

# Public water supply and sanitation policies and inclusive development of the urban poor in Brazil

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## Abstract

Poorly designed policies jeopardise ecosystems and their services and the expansion of basic services to vulnerable populations. In the water and sanitation (WatSan) sector, inadequate access of the urban poor to formal and public drinking water supply and sanitation services (WSS) calls for more inclusive policies. Inclusive development (ID) has social, environmental and relational dimensions. However, there is little research on operationalising ID dimensions in WatSan policy discourse analysis. Hence, this paper addresses: How can we elaborate on indicators for inclusive WatSan policies? How can these be applied to assess the design of Brazilian WatSan policies? It examines the literature on ID and WatSan, develops and applies an analytical framework with six indicators to assess ID in WSS through policy analysis: access to minimum WSS; access to WSS even if the urban poor do not have formal housing; domestic wastewater collection/treatment; water availability; participation; and WSS subsidies for low-income people. Comparison between two Brazilian WatSan policies shows that the current WatSan law scores higher on ID than the previous law but neglects key aspects of social, environmental and relational ID dimensions. The selected indicators were useful to operationalise ID in WatSan policy discourse analysis and can boost policy design assessment elsewhere.

*Keywords:* Brazil; Inclusive development; Operational indicators; Policy discourses; Pro-poor; Urban water and sanitation

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## Introduction

Historically, the expansion of formal and public drinking water supply and sanitation services (WSS) has favoured urban areas and the rich (Juuti & Katko, 2005; Murtha *et al.*, 2015). High rates of

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urbanisation and urban poverty pose significant challenges in WSS provision including the expansion of basic infrastructure and service provision in vulnerable areas for poorer inhabitants (Muchadenyika, 2015; Chimankar, 2016; UN-Habitat, 2016). Developing countries struggle to provide WSS for institutional (e.g., private companies profit orientation (Post, 2009)), structural (e.g., tenure legalisation issues (Budds *et al.*, 2005)), technical (e.g., unsuitable conventional technologies (Berg & Mugisha, 2010)) and financial (e.g., unaffordable services cost (Berg & Mugisha, 2010)) reasons (Solo *et al.*, 1993). The urban poor are particularly vulnerable to inadequate water and sanitation (WatSan) but its potential consequences threaten others through ‘spillover effects’, such as waterborne diseases (Juuti & Katko, 2005; Obrist *et al.*, 2006; Oteng-Ababio, 2014; Murtha *et al.*, 2015).

While there is substantial research on the technical aspects of the ‘pro-poor’ WatSan (Paterson *et al.*, 2007; Younger, 2007; Berg & Mugisha, 2010; Isoke & van Dijk, 2014), there is limited research on whether WatSan policy design promotes inclusive development (ID) including social, environmental and relational dimensions (Gupta *et al.*, 2015; Gupta & Vegelin, 2016). Combining indicators commonly used in the WatSan field with social science perspectives (dos Santos & Gupta, 2017; Pouw & Gupta, 2017) we assess how the WatSan sector incorporates ID discourses and how these two knowledge fields can support each other’s development, ultimately benefiting the poorest. ID goes beyond pro-poor discourses, has become more prominent in the international development agenda (dos Santos & Gupta, 2017) and may advance WSS provision to include the urban poor. Hence, this research addresses the questions: How can we elaborate on indicators for inclusive WatSan policies? and How can these be applied to assess the design of Brazilian WatSan policies? Brazil was chosen because: (i) its WSS have been under pressure due to rapid urbanisation, high population density in informal settlements and urban water scarcity events; (ii) past reforms have aimed at WSS expansion countrywide, culminating in the 2007 WatSan policy; and (iii) little research has been done on how changing Brazilian WatSan policies score in terms of ID.

This paper assesses the policy by analysing the policy design and does not address policy implementation. It aims to further operationalise the ID concept linking its dimensions with WatSan indicators and does not conceptualise ID (for that, see for example, Gupta & Vegelin, 2016; dos Santos & Gupta, 2017; Gupta & Pouw, 2017; Ngepah, 2017; Pouw & Gupta, 2017). The policy design usually echoes particular interests and values of its policymakers (Sidney, 2007; Howlett, 2009); therefore, we analyse the WatSan policy design to assess whether it embraces ID dimensions and thus can potentially guide strategic actions for reaching the poorest. This paper examines the scientific literature on ID and WatSan, links the ID and pro-poor WatSan discourses, develops an analytical framework to assess ID in WSS and applies this to two Brazilian WatSan policies, before drawing conclusions.

### **Inclusive discourses, inclusive development dimensions and water and sanitation indicators**

This section explains the relation between the ID approach and the WatSan indicators selected. We connect six common WatSan indicators to three ID dimensions. When applied, this association shows whether the policy design itself is inclusive.

