically in Table 4, with the central argument they endorse, the previous frameworks they critiqued, and proposed alternative frameworks.

Frieden (2010) includes sanitation in a five-tier health pyramid containing socioeconomic factors, change of health context, protective interventions, clinical interventions, and education. It follows the basic needs approach (Martin-Moreno 2011; Marks *et al.* 2013) and equates sanitation with the construction of toilets alone. Driebelbis *et al.* (2013) review eight existing frameworks affecting water and sanitation behavioural change (Table 4) and argue that these are limited to individual-level normative factors. They propose a new matrix model called the Integrated Behavioural Model for Water, Sanitation, and Hygiene which combines contextual, psychosocial, and technology factors with population aggregated at the societal, community, household, individual, and habitual levels. O'Reilly & Louis (2014) propose the Toilet Tripod framework – political will of the government to ensure sanitation services; social pressure in adopting toilets; and the political ecology of the region like land-use changes, increased availability of water, dealing with sewage options, etc. The WHO & UNICEF Joint Monitoring Program (2017b) provides the Sanitation Ladder with five types of toilet services: open defecation, unimproved, limited, basic, and safely managed. This has been extensively discussed under the section which analyses the existing data on sanitation. Apanga *et al.* (2020) propose the Sustainable Sanitation and Hygiene for All framework with four essential criteria: demand creation, sanitation supply chain, hygiene behavioural change communication, and governance, which help in looking at toilet coverage to address the problem of slippage.

The frameworks mentioned above attempt to record the contextual factors well in place but tend to miss an important point, that is, sanitation requirements are dynamic and occur at multiple scales across diverse components. Therefore, they assess a part of the sanitation environment, not the whole of it, with no acknowledgment of sanitation preferences being retrospective in character. Through the Sanitation Well-being Framework, this dynamism can best be captured by way of the sanitation life-cycle, further broken down into the personal, cultural, environment, structure, and service components with the concept of slippage inherent in it.

Table 3 | Sanitation provision service levels across rural India

S. no.	Service levels	Definition	
1.	Safely managed	Use of improved facilities not shared with other households, safe disposal – faeces transported and treated	39.0
2.	Basic	Improved facilities not shared with other households	14.2
3.	Limited	Improved facilities shared between two or more households	7.9
4.	Unimproved	Pit latrines without a slab or platform, hanging latrines, or bucket latrines	2.5
5.	Open defecation	Disposal of human feces in fields, forests, bushes, open bodies of water, beaches, or other open spaces	36.3

Source: WHO-UNICEF JMP database (2017).

Table 4 | Analysis of existing frameworks on sanitation in the last ten years

S. no.	Citation	Existing frameworks/models critiqued/analysed	Framework proposed	Central argument
1.	Frieden (2010)	–	Model of five-tier Health Pyramid	Sanitation as a part of socioeconomic understanding in inducing public health
2.	Driebelbis <i>et al.</i> (2013)	Behavioural models on: Diarrheal prevention (EHP, UNICEF/WES, USAID, World Bank/WSP, WSSCC 2004); Household water treatment (Rainey & Harding 2005); Sanitation by motivation, intention, and choice (Jenkins & Scott 2007); Soap handwashing (Curtis <i>et al.</i> 2009); Handwashing and sanitation (Devine 2009; Coombes & Devine 2010); Household water treatment and storage by awareness, action, and maintenance (Figueroa & Kincaid 2010); Water treatment filters use (Wood <i>et al.</i> 2012); Sanitation practices governed by normative factors (Mosler 2012)	The Integrated Behavioural Model for Water, Sanitation, and Hygiene	Move away from individual normative centric view and propose a broader framework based on ecology
3.	O' Reilly & Louis (2014)	Toilet acquiring drives at the personal level (Jenkins & Curtis 2005); behaviour decision model based on preference-intention-choice (Jenkins & Scott 2007); hybrid model of personal attitude and change in technology (Santos <i>et al.</i> 2011); Sani FOAM behaviour change framework (Devine 2009)	Toilet tripod	Offer an ecology explanation and combines three criteria – political ecology, social pressure, and political will, which assess the sanitation provision
4.	(WHO & UNICEF Joint Monitoring Program 2017b)	–	Service Ladder Framework	Has ordinal toilet provision levels starting from safely managed, improved, unimproved, limited, and open defecation. Serve as comparable indicators to facilitate global comparisons
5.	Apanga <i>et al.</i> (2020)	–	Sustainable Sanitation and Hygiene for All	To assess the impact of government programs in terms of latrine coverage and equity in the levels of coverage

Source: Compiled by the authors.

