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Human right to sanitation in the legal and non-legal literature: the need for greater synergy

Pedi Obani^{1,2,3} and Joyeeta Gupta^{1,2*}

This review paper analyzes the legal and non-legal literature on the human right to sanitation (HRS). It shows that despite applying different paradigms in framing the HRS, both literature support the following three main conclusions: (a) state and non-state actors, particularly NGOs and private service providers, have potentially mutually supportive roles in the implementation of the human right to water and sanitation (HRWS); (b) the implementation is enmeshed in three potential conflicts—between the human rights approach and cost recovery, state provision of services and the implicit legitimization of informal settlements, and the empowerment of vocal rights holders rather than the marginalized rights holders for whom these rights are primarily meant; and (c) HRWS needs to be better linked to other fields and broader issues to ensure complementarities. The paper also highlights important lessons for both legal and non-legal scholars to learn from each other's research and possibly forge strong multi- and interdisciplinary research themes. Non-legal scholars can benefit from the legal literature's coverage of: (a) the normative content of the HRWS; (b) the theoretical justifications for HRWS; (c) the legal status of HRWS; (d) enforcement mechanisms; and (e) the accountability of duty bearers. Legal scholars can also benefit from the non-legal literature's coverage of: (a) a broader scope for the HRWS and the indicators and monitoring systems used by non-lawyers; (b) learning from the community-led total sanitation (CLTS) experience; (c) the economic justifications for HRWS; (d) the need to link to appropriate technologies; and (e) the accountability of non-state actors. © 2016 The Authors. *WIREs Water* published by Wiley Periodicals, Inc.

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INTRODUCTION

The human right to sanitation (HRS) is a legal construct primarily discussed by legal scholars, but it has emerged as a prominent socio-political

discourse and engaged a much wider community beyond lawyers. Its prominence in tackling the global sanitation challenge has been on the rise, particularly since the International Year of Sanitation in 2008 and the adoption of the United Nations General Assembly (UNGA) and Human Rights Council (HRC) Resolutions on the human right to safe drinking water and sanitation (HRWS) in 2010. The HRS has since become a subject for conceptual, socio-political, and legal enquiries about its meaning, impact on human lives, and enforceability as a binding right. Hence, this paper adopts a multidisciplinary perspective to explore the main HRS-focused research themes in the legal (used here as a generic term for publications by legal scholars) (see second section) and non-legal literature (used here as a

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generic term for publications by non-legal scholars; see third section) for the period 1990–2015, compiled through Google Scholar, Wiley Online, and Science Direct to address the questions: (a) what are the current perspectives on the HRS in the legal literature, (b) how does this compare with the coverage of the HRS in the non-legal literature, and (c) what are the implications for the implementation of the HRS?

THE HRS IN THE LEGAL LITERATURE

The legal literature discusses the HRS mostly within the context of the HRW and the HRWS and only more recently as an independent right, hence the structure of this section.

The Human Right to Water and Sanitation (HRWS)

Evolution: Slow to Start but Needs Quick Implementation

The HRWS evolved in international law through soft law instruments like the political declarations of States and the resolutions of UN human rights organizations and hard law sources like treaties. Although it emerges from legally binding treaties like the International Covenant on Economic, Social, and Cultural Rights, 1966 (ICESCR: Article 11), the Convention on the Elimination of All Forms of Discrimination Against Women, 1979 (CEDAW: Article 14.2h), and the Convention on the Rights of the Child, 1989 (CRC: Article 24.1 and 24.2c), these treaties are not explicit about this right, while soft law declarations have often been more explicit. A prominent example of a political declaration recognizing the rights to water and access to sanitation is the Dublin Statement of the International Conference on Water and the Environment, 1992, which, nonetheless, also controversially recognized water as an economic good (Ref 1, p. 296, Ref 2, pp. 29–30).

This potentially creates tensions for the implementation of the right in areas where people cannot afford to pay for water. In 2002, the UN Economic and Social Council's General Comment No 15 interpreted the ICESCR provisions to narrowly argue that it included a right to 'essential water' for survival and the realization of other ICESCR rights, also making a reference to adequate sanitation and water quality as fundamental to the right to dignity and privacy (Ref 3, p. 403). Subsequently in 2010, access to safe and clean drinking water and sanitation was recognized as a human right by the UNGA and the HRC (Ref 2, p. 29). The HRC 2010 recognition includes procedures like the appointment of an independent expert (UN Special Rapporteur on the human right to safe drinking water and sanitation) mandated to report and advise on the HRWS and special enforcement mechanisms to complement the court system, which most soft law does not contain (see Table 1).

The international recognition of the HRWS was preceded by recognitions in national laws and court decisions following decades of lobbying by actors, including communities and international organizations (Refs 4 and 5, pp. 97–100). However, national recognition focused on individuals without sufficiently considering the political, economic, and ecological costs to national governments (Ref 6, p. 962). In practise, States face contextual implementation challenges, such as limited cost recovery options and other transaction costs (Ref 6, Third section). Hence, the UNGA 2010 Resolution '[C]alls on States and international organizations to provide financial resources, capacity-building and technology transfer, through international assistance and cooperation, in particular to developing countries, in order to scale up efforts to provide safe, clean, accessible, and affordable drinking water and sanitation for all.' More recently, the adoption of the Sustainable Development Goals (SDGs) in 2015 sets a deadline for the achievement of universal access to water and sanitation services by 2030. While the SDGs are not justiciable, they create an additional impetus for

TABLE 1 | Evolution of Key International HRWS Instruments and Enforcement Mechanisms

Year	Source	Enforcement Mechanism
1966	International Convention on Economic, Social, and Cultural Rights	Monitoring through the Committee on Economic, Social, and Cultural Rights
1979	Convention on the Elimination of all Forms of Discrimination Against Women	Monitoring through the Committee on Elimination of All Forms of Discrimination Against Women
2010	UNGA Resolution A/64/292 The human right to water and sanitation; UN Doc. A/HRC/RES/15/9 Human rights and access to safe drinking water and sanitation	Universal periodic review; HRC special procedures (e.g., reports by the UN Special Rapporteur on the human right to safe drinking water and sanitation)

HRC, Human Rights Council; HRWS, human right to water and sanitation; UNGA, United Nations General Assembly.

accelerating the implementation of this right as more than 4 billion people today are living without access to sanitation services like toilets and sewerage treatment (Ref 7).

Justification: Moral-, Legal-, Health-, and Environment-Related Obligation

The HRWS has been advocated on moral and legal grounds as it enhances human security, privacy, and dignity; reduces vulnerabilities; contributes to achieving other rights like the right to an adequate standard of living; and calls for state responsibility (Ref 3, pp. 390–391, Refs 8–11). It combats water poverty (Ref 12, p. 293) and helps address broader health and environmental considerations, thereby reducing the likelihood of epidemics and environmental contamination.