WatSan strategies do not automatically focus on the poor (Guimarães *et al.*, 2014; Murtha *et al.*, 2015; Nyarko *et al.*, 2016). They must contain specific incentives for inclusion of the (urban) poor in WSS (Berg & Mugisha, 2010; Guimarães *et al.*, 2014; Nyarko *et al.*, 2016), while accommodating the different interests of actors – from WSS providers to potential users (Bisung *et al.*, 2016). Moreover,

successful WatSan public policies depend on the governance tools in place to facilitate the inclusion of disadvantaged people (Guimarães *et al.*, 2016; Marques *et al.*, 2016). Since the inception of the International Drinking Water Supply and Sanitation Decade in the 1980s, WatSan has aimed at universal access (WHO, 1992), but universalisation remains restricted to certain groups and locations (Castro, 2009; UN, 2015). The Millennium Development Goals (MDGs) WatSan targets for 2015 in relation to 1990 did not aim for universal access (UN, 2015); but this shortcoming has been addressed in the Sustainable Development Goals (SDGs) which require universal access to WatSan by 2030 (UNGA, 2015) and incorporate ID discourses (UNGA, 2015; Gupta & Vegelin, 2016).

‘Inclusion of the poor’ through economic activities (Kakwani & Pernia, 2000) was the focus of the 1970s pro-poor discourses which integrated strategies for development and poverty alleviation (Kakwani & Pernia, 2000; Ravallion & Chen, 2003). ‘Pro-poor’ strategies often boost WSS provision (Berg & Mugisha, 2010; Marson & van Dijk, 2016; Schwartz *et al.*, 2017) but do not take the ecological and political aspects which fall under the ID dimensions (dos Santos & Gupta, 2017). ID discourses emerged in the 1990s and go beyond the paternalistic pro-poor focus of governance approaches, which address only material well-being, to not only address the ecological dimension but also the relational dimension (dos Santos & Gupta, 2017) by countering the underlying exclusionary structures and practices by giving voice to the poor, and identifying institutions to counter unequal power relations (Muchadenyika, 2015; Shah *et al.*, 2015; Gupta & Pouw, 2017; Pouw & Gupta, 2017). Although ID discourses are often ‘imposed’ on the Global South by international (donor) organisations, inclusive approaches have positive outcomes for the poor (e.g., inclusive municipal governance through participatory urban planning in Harare slums (Muchadenyika, 2015)). These multidimensional characteristics make an ID governance approach in WSS more suitable than limited pro-poor approaches, which also ‘label’ people.

Hence, this paper explores these three ID pillars of governance approaches: (A) social, (B) environmental and (C) relational (Gupta *et al.*, 2015; Gupta & Vegelin, 2016), linking them to six WatSan indicators: (A.1) access to minimum WSS (as a right) (Appelblad Fredby & Nilsson, 2013; Bisung *et al.*, 2016), (A.2) access to WSS even if the urban poor do not have formal housing (Obrist *et al.*, 2006; Appelblad Fredby & Nilsson, 2013), (B.1) domestic wastewater collection and treatment (Heller, 2009; Oteng-Ababio, 2014), (B.2) water availability (for WSS delivery) (Cutolo *et al.*, 2013; Giatti *et al.*, 2013; Heller, 2015), (C.1) participation (of the urban poor) (Obrist *et al.*, 2006; Bisung *et al.*, 2016) and (C.2) low-income WSS subsidies (Attari & van Dijk, 2016; Fuente *et al.*, 2016). The indicators selected potentially address exclusion, reflecting key issues of concern to the urban poor (Obrist *et al.*, 2006; Oteng-Ababio, 2014; Chimankar, 2016; Murungi & Blokland, 2016b). Some of these indicators are used to assess WSS performance (Cross & Morel, 2005; Murungi & Blokland, 2016a) and, particularly the social and relational WatSan inclusive indicators, are in line with the ‘inclusive governance’ concept and indicators proposed in Guimarães *et al.* (2016).

### *Social inclusiveness and selected WatSan indicators*

Social inclusiveness (SI) embraces material and non-material well-being (Pouw, 2011; McGregor & Pouw, 2017), going beyond access to basic needs such as WatSan and shelter (Harriss, 2007; Pouw, 2011). Access to WSS has a positive impact on people’s material and non-material well-being (Konteh, 2009). While traditional WatSan policies and pro-poor approaches address this gap from a material well-being perspective (WSS as a basic need), a SI approach also aims to increase the

non-material well-being by promoting WSS as a human right (Castro, 2009; dos Santos & Gupta, 2017). Two WatSan inclusive indicators were selected to assess the SI dimension in WSS to the urban poor: (A.1) access to minimum WSS and (A.2) access to WSS even if they do not have formal housing. Both indicators aim to enhance human well-being through access to WSS but the related decision-making processes fall under the mandate of the WatSan and urban planning sectors, respectively.

The (A.1) indicator relates to (i) the Human Right to Water and Sanitation (UNGA, 2010; Obani & Gupta, 2014; Brown *et al.*, 2016) and (ii) the universal access principle adopted in the SDGs (UNGA, 2015) and checks whether the access addresses people's contextual needs. (A.1) demonstrates whether there is a possibility of legal redress when the poorest are denied WSS (Obani & Gupta, 2014).