Part III: Feasibility of the sanitation well-being framework

A Rapid Rural Appraisal was undertaken in rural Shravasti to see whether slippage actually exists in the sanitation interventions and to test the feasibility of the Sanitation Well-being framework theorised with reference to Amartya Sen's conception of justice. Both the GPs have institutions from the grassroots upwards to facilitate efficient planning, implementation, and monitoring of the program. This is also coupled with an incentive for the individual to construct toilets and to adopt behaviour change. Techniques like Community-led Total Sanitation and School-led Total Sanitation ([Ministry of Drinking Water and Sanitation 2018a](#)) have also been widely used in the villages identified.

The Gram Pradhans (village chiefs) and officials from the CSO confirmed the presence of slippage in the Gram Panchayats. According to the village chiefs in both the villages, at least 25% of the households still practice open defecation, despite having access to toilets, mobilisation activities, and consistent follow-up. The understanding of slippage among the CSO officials is restricted to under-sanctioning of toilets to the newly-formed households. It is believed that the beneficiaries left out are the ones that are practicing open defecation because they are yet to receive the incentive amount from the government for the toilet construction. There is an assumption that people will comply and stop going outside once the resources are made available. However, based on direct observation of fecal matter in the orchards, riverbanks, and agricultural fields, and of children relieving themselves in the open spaces within the school premises, we understand that slippage has wider determining factors.

The participants identified and acknowledged the five stages in sanitation: acceptance, construction, utilisation, maintenance, and safe disposal. There is a presumption that all the households in both panchayats experience all the sanitation life-cycle stages without interruption. However, since the toilets were freshly constructed, it is unlikely for a household to experience all the stages at once. Also, for a household to reach the next stage of the sanitation life-cycle, it is not necessary for them to go through previous stages in a linear order. Hence, the experience of sanitation is not sequential but overlapping. Therefore, the experience of a household with the sanitation life stages will vary. The program has a broader focus on toilet construction, usage, and safe disposal, and thus interim stages of the sanitation life-cycle are likely to be neglected. As a result, the disruptions in the cycle are experienced by the households as well. We present the findings of the rapid assessment using the framework proposed ([Figure 1](#)).

The first stage, that is the acceptance stage of the sanitation life-cycle, is an outcome of structural provisioning alone. It consists of regulation in the form of mobilisation, follow-up, and fines by the panchayat and CSO to promote toilet adoption. The achieved functioning is being able to accept that possessing a toilet is necessary and to plan for toilet construction subsequently. However, we do not know whether this acceptance is out of choice, as information on other elements remains to be explored. As far as the construction stage of the life-cycle is concerned, through direct observation and data from officials, it was found that around 80% of households had toilets. The infrastructural provision on the school premises in the panchayats is impressive but not used as much as it should be. The schools have toilets for people with disabilities, small children, men and women; they also possess incinerators, sewage compost pits, and hand-wash stations. We see awareness-spreading messages on the wall in both GPs which align with the program guidelines ([Ministry of Drinking Water and Sanitation 2018b](#)). Based on the interactions, it was understood that the official review visits stay limited to these premises, which is a skewed representation of the sanitation provisions of the village. It is also indicative of the simplistic understanding of sanitation as infrastructural provision, lending a resource-centric view to sanitation that is often favoured by the executives. However, in this case, the achieved functioning is having a toilet constructed. With the application of the framework, it would be interesting to find out whether the toilet as a resource actually translates into sanitation well-being or not.

At the utilisation stage, one of the beneficiaries of the program expressed that there is intermittent usage of toilets among the household members. In Kanjadwa, people are relatively poorer than in Bhikharipur Masahi and have spatial constraints in constructing toilets. Consequently, most of the toilets have been constructed in proximity to the kitchen space, which is often found repulsive by the residents. Hence, they prefer to defecate in the nearby agricultural fields. However, there are other elements to be explored, as suggested by the Sanitation Well-being Framework, to capture wider information on the restrained usage of toilets.

Another critical factor that influences sanitation adoption is religion and caste. As per the social maps, we can see clear division in the settlements across caste and religion in both the panchayats. According to the district-level NFHS-4 data, calculated for Shravasti district, open defecation among Muslim households is relatively less than among Hindu households, around 83 and 92%, respectively, whereas 96% among the poorest and 22% among the richest households go out for open defecation. On the other hand, 94% within the Scheduled Tribes, 71% within Schedule Caste, 91% Other Backward

Castes, and 81% among the General castes practice open defecation in the region. The framework will help capture the underlying reasons behind such disparities in experiencing sanitation well-being.