It also arguably counters the inequitable outcomes resulting from defining water as an economic good (Ref 6, p. 959, Ref 10). The latter promotes cost recovery and profits and led private sector and state providers to prioritize richer consumers, compelling poor communities to rely on informal services that are paradoxically often more expensive and pose health risks (Ref 13, pp. 12–13). A second paradox is caused by tenure insecurity, which limits household willingness to invest in sanitation in informal settlements (Ref 14), while tenure security provides an enabling legal space for municipal and communal planning of appropriate local sanitation facilities (Ref 15). Implementing the HRWS requires States to consider that the benefits of reduced public health risks accrue also to the wider population and possibly outweigh the risk that providing services to informal settlements may inadvertently be seen as legalizing them (Ref 16, p. 69). A third paradox is that ‘active’ rights holders demand their human rights, while vulnerable rights holders such as illegal immigrants may be incapable of doing the same, thus further marginalizing them (Ref 17, pp. 1–27, Ref 18, pp. 152–153, Ref 19).

The recognition of the HRWS will not improve living conditions overnight. However, it can potentially address inequities by empowering those without access and providing opportunities for legal redress of violations (Ref 3, p. 390). Comprehensive implementation is only possible when state responsibility goes beyond articulating the right to follow-up policy action (Ref 20), including integration in national budget cycles through formulation, enactment, execution, and oversight (Ref 13, p. 15). This, in combination with human rights advocacy by non-state actors, public participation, innovative financing (Ref 21, p. 980), and monitoring, can potentially

tackle some of the drivers of the lack of access (Refs 10 and 22).

Definition: Limited in Character

The HRWS entitles everyone to sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic uses like drinking, cooking, and hygiene (Ref 18, p. 136). A state cannot be held liable for violating this obligation where it takes ‘deliberate, concrete and targeted’ action (Ref 2, p. 29). However, the right imposes ‘a basic level of satisfaction, below which the right in question would lose its essence, without the State being able to invoke the lack of economic resources to justify its non-fulfilment’ (Ref 18, p. 137). States may gradually implement the wider scope of the HRWS in addition to the immediate implementation of its core obligations. These include non-discrimination, equitable distribution of access to available water and sanitation facilities and services, security of users, monitoring, and ensuring access to a minimum essential amount of water that is sufficient for personal and domestic uses to prevent disease (progressive realization). States may not take counter-productive measures (‘retrogression’) and should utilize the maximum available resources to ensure a basic level of satisfaction (Ref 18, p. 137), especially for the poorest (Ref 23, p. 396). However, interpreting ‘the maximum available resources’ and ‘progressive realization’ is challenging, and most States complain of limited resources while prioritizing other projects; it is indeed difficult to challenge the planning priorities of States (Ref 21, p. 977). To ensure that real or perceived scarcity of resources is not used as an excuse, maximum available resources could be interpreted to include financial and non-financial resources (Ref 24, pp. 405–420). Indicators could compare national allocation to water and sanitation against allocations to other sectors and States compliance with both national and international commitments (like the ‘eThekweni Commitments on Sanitation’ contained in the eThekweni Declaration endorsed by African Heads of State at the AU Summit in 2008 in Sharm El Sheikh) when making budget decisions (see Financing in Ref 13, pp. 6–7).

Imposed Duties and Liabilities: On States, the International Community, Private Sector, and Individuals

The HRWS requires States to: respect by refraining from directly or indirectly interfering with the enjoyment of the right; protect by preventing third parties from interfering with the enjoyment of the right; and fulfil by establishing enabling conditions for the

universal realization of the right (see Introduction in Ref 13). It also imposes extraterritorial obligations on richer States to respect, protect, and assist with the realization of the right in other countries (see Introduction in Ref 13).

Although the primary obligation rests on States (Ref 25), they may delegate service provision, except when this compromises the implementation of the HRWS (Refs 26–30). Subject to regulation, monitoring, and oversight to ensure compliance with human rights norms, non-State actors, like international financial organizations and business enterprises, can assist developing countries to scale up water and sanitation services.

There is an emerging discourse on the responsibility of international organizations to provide assistance and cooperation to scale up universal access (UNGA Resolution 64/292 of 3 August 2010 on the HRWS) and international corporate human rights responsibility, through which private corporations may be liable for HRWS violations either directly by denying water and sanitation services or indirectly by polluting the water, as in the extractive industry (Ref 25, p. 41). The discourse is supported by legal instruments and judicial and quasi-judicial decisions on the related human rights obligations of corporations (Ref 25, pp. 55–64).

Furthermore, the HRWS imposes an individual responsibility on users to maintain their sanitation facilities (Ref 26, p. 36) and pay for the services if they can, (Ref 23, p. 296), and a collective responsibility on States to regulate the services and ensure access (Ref 18, p. 138).

Legal Status: Binding Despite Unsettled State Practise

There are three discourses on the legal status of the HRWS. The first is that it is either soft law (Ref 28, p. 654), which offers limited protection in case of violation, or derived from hard law, but the scope

and content of the right remain ill-defined (Ref 3, p. 391, p. 394, p. 405). The second argues that the HRWS is a binding legal obligation as it exists in soft and hard law and is increasingly included in national law (Ref 21, p. 980, Ref 34). The third argues that it is a principle of customary international law based on State practice, national and international jurisprudence (Ref 2, p. 30, 31), and Goal 6 of the SDGs (see Table 2).

However, implementing this right is difficult. First, the HRW is an individual right and may negate collective rights, such as indigenous people's rights of access to water for multiple uses as part of their natural resources (Ref 34, p. 90). Second, it is not clear if the rights language creates a political obligation, which imposes significant administrative and legal challenges, or is just a guiding principle for affirmative state action subject to available resources (Ref 35, p. 4). Third, the HRWS has not yet been universally recognized, affecting its legitimacy; there were 41 State abstentions to UNGA Resolution 2010 (Ref 18, p. 154). However, most abstentions had procedural, rather than substantive, reasons (Refs 2 and 36), and with the adoption of the SDGs, the international focus has turned to building the capacity to implement, monitor, and report on the HRWS (Refs 37 and 38), even in the absence of universal formal national recognition of the right (Refs 39 and 40).

Legal Accountability: Strong and Empowering

Effective implementation requires legal accountability. This can be undertaken first through using global administrative law principles like legality and due process, the rule of law, transparency, accountability, and substantive human rights norms (Ref 41) to hold States accountable (see Table 3). However, resorting to global administrative law may be seen as imposing a 'Western construct' on domestic political processes, unduly influencing the judiciary, or subverting

TABLE 2 | Status of the HRWS in International Law

Legal Status	Reason	References
Self-standing or independent right, Derived from hard law, with a unique status, and a strong candidate to be considered part of international customary law	Because it is based on the explicit wording in CRC & CEDAW; but there are uncertainties regarding scope & content	3,20,32
Binding right to water and sanitation	Inclusion in existing human rights treaties, soft law instruments, and domestic law	13,21
Customary international norm	The evolution of State practice, national and international jurisprudence, and the activities of several international bodies; Evidence of State practice and <i>opinio juris</i>	10,33

CEDAW, Convention on the Elimination of All Forms of Discrimination Against Women; CRC, Convention on the Rights of the Child; HRWS, human right to water and sanitation.