A bottleneck in reaching universal access is the limited mandate of WSS providers, often forbidden by the government to deliver services in informal settlements (Obrist *et al.*, 2006; Guimarães *et al.*, 2014, 2016) as this might inadvertently 'legalise' these settlements. Hence, the (A.2) access to WSS even if the poor do not have formal housing indicator is relevant as a precondition to access WSS. This is a typical external factor or 'systemic condition' (Castro, 2009; Heller, 2009) and within its mandate, the WatSan sector can help to solve this problem. Several cities (e.g., São Paulo, Abidjan) have policies where informal settlements are not entitled to access WSS and other basic services because of their 'illegal' status (Budds *et al.*, 2005; Obrist *et al.*, 2006; UN-Habitat, 2016). Urban planning policies govern urban development, often excluding or re-shaping the 'informal city' (Watson, 2009; Muchadenyika, 2015). Although the MDG target 7D 'to achieve substantial improvement in the lives of not less than 100 million slum dwellers by 2020' (UN, 2015) has partially addressed this problem through integrated approaches in slum upgrading (e.g., tenure legalisation combined to WSS provision (Obrist *et al.*, 2006; Muchadenyika, 2015)), the WatSan sector still faces challenges to universalise WSS (Castro, 2009).

#### *Environmental inclusiveness and selected WatSan indicators*

Environmental inclusiveness (EI) is about enhancing environmental sustainability and maintaining ecosystem services (MEA, 2005) on which the poor depend; it ensures hygiene, and reduces the risk of disease (Giatti *et al.*, 2013; Gupta *et al.*, 2015; Shah *et al.*, 2015). Particularly in overcrowded neighbourhoods (e.g., urban poor informal settlements), poor WSS cause unhygienic circumstances and environmental degradation (Obrist *et al.*, 2006). The EI approach in WatSan can be translated into two indicators: (B.1) domestic wastewater collection and treatment to minimise negative anthropogenic impacts on ecosystem services and human health (e.g., waterborne diseases), caused by domestic sewage discharge into the environment (Obrist *et al.*, 2006; Heller, 2009; Oteng-Ababio, 2014; Murtha *et al.*, 2015), and (B.2) water availability which relates to freshwater as the provisioning ecosystem service to be preserved (MEA, 2005; Cutolo *et al.*, 2013; Giatti *et al.*, 2013; UN, 2015), allowing WSS provision. While (B.1) refers to the local ecosystem where the urban poor live and reducing impacts downstream, (B.2) refers to ecosystem services of upstream sites often used as the freshwater source by WSS providers (Giatti *et al.*, 2013).

#### *Relational inclusiveness and selected WatSan indicators*

Relational inclusiveness (RI) aims (i) to address poverty reduction, ensuring access and empowering the marginalised, and (ii) at the redistribution of resources and related powers in command of these resources. It requires that the status quo is actively addressed and that the underlying power politics

leading to inequality and exclusion is countered (Gupta *et al.*, 2015). Poor access to WSS disempowers the urban poor by affecting their health, limiting their capabilities and, even willingness, to participate and safeguard their rights (Shah *et al.*, 2015). People's empowerment through access to basic services and opportunities increases their capability to make and materialise their own choices (Narayan-Parker, 2002; Shah *et al.*, 2015). The use of governance for ID tools empowers the poor and boosts transparency (Guimarães *et al.*, 2016). An RI approach in WatSan is about empowering urban poor inhabitants through access to WSS and simultaneously, these empowered people will be more capable to participate and safeguard their rights to voice their needs and priorities regarding WSS. This leads to two indicators: (C.1) participation – aiming to empower the urban poor to seek access to WSS by giving voice in representation, consultation, public hearings and decision-making processes (Shah *et al.*, 2015) (e.g., participatory budgeting (Watson, 2009)), going beyond manipulation and pacification of local people; and (C.2) low-income WSS subsidies – to increase WSS access empowering the low-income people and based on cross-subsidies so that lack of resources is not used to justify service non-provision. Pricing mechanisms need to increase the affordability and hence the probability of the urban poor to pay and access WSS.

## Research methodology

We apply the above empirical and qualitative analytical framework with six WatSan inclusive indicators to analyse the policy design searching for whether there is no inclusion, some implicit inclusion, explicit but incomplete inclusion and complete inclusion of ID discourses in WatSan policies (see Table 1). Figure 1 shows how we express our results in a diagram format. First, we assessed whether the six WatSan inclusive indicators (Table 1/column 2) have been explicitly included in the policy text (see Table 1/column 3 for explanation of the evidence searched). Then, we searched for implicit evidence through key words which suggest the inclusion of the poor in WSS: fulfilment of basic needs, access to low-income people, affordability, payment capacity, inclusion of all and social control (as a good governance mechanism to empower people). We have also attempted to capture discourses suggesting exclusion. The internal validation of this method is supported by terminology used in the literature by WatSan experts, and our experience in the WatSan and ID knowledge fields. Finally, we verified whether the policy was legally binding, having a higher potential to be enforced and successfully implemented, particularly when an (regulatory) organisation is designated to monitor and penalise non-compliance (Willems, 2004; OECD, 2012; Guimarães *et al.*, 2014). This step gives ground for future research on how an inclusive policy design is being translated into practice. Thus, if the policy explicitly and/or implicitly includes the six WatSan inclusive indicators and is legally binding, we can conclude that there has been a *prima facie* attempt in the policy design to contribute to ID. These are important benchmarks for implementation and assessing impact on the poorest, contributing towards WSS universal access.

## Water and sanitation inclusive indicators application in Brazil

This section applies the WatSan inclusive indicators framework to analyse two Brazilian WatSan policies. First, we provide a brief history of WatSan policies in Brazil based on Rezende & Heller (2008). Then, we analyse how the WatSan inclusive indicators are incorporated in the policy discourse.

Table 1. Criteria proposed and applied to assess inclusive discourses in WatSan policies.

