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# Paradigmatic Dimension of Water Access Denial in Mumbai: Examining the 'Water for All' Policy

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ABSTRACT: Mumbai's 2022 'Water for All' policy contravenes the 2010 United Nations General Assembly recognition of the human right to water as well as UN Sustainable Development Goal 6. The rationale underlying this contravention is rooted in requirements of what we refer to in this paper as the 'centralised infrastructure paradigm' to which Mumbai's municipal authorities subscribe. This paradigm places sole emphasis on large, centralised equipment and systems, while what we call here the 'UN institutional paradigm of the human rights to water' – drawn from formal UN documents – provides a conceptual framework, practical guidelines and policy analysis tools for positioning the human right to water at the centre of the policies and practices that govern the water distribution sector. The paper underscores the need in the Global South to replace the dominant urban water distribution concepts of 'water connections' and 'dwellings' with a focus on 'water access' and 'human beings'. It provides a paradigmatic explanation for the chronic denial of water access to Mumbai's slumdwellers. Based on an analysis of formal documents, academic literature, and data from interviews with experts, officials and activists, the paper suggests a new paradigmatic perspective for further research on water sector policies; it also encourages policymakers and activists to become sensitised to the covert and overt influences of different paradigms on policies.

KEYWORDS: Water policy, water access, human rights, paradigms, infrastructure, Mumbai, India

## INTRODUCTION

### Background

The achievement of universal water access in cities of the Global South is often impaired by the denial of formal water access to large sections of the low-income groups. The scale of such denial is staggering, especially in the Indian megacity of Mumbai. In 2023, about half of Mumbai's 13 million people lived in slum colonies (BMC, n.d.a). Of these, about half lived in 'non-notified' or 'unprotected' colonies that lacked formal recognition (Patil et al., 2025) and were denied formal water access, while the other half remained underserved. This denial of formal water access continued for decades despite the availability of adequate water and financial resources to the city (Bayliss and Deekshit, 2024; *Economic Times*, 2020). Different aspects and dimensions of this chronic issue have been studied from diverse perspectives including planning, urban water policy, public health, technology, economics and ethnography. Studies have focused on diverse themes, for example, the political economy, planning priorities, community-level politics, health implications, the state violence, the persistence of the denial of water access, the role of neoliberalism and majoritarianism, the transformational politics of social movements, and the role of critical actors such as municipal engineers and plumbers. In this literature overall, one of the key topics has been Mumbai's water policies and their role in denying water access (Anand, 2017; Bayliss and Deekshit, 2024; Björkman, 2015, 2018; Contractor, 2012; Contractor et al., 2020; Graham et al., 2013; Murthy, 2012; Pethe and Nallathiga, 2017; Wagle, 2022, 2023, 2024).

To supplement the scholarship on this issue, the paper brings the paradigmatic dimension into the discussion, with 'paradigm' here referring to a broad philosophical, conceptual or theoretical framework that guides or shapes thinking, practice or both. Various scholars from diverse fields have engaged in in-depth discussions of the idea that policy change is rooted in, or dependent on, changes in underlying values, beliefs, attitudes, cognitive maps, interpretive frameworks, causal beliefs, worldviews or common understandings (Blyth, 2002; Howlett, 1994; Hemerijck, 2020). In this literature, a major theme has been the use of a 'paradigms' lens to discuss policy changes and path dependencies (Capano, 2003; Hall, 1993; Hemerijck, 2020; Howlett, 1994; Vij et al., 2018). Learning from the literature, this paper illustrates how paradigms are made of the core beliefs and convictions of actors and how they thus shape their thinking and filter how they understand, interpret and act on their surrounding reality, and how they determine their decisions, actions and behaviours. When it comes to policies, as Hemerijck (2020) asserts, policy paradigms "bolster and entrench policy routines in a path-dependent fashion" (ibid: 812). Such policy routines – that is, the repeated actions of policy actors – could be traced to the influence of certain paradigms to which they subscribe.

In the case discussed in this paper, the design and implementation of the water distribution policy in Mumbai was significantly influenced by which paradigms municipal authorities accepted and which they ignored. The first paradigm identified here is the 'centralised infrastructure paradigm'; it pertains to the technical or infrastructural aspects of water distribution and, as its name suggests, relies heavily on centralised infrastructural systems, on large, sophisticated technical equipment, on distant water supplies, and on a top-down governance model (Lawson et al., 2024). The second paradigm discussed in the paper is what we are calling here the 'United Nations' institutional paradigm of the human right to water', hereafter referred to as the 'UN/HRW institutional paradigm'. Centred on the human right to water (or HRW), this paradigm has been developed by the author based on formal UN HRW-related documents. The term 'institutional paradigm' here implies a conceptual framework and practical guidelines that guide the institutions governing the water sector, that is, the beliefs, norms, rules, policies, procedures and practices.