TABLE 3 | Mechanisms for Legal Accountability

Mechanism	Features
Global administrative law principles	Include substantive human rights norms and procedural human rights and administrative law principles; provides an avenue for holding private sector accountable for their operations in the delivery of public services
Structural, process, and outcome indicators	Distinguish between three analytical categories: the human rights policy framework, its quantifiable aspects, and impacts on vulnerable groups
Normative indicators	Measure implementation of human right norms without distinguishing analytical categories
Hybrid of structural and normative indicators	Analytically assess the impacts of human rights policies on vulnerable groups, and the realization of human rights norms
Process model indicators	Emphasize the need for indicators to emerge from a participatory process and reflect human rights norms

national democratic processes and sovereignty (Ref 41, p. 207) if these norms are not already institutionalized by the relevant country (Refs 41 and 42). However, the validity of this argument is fading with the adoption of the SDGs, reflecting its universal norm nature (Refs 2 and 27). Furthermore, the technical guidelines for the HRWS limit the exercise of judicial discretion and thereby ensure predictability in the legal system (Ref 28, p. 666).

To promote accountability, indicators can be used to monitor the progressive realization by States (Refs 43 and 44); most legal indicators for the HRS are qualitative, reflecting the contextual nature of good sanitation practices (Ref 26). Indicator types include: (a) structural indicators analyzing the policy framework for implementing the right, process indicators investigating quantifiable aspects of the policy framework, and outcome indicators for monitoring access in a disaggregated way; (b) indicators on the normative content of the right; (c) a hybrid mix of the above approaches (Ref 43, pp. 9–11); and (d) a process model designed to both reflect the norms and ensure political relevance through justification (systematic, rather than random, selection of indicators linked to human rights norms), conceptualization (indicators appropriate for monitoring State accountability and the structure-process-outcome framework that is currently applicable for human rights indicators within the UN system), identification of candidate indicators through an inclusive participatory process, which helps incorporate the indicators already being used by actors, and review, which checks whether selected indicators are adequately indicative of compliance (Ref 45, pp. 163–176). Civil society organizations can also monitor accountability through: (a) social audits for assessing public financial records; (b) procurement monitoring to review procurement processes and contract awards; (c) citizens' report cards measuring users' satisfaction with services in correlation to public spending; and

(d) public expenditure tracking surveys monitoring budget allocations (see Financing in Ref 13, p. 39).

HRWS: Slow to INTEGRATE in Relevant Legal Fields

Human rights law is internally focused and has scarcely integrated with water (Refs 46 and 47), environmental, trade and investment laws (see Figure 1). For example, Bilateral Investment Treaties and the arbitral awards of the International Centre for Settlement of Investment Disputes (ICSID) have sometimes constrained the ability of States to fulfil their human rights obligations either directly, through stabilization clauses that prevent new laws or amendments to promote the HRWS, or indirectly, by preventing the States' direct investment in service provision due to indemnities (Ref 48). Contracts and arbitration terms are often agreed to between the government and the private sector, without the participation of the

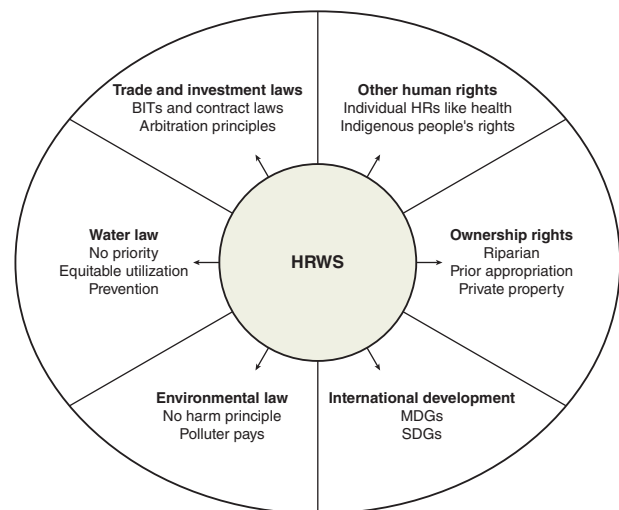


FIGURE 1 | Human right to water and sanitation (HRWS): Slow to integrate.

intended beneficiaries, and remain shrouded in secrecy (Ref 49).

Such integration could be mutually beneficial in a pluralist setting, under which different normative legal orders apply for water and sanitation governance. For instance, the UNECE-WHO/Europe Protocol on Water and Health 1999, which entered into force in 2005 and currently applies to 41 developed parties, although open to global participation, is an important source of international water law that complements the HRWS by obliging State Parties to pursue universal and equitable access to water and sanitation and takes into account local problems, needs, and knowledge while giving special consideration to the protection of people who are vulnerable to water-related diseases and those who suffer social exclusion or disadvantage (Ref 50, p. 273, pp. 283–284). The UN Watercourses Convention 1997, which entered into force in 2014, prescribes ‘no priority of use’ of waters; it thereby competes with the priority implicit in the HRWS (Ref 51, p. 65). Interpreting treaties from a human rights perspective implies going beyond the limiting effects of the horizontal state-to-state focus characteristic of international law (Ref 52, p. 180, p. 187). Effective implementation of the right calls for reconciling tensions with related treaties and other legal, ecosystemic, and participative paradigms (Refs 51 and 53) operating in the water and sanitation sector at various levels of governance.

Many countries also have national systems of water rights emerging from riparian and prior-appropriation systems and new private ownership of water, which may hinder the implementation of the HRWS (Ref 6, pp. 997–1001). Therefore, States will need to go beyond the recognition of the HRWS to reconcile these tensions by establishing reporting and monitoring systems, financing mechanisms and educational programs, institutionalizing the principle of subsidiarity, using consent rules in consultations, designing context-relevant participation to foster mutual exchange of knowledge (Ref 54), promoting greater policy coherence, and ensuring the justiciability of the right (Ref 51, p. 68).

The HRS Focused Literature

Most of the above analysis also applies to HRS. The limited HRS literature focuses on its evolution, definition and content, and its link to the HRS and broader fields of law and explains why its implementation is slower than that of HRW.

Evolution, Definition, and Content: Slow to Start but Picking Up in Speed

Sanitation, historically seen as an engineering solution to public health challenges like cholera, has been generally defined technically as providing relevant infrastructure (Ref 55, p. 17). The UN Special Rapporteur, however, defines the HRS in terms of the States’ duty to provide access to sanitation systems that meet qualitatively defined norms like availability, safety, acceptability, accessibility, affordability, access to information, and non-discrimination (Ref 55, p. 18). Availability requires States to establish relevant systems and structures to prioritize and ensure sufficient quantity of water for personal and domestic uses, and waste treatment and disposal facilities to protect human health and dignity and the environment. Safety requires that domestic water should be free of contaminants and toilets well-constructed, hygienically maintained, and safely accessible even at night. Acceptability means that the spatial distribution of these services ought to respect gender, religious, or cultural requirements. Accessibility requires that people, including those with special needs, should be able to conveniently use these services without having to wait excessively. Affordability means that the service costs should not affect the ability of the individual to access other necessities and human rights, and this can be ensured through an effective tariff structure, which enables access of the poor. Non-discrimination prohibits ethnic, religious, or gender discrimination (Ref 26, pp. 34–35).