Inclusive development dimension	WatSan inclusive indicator	(Explicit) evidence searched in the policy discourse	Policy legal status	Implication for the inclusion of the urban poor to formal WSS
<b>(A) Social</b> (contributes towards material and non-material well-being of the urban poor through access to formal and public drinking water supply and sanitation services (WSS))	(A.1) Access to minimum WSS (as a right)	Adoption of the human right and universal access principle to WSS	Legally binding or Non-legally binding	Increases the probability that the urban poor have access to WSS
	(A.2) Access to WSS even if the urban poor do not have formal housing	Adoption of mechanisms to address the issue of access to formal housing as a precondition to access WSS		Increases the probability that the urban poor access WSS despite their housing status (Helps to understand the drivers of the gap in WSS universal access)
<b>(B) Environmental</b> (contributes to well-being of the urban poor through maintenance of provisioning ecosystem services used for WSS)	(B.1) Domestic wastewater collection and treatment	Adoption of mechanisms to guarantee domestic wastewater collection and treatment		Increases the probability that the urban poor access formal sanitation services and have reduced exposure to unhygienic circumstances
	(B.2) Water availability (for WSS delivery)	Adoption of mechanisms to ‘guarantee’ water availability for WSS delivery		Increases the probability that the urban poor access formal water supply services in adequate quantity and quality
<b>(C) Relational</b> (contributes towards empowerment of the urban poor)	(C.1) Participation (of the urban poor)	Adoption of mechanisms to guarantee participation in WSS decision-making processes		Increases the probability that the urban poor access contextually relevant WSS by voicing their needs and priorities
	(C.2) Low-income WSS subsidies	Adoption of mechanisms to guarantee WSS subsidies to the urban poor		Increases the probability that the urban poor access WSS by increasing affordability

Source: Authors.

The indigenous people of Brazil had their own traditions to preserve water for consumption and hygiene and to isolate domestic wastes when the Portuguese colonisers arrived in 1500. During the colonial period, these indigenous traditions influenced the ‘... formation of the Brazilian sanitary culture and identity’<sup>1</sup> (Rezende & Heller, 2008, p. 358) and even though WatSan was not a priority, it evolved from individual

<sup>1</sup> Translated from the original text in Portuguese.

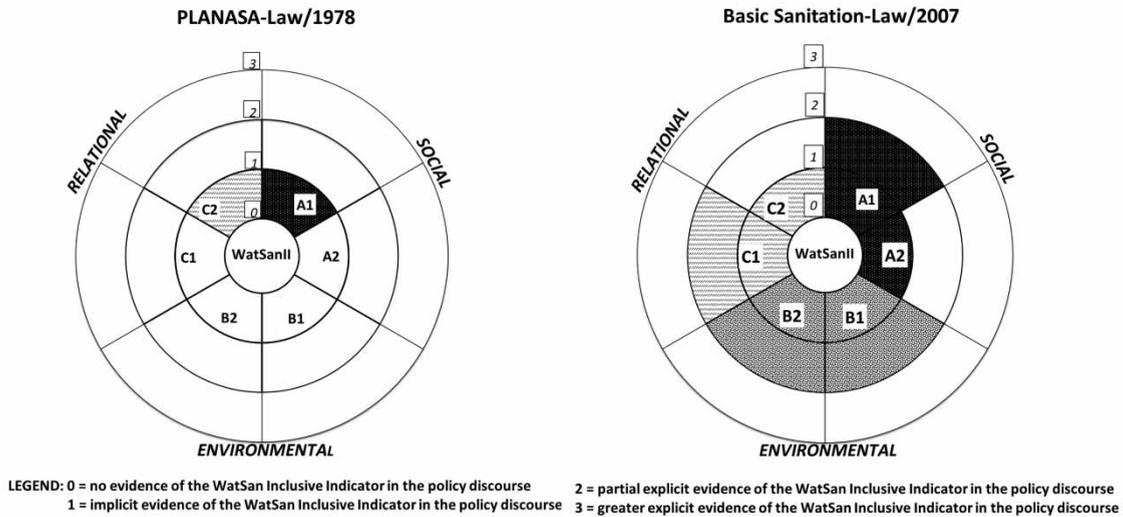


Fig. 1. Water and sanitation inclusive indicators applied to two Brazilian WatSan policies: PLANASA-Law/1978 and BS-Law/2007.