The study reveals the potential that the framework has in identifying that areas that require intervention while at the same time evaluating sustained sanitation adoption. For future prospects, the usage of the framework is likely to identify wider informational attributes for detailed qualitative study of sanitation as a phenomenon and the reasons associated with slippage. It may prove to be an instrument of enquiry enabling researchers, program managers and policy makers to understand the nuances behind slippage, being a recurring event in the sanitation interventions in India.

CONCLUSIONS

Sanitation interventions in rural India suffers from a unilateral understanding of making toilets available to people at large. The resource-led focus develops into an ideal that informs the present and previous policy interventions. The resolution in sanitation interventions hence cater to this limited understanding. In this study, we have looked at three parts – proposing the Sanitation Well-Being Framework based on principles of justice proposed by Amartya Sen, a review of the existing data sets and frameworks, and testing the feasibility of the proposed framework in two Gram Panchayats of rural Shravasti. We have tried to bridge the gap between the ideal and the actual by making slippage central to the argument. The Sanitation Well-being Framework makes an appeal to see emerging unjust circumstances that may be used to provide a remedy to arrest the situation. When the existing data sets and frameworks were reviewed through this lens, it was found that there is in fact a partial representation of sanitation. The findings from the field confirm that there is slippage in Gram Panchayats that have already been declared open defecation free. The framework identifies attributes that influence sanitation life stages, which are responsible for the occurrence of slippage. It points us to enquire as to what sanitation well-being really is. Is it the mere possession of toilets, or is it rather the overall improvement of sanitation experiences, which in turn ensures justice?

DATA AVAILABILITY STATEMENT

All relevant data are included in the paper or its Supplementary Information.

REFERENCES

- Apanga, P. A., Garn, J. V., Sakas, Z. & Freeman, M. C. 2020 *Assessing the impact and equity of an integrated rural sanitation approach: a longitudinal evaluation in 11 Sub-Saharan Africa and Asian Countries. International Journal of Environmental Research and Public Health* **17** (5), 1808. <https://doi.org/10.3390/ijerph17051808>.
- Brown, C. 2010 *On Amartya Sen and the idea of justice. Ethics & International Affairs* **24** (3), 309–318.
- Chambers, R. 1981 *Rapid rural appraisal: rationale and repertoire. Public Administration and Development* **1** (2), 95–106.
- Chambers, R. 1994 *The origins and practice of participatory rural appraisal. World Development* **22** (7), 953–969.
- Coombs, Y. & Devine, J. 2010 *Introducing FOAM: A Framework to Analyze Handwashing Behaviors to Design Effective Handwashing Programs*. The World Bank, Water and Sanitation Program. Working Paper 22. Washington, DC.
- Creswell, J. 2017 *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 4th edn. Sage Publications, USA, pp. 237–238.
- Curtis, V. A., Danquah, L. O. & Aunger, R. V. 2009 *Planned, motivated and habitual hygiene behavior: an eleven country review. Health Education Research* **24** (4), 655–673.
- Devine, J. 2009 *Introducing SaniFOAM: a framework to analyze sanitation behaviors to design effective sanitation programs*. The World Bank Water and Sanitation Program. Working paper 22 Washington DC: pp 1–28.
- Dreibelbis, R., Winch, P. J., Leontsini, E., Hulland, K. R. S., Ram, P. K., Unicomb, L. & Luby, S. P. 2013 *The integrated behavioral model for water, sanitation, and hygiene: a systematic review of behavioral models and a framework for designing and evaluating behavior change interventions in infrastructure-restricted settings. BMC Public Health* **13** (1), 1015. <https://doi.org/10.1186/1471-2458-13-1015>.
- Dwipayanti, N. M. U., Phung, T. D., Rutherford, S. & Chu, C. 2017 *Towards sustained sanitation services: a review of existing frameworks and an alternative framework combining ecological and sanitation life stage approach. Journal of Water, Sanitation, and Hygiene for Development* **7** (1), 25–42.
- EHP, UNICEF/WES, USAID, World Bank/WSP, WSSCC 2004 *The Hygiene Improvement Framework: A Comprehensive Approach for Preventing Childhood Diarrhea*. Environmental Health Project, Washington, DC, 29.
- Figueroa, M. E. & Kincaid, D. L. 2010 *Social, Cultural, and Behavioral Correlates of Household Water Treatment and Storage*. In Center Publication HCI 2010-1. *Health Communication Insights*. Johns Hopkins Bloomberg School of Public Health, Center for Communication Program Baltimore, MD.
- Frediani, A. A. 2010 *Sen's capability approach as a framework to the practice of development. Development in Practice* **20** (2), 173–187.
- Frieden, T. R. 2010 *A framework for public health action: the health impact pyramid. American Journal of Public Health* **100** (4), 590–592.