Links with the HRW: Pros and Cons

The recent recognition of the HRS as an independent right by the UNGA (Resolution on the HRWS, A/RES/70/169) is preceded by scholarly arguments for delinking the HRS from the HRW. The Committee on Economic, Social and Cultural Rights and the Special Rapporteur also previously recognized HRS as an independent right, derived from the right to an adequate standard of living (Ref 26, p. 26). The importance attached to the HRS is often diminished when it is combined with the HRW (Ref 26, p. 26). There are fundamental differences between drinking water and sanitation as socio-political issues that justify the delinking, such as: potable water is openly discussed, but sanitation is often a taboo subject (Ref 56, p. 168); while there is no alternative to safe drinking water, people can resort to open defecation, creating the perception that sanitation is an imposed right (Ref 23, p. 389). The HRW may be implemented without the HRS. This is cheaper in the short term but unsustainable in the long term (Ref 18,

p. 137). However, water and sanitation cannot be separated in wet sanitation systems because sewage flows into water systems that feed water supply (Refs 57 and 58).

On the one hand, it is advantageous to combine the HRW and the HRS because water supply projects are otherwise prioritized over sanitation by national and international agencies because the former are relatively easier and cheaper to deliver; the combination allows for piggybacking on the current global attention to domestic water supply, thereby ensuring sustained attention to sanitation (Ref 57, pp. 625–626). From a socio-environmental perspective, the combination can yield significant medium-term returns on investments and improve efficiency through resource recovery (Ref 2, p. 38).

On the other hand, combining these rights may not: (a) promote the development of sanitation-specific norms; (b) enhance implementation as MDG implementation records show; (c) pay attention to the unique requirements for sanitation, like privacy and safety; or (d) promote the development of contextually relevant solutions for sanitation (like different quantities of water required for sanitation in different contexts and the uncontrolled results of sanitation interventions, such as untreated sewage) (Ref 57, pp. 626–628).

This supports the view that depending on the local circumstances, the HRS may be implemented either independently or combined with the HRW, bearing in mind the unique characteristics of sanitation and the economic and environmental advantages in using different qualities of water for sanitation and human consumption, although the cost of retrofitting may be high in the short term (Ref 23, p. 396).

HRS: Need for Clearer Guidance on HRS Norms

Legal scholars call for going beyond the normative adoption of the HRS to provide implementation guidance (Ref 23, p. 397) through stronger institutions, stakeholder education and participation (Ref 59), maintenance of available infrastructure, better cost appraisal of these services in different contexts, and efficient water management (Ref 60).

HRS: Slow to Integrate with Other Legal Fields

Although HRWS norms enrich the global development goals as reflected in SDG 6 on water, which combines social, economic, and ecological aspects, the nature of the relationship between the HRS, other human rights, and other legal fields is scarcely developed and requires further elaboration (see Figure 1).

The definition of sanitation by the first UN Special Rapporteur on the human right to safe drinking water and sanitation (formerly the Independent Expert on the issue of the human rights obligations related to access to safe drinking water and sanitation), as a ‘system of collection, transport, treatment and disposal or reuse of human excreta, and associated hygiene’ (Report of the Independent Expert on the Issue of Human Rights Obligations Related to Access to Safe Drinking Water and Sanitation UN Doc. A/HRC/12/24, 1 July 2009 at para. 4), is based on individual perceptions and moral claims to appropriate standards of sanitation. However, it (a) does not adequately address the environmental impacts of sanitation (Ref 55, p. 18) and (b) emphasizes the technical, rather than the user, aspects of sanitation systems (Ref 2, p. 36), although the latter is reflected in the HRS norms to some extent. An emerging alternative narrative sees the HRS as an avenue for promoting human dignity, environmental security, and socio-economic well-being (Ref 57, p. 629).

THE HRS IN THE NON-LEGAL LITERATURE

Introduction

Although the HRS is a legal norm and primarily studied by legal scholars, non-lawyers have also published extensively on this instrument. This section covers the non-legal literature on the HRWS before focusing on the limited literature on HRS.

HRWS

Evolution and Justification

As a result of decades of advocacy by public health scholars, social scientists, and social movements, the UN adopted the decade for Water and Sanitation in the 1980s, the MDG sanitation target in 2002, and SDG Goal 6 on water including sanitation in 2015. The MDGs led to the water, sanitation, and hygiene (WASH) program and the eventual adoption of the HRWS. Hence, the HRS has also evolved through the efforts of non-lawyers who promote access to water as a basic necessity (Ref 61, p. 501). They proffer arguments in favor of investing in WASH, including the high economic benefits of reducing water- and sanitation-related diseases (estimated globally at USD 5.5 per USD invested, while the global economic losses associated with inadequate access to water and sanitation are estimated at USD

260 billion annually) (Ref 62, pp. 4–5), improved international relations by preventing harm to shared transboundary water resources, national stability by preventing the rural–urban migration of large segments of the population, and positive relations with members of society (Ref 63). However, there is no unanimity on the responsibilities of non-State actors. While the private sector aims to meet service targets contracted with the government in an efficient, prompt, and cost-effective manner, they show a restricted interest in theoretical discussions on the HRWS. However, many NGOs advocate expanding the HRWS to improve the livelihoods of the vulnerable (Ref 64, p. 217).

Legal Definition: Critique by Non-Legal Scholars

Although happy with the adoption of the HRWS, the non-legal literature critiques the legal formulation as (a) failing to adequately address sanitation needs beyond providing access to a safe and secluded space for defecation, without considering the cost implications (Ref 65, p. 106), and (b) ignoring the use of water for additional productive activities, regardless of the initial purpose for which their water services were designed, and the resulting need to take a ‘domestic-plus’ approach to water provision by linking access to the fulfillment of other socioeconomic rights like food and work (Ref 66). Furthermore, water law does not address trade challenges, which show that virtual water transfers can potentially mitigate water shortages for the rich who can afford the cost (Ref 67) while causing water stress for poorer exporters (Ref 68) and reducing the availability of low-price local water needs (Ref 69).

These scholars also critique WASH approaches using human rights standards. For instance, while applauding community-led total sanitation (CLTS) as an internationally acclaimed (a) participatory method that (b) creates awareness among rural communities and (c) triggers them to build pit latrines and end open defecation, they argue that CLTS has also led to: (a) assaults on people engaging in open defecation (OD); (b) cutting off access to water supplies or locking people out of their homes and taking away people’s sources of livelihood; and (c) denying justice to young women and girls who were raped during OD, thereby compromising their individual human rights and sanctioning vulnerable individuals with the least education and resources to conform to the prescribed sanitation norms (Ref 70, pp. 14–16). This raises the issue of the contradictions between individual (right to dignity) and community rights (right to a healthy environment) (Ref 70, p. 15) and

how courts and societies resolve these (Ref 71) in the context of CLTS. It also demands reasserting intentionality (i.e., CLTS implementation should avoid unintended consequences like human rights violations) and agency (i.e., CLTS supporters remain responsible to some degree to intervene to prevent human rights violations and mitigate such violations when they occur) (Ref 70, p. 15). Additionally, the contradictions require the assessment of local changes in relation to human rights impacts and power struggles occasioned by CLTS; consideration of the broader impacts of CLTS, the increasing hybrid usage of CLTS, and how to preserve its core during scaling up; and ways of advancing beyond CLTS to other technological developments, which can enable the poorest to access more advanced and safer forms of sanitation (Ref 70, p. 18).