to collective solutions restricted to rich cities. Nevertheless, substantial changes in access to improved WatSan and actual WSS delivery were initiated around the early 20th century and received a new stimulus in WatSan policies towards the end of the 20th century. WSS expansion has co-evolved with the history of city development and the need to respond to the growing public health problems in Brazil, similar to some European cities (see also [Juuti & Katko \(2005\)](#)). Despite the urban bias observed in the history of WSS expansion, universal access to adequate WatSan remains a challenge even in urban locations. Two key drivers of the urban WSS gap are: (i) the historical prioritisation of WSS provision to the urban ‘elites’ and (ii) the urbanisation of poverty which has worsened in the last few decades. The deficit in sanitation services was higher because the investments were primarily directed to improve water supply as opposed to sanitation services. This context was also characterised by WSS delivery moving back and forth between private and public management (see also [Murtha et al. \(2015\)](#); [Roland et al. \(2018\)](#)). Apart from the WatSan sector’s internal dynamics, three ‘systemic conditions’ have impacted expansion by influencing policies ([Castro, 2009](#); [Heller, 2009](#)): (i) the national and international political-economic framework in place ([Castro, 2009](#); [Murtha et al., 2015](#)), including the adoption of the MDGs, the SDGs and the Human Right to Water ([Heller, 2015](#); [Brown et al., 2016](#)); (ii) the financial support from international organisations ([Castro, 2009](#); [Murtha et al., 2015](#)) based often on the need for rationalising the sector and supporting public–private partnerships ([Bakker, 2003](#); [Pessoa, 2008](#)); and (iii) the role of the State in WSS management ([Roland et al., 2018](#)) and the promulgation of the 1988 Federal Constitution which promoted decentralisation, restoring the role of municipalities. Against this background, the promulgation of two WatSan policies was particularly crucial to boost WSS countrywide: (i) the Law 6.528/1978 about the National Basic Sanitation Plan (PLANASA-Law/1978) and (ii) the Basic Sanitation Brazilian Law 11.445/2007 (BS-Law/2007). Only the BS-Law/2007 is currently operating but both policies were legally binding and set national rules and guidelines for formal and public WSS. The PLANASA-Law/1978 ([BRASIL, 1978b](#)),

which established national guidelines for WSS tariffs, was only applicable to State-owned WSS companies and addressed basic sanitation services as WSS. The Decree D82.587/1978 (BRASIL, 1978a) regulated the PLANASA-Law/1978 and established general rules for WSS charging. The BS-Law/2007 (BRASIL, 2007) establishes national guidelines and federal policy for basic sanitation<sup>2</sup>, being regulated by the Decree DBS7.217/2010 (BRASIL, 2010) which sets standards for policy implementation at multiple levels and promotes good governance practices. The BS-Law goes beyond WSS and also embraces: (i) urban sanitation and solid waste management and (ii) drainage and management of urban stormwater services. However, this paper focuses the policy discourse analysis on WSS only.

*PLANASA-Law/1978: only partially and implicitly socially inclusive*

None of the WatSan inclusive indicators were explicitly found in the PLANASA-Law/1978 (BRASIL, 1978b) and respective Decree D82.587/1978 (BRASIL, 1978a). Only implicit evidence of indicators (A.1) access to minimum WSS and (C.2) low-income WSS subsidies were found. The PLANASA-Law implicitly referred to (A.1) when addressing tariff setting (Art.4). It states that tariffs must (i) consider the economic-financial balance of the WSS companies and (ii) preserve the social aspects of WSS by ensuring adequate attendance of lower consumption users based on minimum tariff. One can conclude that Art.4 also implicitly includes the indicator (C.2) low-income WSS subsidies through the ‘minimum tariff’ to facilitate access to WSS by low-income users. However, none of the six articles of the PLANASA-Law explains in detail how Art.4 is to be operationalised. The Decree D82.587/1978 provides details on tariffs but does not introduce other WatSan inclusive indicators: Art.3, about PLANASA’s permanent objectives, refers to (A.1) indicator where it aims (a) to eliminate the deficit and maintain the balance demand–supply of public WSS in urban centres, based on systematic planning, programmes and control but does not elaborate on how; and refers to (C.2) indicator in (c) to adapt WSS tariff levels to users’ possibilities, safeguarding the balance revenue–service costs and considering productivity of capital and labour of the provider but again without explaining how; and Art.10 states that WSS will be assured to all social strata, and tariffs should be adjusted to the users’ purchasing power, matching socio-economic aspects but without further operationalisation. Art.11 also specifies WSS socio-economic aspects: (i) including cross-subsidies from richer to poorer users and from large to small-scale users; (ii) setting a maximum cost for the minimum WSS bill to be paid monthly by residential users; and (iii) stipulating that residential users must pay a minimum bill of 10 m<sup>3</sup> water consumption, despite the actual minimum consumption. Thus, the PLANASA-Law implicitly embraces the need for universal access

<sup>2</sup> The BS-Law 11.445/2007 Art.3(I) defines basic sanitation as ‘(...) set of services, infrastructure and operational facilities of: a) *drinking water supply*: activities, infrastructure and facilities necessary to the public drinking water supply, from extraction to building connections and respective metering instruments; b) *sanitation*: activities, infrastructure and operating facilities for collection, transportation, treatment and adequate disposal of sewage, from building connections to their final discharge into the environment; c) *urban sanitation and solid waste management* (...); d) *drainage and management of urban stormwater* (...)’ BRASIL (2007). Lei 11.445, 05 Janeiro 2007: estabelece diretrizes nacionais para o saneamento básico-Política Nacional de Saneamento (Law 11.445, 05/01/2007: establishes national guidelines for basic sanitation-Basic Sanitation National Policy). Brasília: Governo do Brasil. [http://www.planalto.gov.br/ccivil\\_03/\\_Ato2007-2010/2007/Lei/L11445.htm#art60](http://www.planalto.gov.br/ccivil_03/_Ato2007-2010/2007/Lei/L11445.htm#art60) (accessed 1 February 2018).