- Galvin, M. 2015 Talking shit: is community-led total sanitation a radical and revolutionary approach to sanitation? *Wiley Interdisciplinary Reviews: Water* 2 (1), 9–20.
- Gimelli, F. M., Bos, J. J. & Rogers, B. C. 2018 Fostering equity and wellbeing through water: a reinterpretation of the goal of securing access. *World Development* 104, 1–9. <https://doi.org/10.1016/j.worlddev.2017.10.033>.
- Goff, M. & Crow, B. 2016 What is water equity? The unfortunate consequences of a global focus on drinking water. *Water International* 39 (2), 159–172. <https://doi.org/10.1080/02508060.2014.886355>.
- Gupta, A., Khalid, N., Deshpande, D., Hathi, P., Kapur, A., Srivastav, N., Vyas, S., Spears, D. & Coffey, D. 2020 Revisiting open defecation evidence from a panel survey in rural North India, 2014–18. *Economic & Political Weekly* 55 (21), 55–63.
- International Institute for Population Sciences (IIPS) and ICF 2017 *National Family Health Survey (NFHS-4), 2015–16 Report*. IIPS, Mumbai, India.
- Jenkins, M. W. & Curtis, V. 2005 Achieving the ‘good life’: Why some people want latrines in rural Benin. *Social Science & Medicine* 61 (11), 2446–2459.
- Jenkins, M. W. & Scott, B. 2007 Behavioral indicators of household decision-making and demand for sanitation and potential gains from social marketing in Ghana. *Social Science & Medicine* 64 (12), 2427–2442.
- Jepson, W., Harris, L. M., Jepson, W., Budds, J., Eichelberger, L., Harris, L. & Young, S. 2017 Advancing human capabilities for water security: a relational approach. *Water Security* 1, 46–52. <https://doi.org/10.1016/j.wasec.2017.07.001>.
- Kar, K. & Chambers, R. 2008 *Handbook on Community Led Total Sanitation*. Institute of Development Studies, University of Sussex, Sussex.
- Khare, K. & Jose, S. 2020 Closing access loop: situating post-infrastructure assurance circumstances in rural sanitation. In: *Solid Waste Policies and Strategies: Issues, Challenges and Case Studies*. Springer, Singapore, pp. 73–83. https://doi.org/10.1007/978-981-15-1543-9_7
- Marks, L., Hunter, D. J. & Alderslade, R. 2013 *Strengthening Public Health Capacity and Services in Europe: A Concept Paper*. World Health Organisation, Denmark.
- Martin-Moreno, D. J. 2011 A systematic approach to public health operations and services: towards positive coordination with health care and other services. In: *First Meeting of the European Health Policy Forum for High-Level Government Officials*. World Health Organisation, Andorra, pp. 5–7.
- Mehta, L. 2014 Water and human development. *World Development* 59, 59–69.
- Ministry of Drinking Water and Sanitation 2016 *Handbook on Technological Options for On-Site Sanitation in Rural Areas*. Government of India, New Delhi.
- Ministry of Drinking Water and Sanitation 2018a *Guidelines for Swachh Bharat Mission (Gramin)*. Government of India, New Delhi.
- Ministry of Drinking Water and Sanitation 2018b *IEC Guidelines for States and Districts*. Government of India, New Delhi.
- Ministry of Drinking Water and Sanitation 2020 *Swachh Bharat Mission Target vs. Achievement on the Basis of Detail Entered*. Available from: https://sbm.gov.in/sbmReport/Report/Physical/SBM_TargetVsAchievementWithout1314.aspx (accessed 18 September 2019).
- Ministry of Home Affairs, Government of India 2011 *Census of India 2011 Availability and Type of Latrine Facility*. Available from: https://censusindia.gov.in/2011census/hlo/Data_sheet/India/Latrine.pdf (accessed 18 September 2019).
- Ministry of Statistics and Program Implementation 2018 *NSS 7th Round – July 2018–December 2018*. Government of India, New Delhi.
- Misnaming Toilets 2018 Misnaming toilet building as ‘Swachhata,’ the Swachh Bharat Mission outwits rights-based development with lofty statistics. *Economic and Political Weekly* 53(41).
- Mosler, H. J. 2012 A systematic approach to behavior change interventions for the water and sanitation sector in developing countries: a conceptual model, a review, and a guideline. *International Journal of Environmental Health Research* 22 (5), 431–449.
- O’Reilly, K. & Louis, E. 2014 The toilet tripod: understanding successful sanitation in rural India. *Health & Place* 29, 43–51.
- Rainey, R. C. & Harding, A. K. 2005 Acceptability of solar disinfection of drinking water treatment in Kathmandu Valley, Nepal. *International Journal of Environmental Health Research* 15 (5), 361–372.
- Reddy, V. R., Rao, M. R. & Venkataswamy, M. 2010 ‘Slippage’: The Bane of Rural Drinking Water Sector (A Study of Extent and Causes in Andhra Pradesh). *Microeconomics Working Papers* 22734. East Asian Bureau of Economic Research, The Australian National University, Canberra.
- Santos, A. C., Roberts, J. A., Barreto, M. L. & Cairncross, S. 2011 Demand for sanitation in Salvador, Brazil: A hybrid choice approach. *Social Science & Medicine* 72 (8), 1325–1332.
- Sayre-McCord, G. 2000 Contractarianism. In: *The Blackwell Guide to Ethical Theory (Blackwell Philosophy Guides)* (LaFollette, H., ed.). Blackwell Publishing Ltd, Oxford, pp. 247–267.
- Sen, A. K. 1992 *Inequality Re-Examined*. Oxford University Press, Oxford, pp. 39–40, 175.
- Sen, A. 2000 *Development as Freedom*. Alfred A. Knopf, Inc, New York.
- Sen, A. 2006 What do we want from a theory of justice? *The Journal of Philosophy* 103 (5), 215–238.
- Sen, A. K. 2009 *The Idea of Justice*. Belknap Press of Harvard University Press, Cambridge.
- Sen, A. 2013 The ends and means of sustainability. *Journal of Human Development and Capabilities* 14 (1), 6–20.
- Snehalatha, M., Anitha Raj, V., Busenka, P. & Venkataswamy, M. 2014 Nirmal Gram Puraskar and sanitation service levels: the curse of slippage. *Sustainable Water and Sanitation Services: The Life-Cycle Cost Approach to Planning and Management* 126, 136–157. <https://doi.org/10.4324/9780203521670>.