Implementation: The Role of Technology and Infrastructure

Sanitation services require technology and infrastructure, highlighting the close links between human rights and science and technology (see Figure 2): human rights law recognizes a right to share in scientific advancement and benefits; scientists and engineers can advocate for human rights; and science and technology can be human rights instruments (Ref 72, pp. 829–830). The non-legal literature on sanitation advocates progressing beyond the technology-based ladder for sanitation, which mainly sees the WASH crisis as a technical problem to be solved through prescribed improved facilities for hygienically containing human excreta (Ref 73). Going beyond this ladder is necessary because the technical focus inadvertently excludes innovations and adaptations like (a) communal toilets that could be hygienically maintained (Ref 74), be culturally acceptable, and useful for addressing spatial constraints (Refs 75 and 76); (b) environmental indicators for measuring safe transportation, treatment, and disposal or reuse of waste (Ref 77, p. 8); and (c) social indicators for human dignity. The technological focus fails to promote the resocialization of waters and emerging water engineering and management practices that also account for human rights norms (Ref 78).

An alternative to the technology-based ladder is the proposed function-based ladder, which includes environmental functions starting from excreta containment to integrated resource management, and considers a phased approach to realizing these functions as one progresses along the sanitation ladder, thereby encouraging innovation and creativity in adapting services to meet local needs (Ref 77, p. 11). Nonetheless, the function-based ladder does not

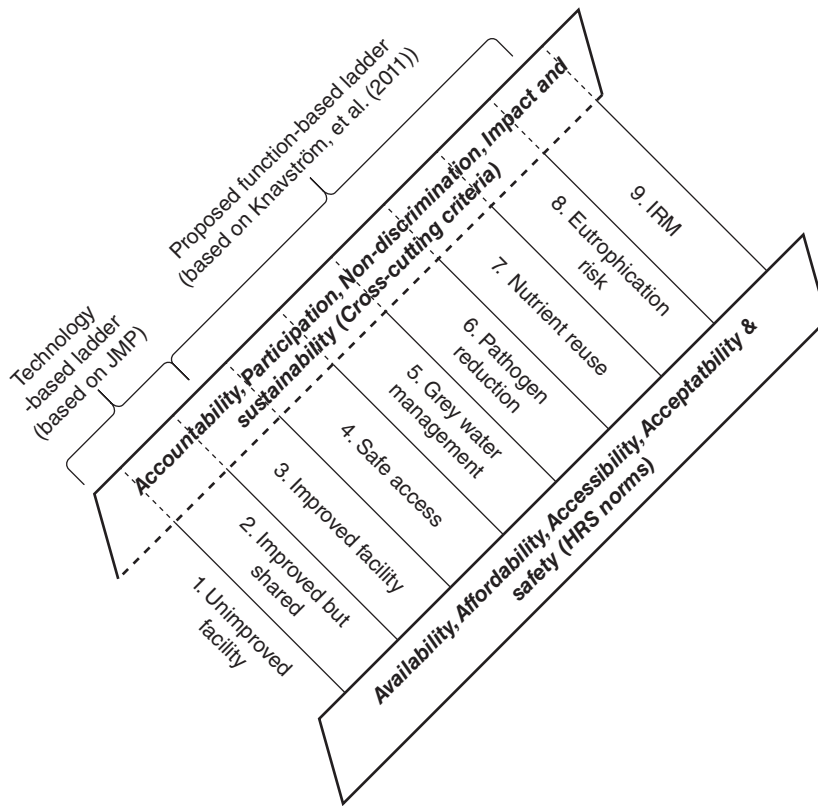


FIGURE 2 | The sanitation ladder must function within the framework of human rights norms and cross-cutting criteria.

address issues of participation, non-discrimination, acceptability, and affordability (see Figure 2).

Accountability: Weak and Paternalistic

In the non-legal literature, scholars conceptualize how to promote progressive realization of the HRWS by influencing local actors, including system operators, utilities, and management boards who are directly involved in service provision but least connected to the international human rights debate (Ref 79). They also raise the issue of accountability of civil society groups and the private sector. Civil society groups and NGOs have suffered a legitimacy crisis, being accused of promoting their own and sponsors’ agendas at the cost of the intended beneficiaries (Ref 80); the capacity development literature suggests that such critique promotes innovative strategies for legitimacy (Ref 81). The private sector service providers are primarily accountable to their shareholders, and under such circumstances, the business opportunities that pull them into the sanitation sector and external push factors, such as government legislation and loan conditions, may prove insufficient for promoting accountability beyond contractual and regulatory compliance (Ref 82, p. 178). Hence, private sector participation in this sector receives mixed reactions

from stakeholders, although ‘[T]he commitment to corporate citizenship and social accountability founded on strong business ethics and sound business decision-making processes’ (Ref 82, p. 181) can promote compliance with human rights norms.

Accountability can benefit from proxy indicators that monitor national or global development targets for sanitation, like the safety of sanitation technologies (Ref 7) and wastewater reuse options (Refs 83–85); qualitative and quantitative indicators for excreta containment, access, grey water management, pathogen reduction, nutrient reuse, eutrophication risk reduction, and integrated resource management (Ref 77, p. 8); and sanitary inspections for complementary safe assessments and identifying corrective actions for water safety (Ref 86). There are also indicators in the non-legal literature for per capita toilet availability during emergencies (Ref 87, p. 23) and affordability estimates between 3% and 6% percent of household expenditure (Ref 87, p. 69, 88), but poor households generally pay more (Ref 23, p. 392, Ref 89, p. 51). Remarkably, such estimates do not apply to non-monetized economies in rural areas, ignoring indirect costs like self-help and lost productive hours that are borne mostly by the poorest who cannot afford hired labor for sanitation

infrastructure and services (Ref 87, p. 24). Such estimates mostly focus on water services and not sanitation (Ref 23, p. 392, Ref 89, p. 51, Refs 90 and 91); would be difficult to calculate for informal households (Ref 87); and generally result in a lengthy, costly, and cumbersome process where information on reported household income is lacking (Ref 92).

The non-legal literature further proposes measuring and reporting the progressive realization of the HRWS by emphasizing the human rights principles and treaty obligations and using empirical evidence gathered through representative sampling in national surveys. This requires: (a) disaggregating water and sanitation data based on the specified 'rights-relevant groups' (i.e., rich/poor, urban/rural, slums/formal urban settlements, disadvantaged groups/general population); (b) identifying the 'necessary rate of progress for both worst-off and better-off groups in order to meet each target'; and (c) calculating the disparity in the use of services between the better-off and the worst-off under each target group (Ref 93, pp. 883–882). In order to be considered on-track, the progress of both the better-off and the worst-off groups should either follow or exceed the predetermined rate of progress, and the disparity in the progress of the two groups should narrow accordingly (Ref 93, p. 882). Practical examples include the World Health Organization (WHO) and UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP), which compiles global data on access to 'improved sanitation' based on national household surveys, and the Global Annual Assessment for Water and Sanitation, which monitors funding, recognition and justiciability, and the impact of the HRWS laws on access for vulnerable persons.