(A.1) and the need for cross-subsidies and social tariffs (C.2), but it does not deal with other indicators. Furthermore, the law restricts universal access to urban centres, the cross-subsidies are not directly targeted at the poorest and the compulsory ‘10 m<sup>3</sup> water bill’ hampers affordability. Additionally, this law appears to be oriented towards protection of the WSS providers’ need for cost-recovery and that may result in exclusion of the poorest households by limiting their access to these ‘potential’ inclusive subsidies.

*BS-Law/2007: only partially but explicitly socially inclusive*

The BS-Law/2007 (BRASIL, 2007) explicitly commits to universalise access (A.1), but does not adopt the Human Rights approach. The law refers to universal access several times: Art.2(II) adopts the principle of integrity to fulfil basic needs; Art.9(III) states that the WSS holder must formulate WatSan public policies and guarantee basic needs’ fulfilment including water services at a minimum volume per capita; Art.13 submits that universalisation may be financed by WSS revenue funds instituted by the WSS holder alone or in public consortia; Art.19(II) operationalises universalisation in terms of short-, medium- and long-term goals as part of the minimum content of BS-Plans and (§8) must cover the entire territory of the WSS holder; Art.29(§1) provides that WSS tariffs, prices and fees shall observe public health protection and expansion of access to low-income citizens and locations; and Art.30 mandates that the WSS remuneration and charging structure considers (i) a minimum consumption amount to ensure social objectives and provision to low-income users and (ii) users’ payment capacity. However, Art.3(III) defines universalisation as ‘*progressive expansion of access of all occupied households*’ to WSS (BRASIL, 2007) and this implies that the law does not have to be implemented overnight. The evidence shows that the BS-Law/2007 policy discourse partially embraces indicator (A.1) on access to minimum WSS by (i) adopting the above approach to fulfil WSS needs, contributing to equality at the bottom for the ‘users’, but simultaneously, (ii) conditions the expansion of WSS to ‘occupied households’, excluding people without shelter or living in informal settlements which (local) governments classify as unofficial households. The (A.1) policy discourse assessment also shows that the law does not consider whether the poorest are satisfied with their access.

The BS-Law/2007 does not address the issue of lack of formal housing as a driver for lack of access to WSS (indicator A.2). Yet, the Brazilian WatSan sector is implicitly aware of the role played by this driver in hampering WSS universal access. The BS-Law recognises in (i) Art.2 (VI), Art.19(II) and Art.48, the need to articulate and make compatible WSS and the housing/urban development policies and planning processes; (ii) Art.29(§1), Art.30 and Art.48, the need to expand urban WSS while providing affordable prices to low-income citizens and locations to fulfil basic needs; and (iii) Art.19(§8), that the BS-Plans and their universalisation goals must cover the entire territory of the WSS holder. However, Art.45 states that ‘*except where the rules of the services holder, the regulatory or the environmental body oppose, all urban permanent edification will be connected to public WSS networks available and subject to paying tariffs and other public prices resulting from connection and use of these services*’ (BRASIL, 2007). Although the BS-Law/2007 contains several articles implicitly tackling the issue of access to WSS for low-income households, Art.45 confirms that the decision to expand WSS to the poor extrapolates the WatSan sector mandate (e.g., multiple organisations are involved and expansion is restricted to

formal housing<sup>3</sup>). Thus, the BS-Law/2007 policy discourse only partially addresses the issue of access to formal housing as a precondition to access WSS.

#### *BS-Law/2007: partial but explicit EI*

Regarding EI, the BS-Law/2007 (BRASIL, 2007) explicitly promotes preservation of ecosystem services. Art.2 states that WSS must be provided in accordance with the need to protect public health and the environment, and must be in line with other policies of social and environmental relevance. Art.11(§2)(II) states that contracts for WSS delivery must include targets on the rational use of water and other natural resources. Explicit evidence of mechanisms to guarantee (B.1) domestic wastewater collection/treatment were also found: Art.3(I)(b) sanitation encompasses among others, activities, infrastructure and operational facilities for domestic sewage collection, treatment and adequate disposal in the environment. Implicit evidence is furthermore found in: Art.19(§8) which states that BS-Plans must cover the entire territory of the services holder aiming to universalise WSS; and Art.29(§1) states that WSS tariffs, prices and fees should ensure public health protection and expansion of access to low-income citizens and locations. However, Art.19(II) provides that although sanitation in the BS-Plans should aim at universalisation, it can be gradually and progressively achieved. There is evidence that the BS-Law is concerned about ecosystem services' preservation and inclusion of low-income people and locations but the acceptance of 'gradual and progressive solutions' for WSS expansion has two sides: (i) it allows the WSS holder to develop a more realistic plan towards universalisation, while (ii) offering flexibility which may result in non-compliance, considering that sanitation services – collection and treatment – are even more challenging to provide to the poor than water services.