- Srinivasan, T. N. 1994 Human development: a new paradigm or reinvention of the wheel? *The American Economic Review* **84** (2), 238–243.
- Sugden, R. 1993 Welfare, resources, and capabilities. A review of inequality re-examined by Amartya sen. *Journal of Economic Literature* **31** (4), 1947–1962.
- The Demographic Health Survey 2016 *Data From: India: Standard DHS, 2015–16*. Demographic and Health Surveys. Available from: https://dhsprogram.com/data/dataset/India_Standard-DHS_2015.cfm?flag=0 (accessed 17 September 2019).
- The Hindu 2019 *Not so Swachh: on Sanitation Goals*. Available from: <https://www.thehindu.com/opinion/editorial/not-so-swachh/article30090214.ece> (accessed 1 December 2019).
- Tomer, J. F. 2002 Human well-being. A new approach based on overall and ordinary functionings. *Review of Social Economy* **60** (1), 23–45.
- Tully, J. 2013 Two ways of realizing justice and democracy: linking Amartya Sen and Elinor Ostrom. *Critical Review of International Social and Political Philosophy* **16** (2), 220–232.
- WHO & UNICEF 2017a *Updated Estimates Available for Household Drinking Water, Sanitation, and Hygiene Database*. Available from: <https://washdata.org/data/household#!/> (accessed 18 September 2019).
- WHO & UNICEF 2017b *Progress on Drinking Water, Sanitation, and Hygiene: 2017 Update and SDG Baselines Report*. World Health Organization and the United Nations Children's Fund, Switzerland.
- WHO & UNICEF 2018 *JMP Methodology 2017 Update & SDG Baselines Report*. World Health Organization and the United Nations Children's Fund, Switzerland.
- Wood, S., Foster, J. & Kols, A. 2012 Understanding why women adopt and sustain home water treatment: insights from the Malawi antenatal care program. *Social Sciences Medicine* **75** (4), 634–642.

First received 9 April 2021; accepted in revised form 18 August 2021. Available online 13 September 2021