CONCLUSION

There are three general conclusions about the HRWS that emerge from this paper: (a) both state and non-state actors, particularly NGOs and private service providers, potentially have mutually supportive roles in the implementation of the HRWS; (b) the implementation of the rights are enmeshed in three potential conflicts—between the human rights approach and cost recovery, state provision of services and the implicit legitimization of informal settlements, and the empowerment of vocal rights holders rather than the marginalized rights holders for whom these rights are primarily meant; and (c) HRWS need to be better linked to other legal fields, other human rights, and broader issues like virtual water trade (see Figure 1) to ensure complementarities.

The paper also highlights important lessons for both legal and non-legal scholars to learn from each other's research, and which can form strong themes for multi- and interdisciplinary research. The non-legal scholars can benefit from the legal literature coverage of: (a) the normative content of the HRS, which enriches the sanitation ladders developed by non-legal scholars (see Figure 2); (b) the theoretical justifications for the human rights approach, especially the need for equity and sustainability; (c) the legal status of the HRWS (Table 2) and its implications for state and non-state actors; (d) the international law processes for enforcing legal obligations arising from the rights (Table 1); and (e) the mechanisms for strengthening downward accountability (Table 3). The legal scholars can benefit from the non-legal literature's coverage of (a) broadening the HRWS scope and implementation to include the indicators and monitoring systems used by non-lawyers; (b) the economic justifications for HRWS; (c) learning from the CLTS experience; (d) the need to link to appropriate technologies; and (e) enhancing accountability of non-state actors to the beneficiaries of the HRWS.

Although the literature focuses more on the HRW than the HRS, the framings of combined water and sanitation rights highlight important issues that can enrich the implementation of the HRS, and broadly HRWS, especially: (a) social and economic justifications for the HRS, which can be used to elicit support from a wide range of actors; (b) the need for a broader definition of HRWS to include multiple uses and reflect the real reasons why people need water and sanitation; (c) additional quantitative indicators, technology, and sanitation ladders for effective implementation and monitoring of the HRS normative content; and (d) the need to establish a framework for strong downward accountability of non-state actors who are crucial to the realization of the HRS.

The evolution of first the HRW, then the HRWS, and now the HRS into a legally binding and possibly customary law principle has benefited immensely from local water justice movements as well as advocacy by scholars and stakeholders in both the legal and non-legal fields. This review shows that despite an emerging focus on the HRS, the non-legal literature still tends to subsume discussions of the HRS under the HRW and thereby underemphasizes the socio-political differences between both while simultaneously increasing the priority given to the HRW water compared to the HRS. Nonetheless, the question of whether the HRS should be linked with the HRW is one that is best answered on a case-

by-case basis while being mindful of the pros and cons of either option. Furthermore, legal and non-legal scholars apply different paradigms in framing cross-cutting HRS issues. This highlights the need for

a greater synergy between them to resolve potential tensions. This paper therefore calls on legal and non-legal scholars to benefit from each other's expertise in the HRS field through collaboration.

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REFERENCES

- Gupta J, Ahlers R, Ahmed L. The human right to water: moving towards consensus in a fragmented world. *Rev Eur Community Int Environ Law* 2010, 19:294–305.
- Obani P, Gupta J. The evolution of the right to water and sanitation: differentiating the implications. *Rev Eur Community Int Environ Law* 2015, 24:27–39. doi:10.1111/reel.12095.
- Cahill A. 'The human right to water—a right of unique status': The legal status and normative content of the right to water. *Int J Hum Right* 2005, 9:389–410. doi:10.1080/13642980500170840.
- Cahn C. International action to strengthen the right to water and sanitation. *ESR Review: Econ Social Right South Africa* 2008, 9:15–18.
- Murthy SL. The human right(s) to water and sanitation: history, meaning, and the controversy over-privatization. *Berk J Int Law* 2013, 31:89–149.
- Bluemel EB. The implications of formulating a human right to water. *Ecol Law Q* 2004, 31:957–1006.
- Baum R, Luh J, Bartram J. Sanitation: a global estimate of sewerage connections without treatment and the resulting impact on MDG progress. *Environ Sci Technol* 2013, 47:1994–2000.
- Pink R. Child rights, water rights and human security. *Health Hum Rights* 2012, 14:78–87.
- Mirugi-Mukund G. South African Human Rights Commission, 2014—report on the rights of access to sufficient water and sanitation: new publication. *ESR Review: Econ Social Right in South Africa* 2014, 15:12.
- Obani P, Gupta J. Human Security and Access to Water, Sanitation, and Hygiene: Exploring the Drivers and Nexus. In: Pahl-Wostl C, Gupta J, Bhaduri A, eds. *Handbook on Water Security*. Cheltenham and Northampton: Edward Elgar; 2016, 201–214.
- Wegelin-Schuringa M, Kamminga E. Water and sanitation in the context of HIV/AIDS: the right of access in resource-poor countries. *Health Hum Rights* 2006, 9:152–172.
- Bates R. The road to the well: an evaluation of the customary right to water. *Rev Eur Community Int Environ Law* 2010, 19:282–293. doi:10.1111/j.1467-9388.2010.00687.x.
- de Albuquerque C. *Realising the Human Rights to Water and Sanitation: A Handbook by the special Rapporteur Catarina de Albuquerque*. UN Special Rapporteur on the Human Right to Safe Drinking Water and Sanitation: Portugal; 2014.
- Scott P, Cotton A, Khan MS. Tenure security and household investment decisions for urban sanitation: the case of Dakar, Senegal. *Habitat Int* 2013, 40:58–64. doi:10.1016/j.habitatint.2013.02.004.
- Hasan A. Orangi pilot project: the expansion of work beyond Orangi and the mapping of informal settlements and infrastructure. *Environ Urban* 2006, 18:451–480. doi:10.1177/0956247806069626.
- Murthy SL. Land security and the challenges of realizing the human right to water and sanitation in the slums of Mumbai, India. *Health Hum Rights* 2012, 14:61–73.
- Douzinas C. *The End of Human Rights: Critical thought at the Turn of the century*. Oxford: Hart Publishing; 2000.
- Martin L. International legal discourse on the human right to water and sanitation from the Latin American point of view. *Inter Am Eur Hum Right J* 2011, 4:136–154.
- Meierotto L. Human rights in the context of environmental conservation on the US-Mexico border. *J Hum Rights* 2015, 14:1–18. doi:10.1080/14754835.2014.988781.
- Cahill-Ripley A. *The Human Right to Water and its Application in the Occupied Palestinian Territories*. Oxford: Routledge Cavendish; 2011.
- Salman SMA. The human right to water and sanitation: is the obligation deliverable? *Water Int* 2014, 39:969–982. doi:10.1080/02508060.2015.986616.
- Mirugi-Mukundi G. South African Human Rights Commission, 2014—report on the Rights of access to