In relation to indicator (B.2) on water availability, the BS-Law (BRASIL, 2007) explicitly includes: Art.2 which requires WSS provision to ensure safety, quality and regularity; integration of infrastructure and services with efficient water resources management, reduction of waste of water, etc.; and adoption of measures to promote moderation in water consumption, included through the Law 12.862/2013 (BRASIL, 2013). Implicit evidence of mechanisms to guarantee indicator (B.2) were also found: Art.9 states that the WSS holder must formulate WatSan public policies, also establishing users' rights and obligations; Art.19(§3) mandates that the BS-Plans must be compatible with river basin plans in which they are inserted; and Art. 23(XI) states that contingency and emergency measures, including rationing, will be issued by the regulatory body defining technical, economic and social rules for WSS. This policy embraces indicator (B.2) by adopting mechanisms to protect water resources, reduce water loss in production, promote less consumption and prioritise allocation. Thus, it potentially

<sup>3</sup> The Brazilian Policy of Social Interest Housing promotes integrated approaches for formal housing expansion, adopting the universal access principle to adequate housing – about citizen rights and promoting social inclusion, ensuring minimum standards: (i) habitable residences; (ii) environmental sanitation; and (iii) urban and social services including access to WSS as a basic need. BRASIL (2005). Lei 11.124, 16 Junho 2005: dispõe sobre o Sistema Nacional de Habitação de Interesse Social, cria o Fundo Nacional de Habitação de Interesse Social–FNHIS, institui o Conselho Gestor do FNHIS (Law 11.124, 16/06/2005: sets the National System of Housing of Social Interest, creates the National Fund for Housing of Social Interest and establishes the FNHIS Management Council). Governo do Brasil, Brasília. [https://www.planalto.gov.br/ccivil\\_03/\\_Ato2004-2006/2005/Lei/L11124.htm](https://www.planalto.gov.br/ccivil_03/_Ato2004-2006/2005/Lei/L11124.htm) (accessed 1 February 2018). However, local governments do not succeed to provide adequate housing for all, particularly in urban locations.

increases water resources available to serve ‘all’, including the urban poor, in adequate quantity and quality. Although the WatSan sector plays a key role in water resources management, it has a limited mandate regarding its decision-making processes.

### *BS-Law/2007: partial but explicit RI*

Regarding RI, the BS-Law/2007 explicitly promotes participation: Art.2(X) allows social control, defined in Art.3(IV) as the ‘*set of mechanisms and procedures that guarantee to society (i) information, (ii) technical representation and (iii) participation in policy-making, planning and evaluation*’ on public WSS (BRASIL, 2007). It also contains implicit evidence of RI: Art.9 obliges the WSS holder to formulate policies establishing social control mechanisms; Art.11(§2) states that within the conditions for validity of concessions and contracts for public WSS delivery, the regulatory norms must foresee social control mechanisms in planning, regulation and monitoring; Art.19(§5) states that broad dissemination of the draft BS-Plans and their respective supporting studies must be ensured, including public hearings or consultations; the regulatory body is obliged under Art.23 to issue technical, economic and social norms including standards for customer service and mechanisms for participation and information; and Art.26 ensures open access and publicity of regulatory reports, studies, decisions and equivalent instruments, including users’ and providers’ rights and obligations – preferably through the internet (Art.26(§2)); and Art.27 assures users’ access to information on the WSS provided and to periodic reports on services’ quality following legal, regulatory and contractual norms. However, Art.26 excludes from this obligation WSS regulatory documents considered confidential on grounds of public interest, under previous and motivated decisions. The BS-Law embraces indicator (C.1) by adopting a strong participatory approach to give voice to ‘all’ citizens regarding WSS decision-making processes but the definition of ‘documents considered confidential’ can be a pitfall.

The (C.2) indicator on WSS subsidies for low-income people is implicitly found in the BS-Law/2007: Art.2(VII) aims to promote efficiency and economic sustainability; Art.3(VII) defines subsidy as an ‘*economic instrument of the social policy to ensure universalisation of services, particularly to low-income populations and locations*’ (BRASIL, 2007); and Art.11(IV)(c) includes subsidies policy when specifying contractual rules for delegated WSS. Mechanisms to guarantee WSS subsidies were also found: Art.12(§1)(II) states contractual economic-financial rules on tariffs, subsidies and payments for WSS delivered by multiple providers but monitored by a single regulatory body; and Art.23(IX) specifies that tariff and non-tariff subsidies should be defined by technical, economic and social rules of the regulatory body which must ensure the correct administration of subsidies (Art.25(§2)). Art.31 defines six types of WSS subsidies for low-income users/locations according to beneficiaries and fund characteristics: (i) direct – for users to ‘boost WSS access’; (ii) indirect – for providers to ‘boost WSS coverage’; (iii) tariff – integrated into the tariff structure; (iv) fees – coming from budgetary resources, including grants; (v) internal; and (vi) between locations – for WSS jointly managed and/or regionally delivered. Art.29(§2) states that tariff and non-tariff subsidies may be adopted for users and locations that do not have (i) the ability to pay or (ii) sufficient economic scale to cover the full cost of WSS. The evidence shows that the BS-Law attempts to include low-income (potential) users, but two points require attention: (i) subsidies are only one of the components of the WSS provider’s economic sustainability and (ii) the subsidy structure and coverage is defined by the WSS holder through the BS-Plan at local level and regulated by an independent body.

### *Comparing inclusive discourses in the PLANASA/1978 and BS-Law/2007*

When comparing the texts of these two policies, we can see a shift towards more inclusive WatSan discourses (see [Figure 1](#)). However, the BS-Law/2007 contains gaps which may hamper the actual expansion of WSS to the urban poor. [Figure 1](#) represents the analysis graphically. We have given a qualification of zero when there is no evidence, of 1 when there is implicit evidence, of 2 when there is partial explicit evidence and 3 when there is greater explicit evidence of the inclusion of WatSan inclusive indicators (WatSanII).

The PLANASA-Law/1978 policy discourse aimed to include ‘all’ but was restricted to urban areas and emphasised the financial viability of the WSS providers. Centralisation was strong at this political moment in Brazil and the PLANASA-Law focused on State-owned WSS companies only, strengthening provincial States as WSS providers through concession contracts and pushing WSS management away from municipal governments. The responsibility for implementing this WatSan policy was in the hands of a federal public organisation external to the WatSan sector, the National Housing Bank (BNH), using financial resources from the Employment Guarantee Fund (FGTS) to improve WSS. The PLANASA-Law revocation occurred only in 2007 and several features of its WSS model remain alive. However, this policy weakened in the late 1980s due to financial constraints and its centralised management model, leaving a gap of more than 20 years in the Brazilian WatSan sector ([Galvão & Monteiro, 2006](#); [Rezende & Heller, 2008](#); [Heller, 2009](#)).

The BS-Law/2007 policy discourse fosters equity by adopting core principles, such as universal access, transparency and social control. It also embraces WSS as a public good, promoting expansion to low-income locations. It reflects the Federal Constitution’s decentralised model, differentiating the role of the government levels in WSS policy and management. For instance, it establishes federal co-responsibility on policy implementation (e.g., coordination of the National BS-Plan and National Information System ([BRASIL, 2007](#))). And, importantly, it moves WSS management back from the provincial to the municipal level. It strengthens the municipality’s role as the WSS holder, promoting key instruments for (i) planning and monitoring – the BS-Plan must be developed by the municipality establishing gradual and progressive targets towards WSS universalisation and (ii) regulation of WSS providers by an independent regulatory body – enforcing compliance of the BS-Plan through concession/programme contracts. Additionally, the Decree DBS7.217/2010 established a deadline for municipalities to have an approved BS-Plan as a condition to access federal funds for WSS ([BRASIL, 2010](#)). However, this deadline has been postponed three times, until 31 December 2019 ([BRASIL, 2017](#)). Although some flexibility may be necessary due to the municipality’s inexperience in conducting (participatory) WSS planning processes, it may result in mistrust in the Brazilian federal government regarding enforcement of this policy.

Both, in the PLANASA/1978 and the BS-Law/2007, the existence of specific funding sources to finance sectoral development and to guarantee self-sufficiency of the WSS providers seems to play a key role as a conditioning factor for the efficient expansion of services.

## **Conclusions**

Empirical evidence shows that, although to different degrees, the Brazilian WatSan policy discourse has evolved from the PLANASA-Law/1978 to the BS-Law/2007 in relation to the universal, ecologically sustainable and relationally inclusive WSS. The policy design echoes the values and interests of its policymakers ([Sidney, 2007](#); [Howlett, 2009](#)), suggesting that Brazil aims at an inclusive expansion

of WSS. As legally binding documents, these policies translate into a higher probability of inclusion of the urban poor in WSS.

But why is the current policy more explicitly inclusive? At national level, the political-economic momentum has moved from the 1970s' dictatorial period with centralised WSS decision-making processes in Federal and State government hands, to the 2000s' democratic and decentralised period with good governance oriented WSS (Heller, 2009). In the process, national policy has been influenced by international level decision-making on WSS, including the MDGs/SDGs and related financial stimulus.

When answering the question 'how inclusive are Brazilian WatSan policies', we see a divide within the policy discourse itself. Brazil clearly aims at comprehensive and sustainable access to WSS that is democratically decided, but falls short of analysing how to actually finance such ecologically sustainable WatSan policy, especially with respect to those without resources in such an unequal society. Furthermore, the fear of legitimising ownership of informal dwellings by providing access to WSS and thereby attracting more people has led to a half-hearted attempt to address this key driver of poor WSS.

Thus, even though there is evidence that all six indicators are dealt with in the BS-Law/2007, it is clear that it has yet to come to grips with the basic challenges underlying socially, ecologically and relationally inclusive WSS. Besides, the BS-Plans must include these WatSan inclusive indicators to ensure that they will be translated into concrete targets to guide infrastructure projects aiming at WSS universalisation in vulnerable areas.

Finally, although this paper has not assessed the *de facto* implementation of the law, we conclude that a *de jure* analysis of the WatSan policies already reveals its key design weaknesses. Furthermore, our six indicators have been useful for understanding these design limits. However, assessing whether the urban poor is satisfied with the WSS expansion is difficult to undertake, but it is evident that the law does not call for such an assessment.

Our paper makes three policy recommendations: First, the design of WatSan policies in the SDG era need to explicitly address social, ecological and relational aspects; in other words, they need to ensure that no trade-offs are made between meeting narrowly defined WSS and the ecological, economic and relational dimensions. Second, it is vital that the design of policies on paper itself ensures no trade-offs. Policymakers could use our WatSan inclusive indicators framework for assessing the quality of inclusive discourses in their WatSan policies in the policy design phase. Third, WatSan policies will only be effective on the ground if there is a sustainable financing mechanism. Policies that require the poor to pay for the full cost of WSS are policies that lead to exclusion; there has to be a clear sustainable cross-subsidy element which can be justified by the need to address the externalities of poor WSS on others in society. We recommend complementary research on policy implementation to investigate how the potential for these indicators to contribute to WSS universalisation in vulnerable areas for poorer inhabitants is being translated into practice.

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