- sufficient water and sanitation: new publication. *ESR Review: Econ Social Right in South Africa* 2014, 15:12.
23. Obani P, Gupta J. The human right to water and sanitation: reflections on making the system effective. In: Bhaduri A, Bogardi J, Leentvaar J, Marx S, eds. *The Global Water System in the Anthropocene: Challenges for Science and Governance*. Cham: Springer Verlag; 2014, 385–399.
 24. Skogly S. The requirement of using the ‘maximum of available resources’ for human rights realisation: a question of quality as well as quantity? *Hum Rights Law Rev* 2012, 12:393–420. doi:10.1093/hrlr/ngs022.
 25. Cavallo GA. The human right to water and sanitation: going beyond corporate social responsibility. *Merkourios* 2013, 29:39–64.
 26. de Albuquerque C, Roaf V, United Nations. *On the Right Track: Good Practices in Realising the Rights to Water and Sanitation*. Textype: Lisbon; 2012.
 27. Morgan B. Turning off the tap: urban water service delivery and the social construction of global administrative law. *Eur J Int Law* 2006, 17:215–246. doi:10.1093/ejil/chi161.
 28. McIntyre O. The human right to water as a creature of global administrative law. *Water Int* 2012, 37:654–669. doi:10.1080/02508060.2012.710948.
 29. Russell AFS. International organizations and human rights: realizing, resisting or repackaging the right to water? *J Hum Rights* 2010, 9:1–23. doi:10.1080/14754830903530292.
 30. Lundqvist J. Rules and roles in water policy and management—need for clarification of rights and obligations. *Water Int* 2000, 25:194–201. doi:10.1080/02508060008686818.
 31. UN United to Make the Right to Water and Sanitation Legally Binding. Available at: <http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=10403&LangID=E>. (Accessed October 1, 2010)
 32. Thielbörger P. *The Right(s) to Water: The Multi-Level Governance of a Unique Human Right*. Heidelberg: Springer-Verlag; 2014.
 33. de Vido S. The right to water as an international custom: the implications in climate change adaptation measures. *Carbon Clim Law Rev* 2012, 3:221–227.
 34. Misiedjan D, Gupta J. Indigenous communities: analyzing their right to water under different international legal regimes. *Utrecht Law Rev* 2014, 10:77–90.
 35. Wekesa SM. Right to clean and safe water under the Kenyan Constitution 2010. *ESR Review: Econ Social Right in South Africa* 2013, 14:3–6.
 36. Editorial L. Water and sanitation become human rights, albeit turbidly. *Lancet* 2010, 376:390. doi:10.1016/S0140-6736(10)61203-2.
 37. Baer M. From water wars to water rights: implementing the human right to water in Bolivia. *J Hum Rights* 2015, 1–24. doi:10.1080/14754835.2014.988782.
 38. Tignino M. The right to water and sanitation in post-conflict peacebuilding. *Water Int* 2011, 36:242–249.
 39. Cullet P. Right to water in India—plugging conceptual and practical gaps. *Int J Human Right* 2013, 17:56–78. doi:10.1080/13642987.2012.700454.
 40. Bhullar L. Ensuring safe municipal wastewater disposal in urban India: is there a legal basis? *J Environ Law* 2013, 25:235–260. doi:10.1093/jel/eqt004.
 41. Harlow C. Global administrative law: the quest for principles and values. *Eur J Int Law* 2006, 17:187–214. doi:10.1093/ejil/chi158.
 42. Kingsbury B. The concept of “law” in global administrative law. *Eur J Int Law* 2009, 20:23–57. doi:10.1093/ejil/chp005.
 43. Roaf V, Khalfan A, Langford M. *Centre on Human Rights and Evictions*. Global Issues Paper no. 14. Monitoring Implementation of the Right to Water: A Framework for Developing Indicators. Berlin: Heinrich Böll Foundation; 2005.
 44. Jensen MH, Villumsen M, Petersen TD. *The AAAQ Framework and the Right to Water*. Copenhagen: The Danish Institute for Human Rights; 2014.
 45. Meier BM, Kestenbaum JG, Kayser GL, Amjad UQ, Bartram J. Examining the practice of developing human rights indicators to facilitate accountability for the human right to water and sanitation. *J Hum Rights Pract* 2014, 6:159–181. doi:10.1093/jhuman/hut031.
 46. Cullet P. Water law in a globalised world: the need for a new conceptual framework. *J Environ Law* 2011, 23:233–254. doi:10.1093/jel/eqr003.
 47. Gavouneli M. A human right to groundwater? *Int Community Law Rev* 2011, 13:305–319.
 48. Thielbörger P. The human rights to water versus investor rights: double-dilemma or pseudo-conflict? In: Dupuy P-M, Francioni F, Petersmann EU, eds. *Human Rights in International Investment Law and Arbitration*. Oxford: Oxford University Press; 2009, 487–510.
 49. Barlow M. *Blue Covenant: The Global Water Crisis and the Coming Battle for the Right to Water*. New York: New York Press; 2009.
 50. Tanzi A. Reducing the gap between international water law and human rights law: the UNECE Protocol on Water and Health. *Int Community Law Rev* 2010, 12:267–285.
 51. Obani P, Gupta J. Legal pluralism in the area of human rights: water and sanitation. *Curr Opin Environ Sustain* 2014, 11:63–70. doi:10.1016/j.cosust.2014.09.014.
 52. Cinelli C. A new human rights-based approach to the UN Watercourses Convention. *Water Int* 2013, 38:180–191. doi:10.1080/02508060.2013.781893.

53. Mancisidor M. The water paradigms. In: Fernández-Jauregui C, Milliet AC, Ugaz C, Langford M, Mancisidor M, Palop MER, Kiefer T, Roaf V, Isa FG et al., eds. *The Human Right to Water: Current Situation and Future Challenges*. Barcelona: Icaria Editorial and Bilbao: UNESCO Etxea-Centro UNESCO del País Vasco; 2008, 79–102.
54. Hurlbert M, Gupta J. The split ladder of participation: a diagnostic, strategic, and evaluation tool to assess when participation is necessary. *Environ Sci Policy* 2015, 50:100–113.
55. Feris L. The human right to sanitation: a critique on the absence of environmental considerations. *Rev Eur Community Int Environ Law* 2015, 24:16–26. doi:10.1111/reel.12088.
56. Akpabio EM. Water meanings, sanitation practices and hygiene behaviours in the cultural mirror: a perspective from Nigeria. *J Water Sanit Hyg Dev* 2012, 2:168–181.
57. Ellis K, Feris L. The right to sanitation: time to delink from the right to water. *Hum Rights Q: A Comparative and International Journal of the Social Sciences, Philosophy, and Law* 2014, 36:607–629.
58. Kiefer T, Roaf V. The human right to water and sanitation: benefits and limitations. In: Fernández-Jauregui C, Milliet AC, Ugaz C, Langford M, Mancisidor M, Palop MER, Kiefer T, Roaf V, Isa FG et al., eds. *The Human Right to Water—Current Situation and Future Challenges*. Barcelona: Icaria editorial and Bilbao: UNESCO Etxea-Centro UNESCO del País Vasco; 2008, 125–150.
59. Seppälä OT. Effective water and sanitation policy reform implementation: need for systematic approach and stakeholder participation. *Water Policy* 2012, 4:367–388.
60. Gleick PH. The changing water paradigm: a look at twenty-first century water resources development. *IWRA Water Int* 2000, 25:127–138.
61. Gleick PH. The human right to water. *Water Policy* 1998, 1:487–503.
62. Hutton G. *Global Costs and Benefits of Drinking-water Supply and Sanitation Interventions to Reach the MDG Target and Universal Coverage*. Geneva: WHO; 2012.
63. Aertgeerts R. Progress and challenges in water and sanitation. *Desalination* 2009, 248:249–255. doi:10.1016/j.desal.2008.05.062.
64. Biswas AK. Water as a human right in the MENA region: challenges and opportunities. *Int J Water Resour Dev* 2007, 23:209–225. doi:10.1080/07900620701523277.
65. Joshi D, Fawcett B, Mannan F. Health, hygiene and appropriate sanitation: experiences and perceptions of the urban poor. *Environ Urban* 2011, 23:91–111. doi:10.1177/0956247811398602.
66. Hall RP, van Koppen B, van Houweling E. The human right to water: the importance of domestic and productive water rights. *Sci Eng Ethics* 2014, 20:849–868. doi:10.1007/s11948-013-9499-3.
67. Hoekstra A. The relation between international trade and freshwater scarcity. Available at: <https://www.econstor.eu/dspace/bitstream/10419/57607/1/639993036.pdf>. (Accessed May 1, 2015).
68. Wang YB, Wu PT, Zhao XN, Engel BA. Virtual water flows of grain within China and its impact on water resource and grain security in 2010. *Ecol Eng* 2014, 69:255–264. doi:10.1016/j.ecoleng.2014.03.057.
69. Feng K, Siu YL, Guan D, Hubacek K. Assessing regional virtual water flows and water footprints in the Yellow River Basin, China: a consumption based approach. *Appl Geogr* 2012, 32:691–701.
70. Galvin M. Talking shit: is community-led total sanitation a radical and revolutionary approach to sanitation? *Wiley Interdiscip Rev Water* 2015, 2:9–20. doi:10.1002/wat2.1055.
71. Woolman S. Dignity. In: Woolman S, ed. *Constitutional Law of South Africa*. Johannesburg: Juta Press; 2008, 1–75.
72. Wyndham JM, Harris T. Introduction: science, technology and human rights: lessons learned from the right to water and sanitation. *Sci Eng Ethics* 2014, 20:827–831. doi:10.1007/s11948-014-9515-2.
73. World Health Organization, UNICEF. *Progress on Sanitation and Drinking-water-2013 Update*. Geneva: World Health Organization; 2013.
74. Exley JL, Liseka B, Cumming O, Ensink JH. The sanitation ladder, what constitutes an improved form of sanitation? *Environ Sci Technol* 2015, 49:1086–1094. doi:10.1021/es503945x.
75. Schouten MAC, Mathenge RW. Communal sanitation alternatives for slums: a case study of Kibera, Kenya. *Phys Chem Earth, Parts A/B/C* 2010, 35:815–822. doi:10.1016/j.pce.2010.07.002.
76. Yatmo YA, Atmodiwirjo P. Communal Toilet as a Collective Spatial System in High Density Urban Kampung. *Procedia Soc Behav Sci* 2012, 36:677–687. doi:10.1016/j.sbspro.2012.03.074.
77. Kvarnström E, McConville J, Bracken P, Johansson M, Fogde M. The sanitation ladder—a need for a revamp? *J Water Sanit Hyg Dev* 2011, 1:3–12. doi:10.2166/washdev.2011.014.
78. Jamie L. Modern water and its discontents: a history of hydrosocial renewal. *Wiley Interdiscip Rev Water* 2014, 1:111–120. doi:10.1002/wat2.1009.
79. Meier BM, Kayser GL, Kestenbaum JG, Amjad UQ, Dalcanale F, Bartram J. Translating the human right to water and sanitation into public policy reform. *Sci Eng Ethics* 2014, 20:833–848. doi:10.1007/s11948-013-9504-x.

80. Giles M. The disappointments of civil society: the politics of NGO intervention in Northern Ghana. *Polit Geogr* 2012, 21:125–154.
81. Kühl S. Capacity development as the model for development aid organizations. *Dev Change* 2009, 40:551–557. doi:10.1111/j.1467-7660.2009.01538.x.
82. Abeysuriya K, Mitchell C, White S. Can corporate social responsibility resolve the sanitation question in developing Asian countries? *Ecol Econ* 2007, 62:174–183. doi:10.1016/j.ecolecon.2006.06.003.
83. Irish S, Aiemjoy K, Torondel B, Abdelahi F, Ensink JHJ. Characteristics of latrines in Central Tanzania and their relation to fly catches. *PLoS One* 2013, 8:e67951. doi:10.1371/journal.pone.0067951.
84. Ensink JHJ, Blumenthal UJ, Brooker S. Wastewater quality and the risk of intestinal nematode infection in sewage farming families in Hyderabad, India. *Am J Trop Med Hyg* 2008, 79:561–567.
85. Ensink JH, Bastable A, Cairncross S. Assessment of a membrane drinking water filter in an emergency setting. *J Water Health* 2015, 13:362–370. doi:10.2166/wh.2014.025.
86. Bain R, Cronk R, Wright J, Yang H, Slaymaker T, Bartram J. Fecal contamination of drinking-water in low- and middle-income countries: a systematic review and meta-analysis. *PLoS Med* 2014, 11:e1001644. doi:10.1371/journal.pmed.1001644.
87. COHRE, UN-HABITAT, WaterAid, SDC. *Sanitation: A Human Rights Imperative*. Geneva: COHRE; 2008.
88. Fonseca C. *Affordability of WASH Services: Rules of Thumb and Why it's Difficult to Measure*. The Hague: IRC; 2014. Available at: <http://www.ircwash.org/blog/affordability-wash-services-rules-thumb-and-why-it%E2%80%99s-difficult-to-measure>. (Accessed May 1, 2015).
89. United Nations Development Program. *Human Development Report 2006: Beyond Scarcity: Power, Poverty and the Global Water Crisis*. New York: Palgrave Macmillan; 2006.
90. Cairncross S, Kinnear J. Elasticity of demand for water in Khartoum. *Soc Sci Med* 1992, 34:183–189. doi:10.1016/0277-9536(92)90095-8.
91. Semba RD, Pee S, Kraemer K, Sun K, Thorne-Lyman A, Moench-Pfanner R, Sari M, Akhter N, Bloem MW. Purchase of drinking water is associated with increased child morbidity and mortality among urban slum-dwelling families in Indonesia. *Int J Hyg Environ Health* 2009, 212:387–397. doi:10.1016/j.ijheh.2008.09.001.
92. Flores, O., Giné, R., Pérez-Foguet, A., & Jiménez, A. (2013). Post-2015 WASH targets and indicators: a review from a human rights perspective. Available at: <http://www.ongawa.org/wp-content/uploads/2013/12/WASH-Human-Rights-post-20152.pdf>. (Accessed May 1, 2015).
93. Satterthwaite M. On rights-based partnerships to measure progress in water and sanitation. *Sci Eng Ethics* 2014, 20:877–884. doi:10.1007/s11948-014-9514-3.