As has been discussed in academic and policy literature, the human right to water has a direct bearing on the issue of denial of formal water access to slumdwellers (Roaf and Winkler, 2024), especially in Mumbai (Bayliss and Deekshit, 2024; Wagle, 2022). The High Court at Bombay (Mumbai), through its 2014 order, upheld the HRW of all slumdwellers in Mumbai and ordered the municipal authority – called the Municipal Corporation of Greater Mumbai, or MCGM – to take measures to provide a water supply to residents of illegal (that is, non-notified) slum dwellings [Point 18] (High Court at Bombay, 2014). The MCGM is solely responsible for water supply in Mumbai and, in pursuance of this order, in 2017 it promulgated a new water distribution policy, referred to in this paper as the '2017 Policy' (BM, 2017). Despite the explicit court order, the 2017 Policy largely continued with the denial of water access to slumdwellers, and, as a result, by 2020 only about 5% of the total two million slumdwellers who were denied water by previous policy could obtain water (Contractor et al., 2020; Bayliss and Deekshit, 2024; Wagle, 2022, 2023). In 2022, in the wake of the COVID-19 pandemic, the MCGM formulated a new 'Water for All' Policy (hereafter referred to as the 'WfA policy'); it is the only policy governing the sanctioning of formal water connections for slumdwellers (BM, 2022). Various provisions of the WfA policy set out rules for providing formal water connections to slumdwellers, many of which are a continuation of the 2017 Policy.

## Arguments and research methods

Against this background, the paper argues that Mumbai's new WfA policy contravenes key elements of what we are calling the UN/HRW institutional paradigm. It further argues that the rationales justifying these contraventions are in turn rooted in the influence on municipal authorities of the centralised infrastructure paradigm. As evidence for the argument, the paper presents a comprehensive and systematic analysis of the MCGM's 2022 WfA policy using the lens of the UN/HRW institutional paradigm.

The paper relies primarily on an analysis of the contents of formal documents and on academic and policy literature on the human right to water. The formal documents included UN documents on HRW and the two MCGM policies, that is, the 2017 Policy and the WfA policy. The main UN documents included: 1) resolutions of the UN General Assembly (UNGA); 2) resolutions of the Human Rights Council (HRC), which is the subsidiary political body of the UNGA that is tasked with working on all human rights issues; 3) General comment no. 15 (2002) of the Committee on Economic, Social, and Cultural Rights (CESCR), which is tasked with monitoring the implementation of the International Covenant on Economic, Social and Cultural Rights (ICESCR); 4) reports and documents prepared by the Independent Experts (IE) and Special Rapporteurs (SR) on Human Rights to Safe Drinking Water and Sanitation, who are formally appointed by the HRC (CESCR, 2002; OHCHR, 2010; HRC, 2007, 2010, 2011, 2015, 2018, 2020; UNGA, 2010a, 2010b).

The paper also used primary data that was collected in 2019 for a separate research project that had the broader objective of understanding the persistence of water access conflict in Mumbai. This data was collected through multi-round, extended interviews with 64 participants (19 women and 45 men). The interviews lasted between 30 and 90 minutes and were conducted at public places such as cafes or at participants' workplaces. Participants were from the following categories: 1) municipal officials, including engineers (both at junior and senior levels) from the water department (n = 12); 2) activists involved in different social and political movements in the city (n = 16); 3) elected representatives and members of parties participating in electoral politics (n = 14); 4) professional experts, academics and independent researchers from different disciplines including planning, engineering, public policy, sociology and urban water supply (n = 18); and 5) media (n = 4). Participants were identified mainly by a purposive sampling strategy; this was supplemented with snowball sampling. The author, a resident of the state of Maharashtra (where Mumbai is located), knew the local language well and was introduced as a student-researcher. This data was further supplemented by information gathered during a short period of fieldwork in 2023, which was conducted for a separate project. The qualitative data was analysed using a thematic analysis technique and NVivo software. The analysis was conducted in both deductive and inductive modes using a coding frame that comprised predetermined themes pertaining to the concerns of this research, such as exclusion, rationales and alternatives.

## PARADIGMS AND THE WATER SECTOR

Policy paradigms in general, and their particular influence on policies and policy outcomes across different sectors (including the water sector) have been discussed by many researchers (see Falkenmark and Rockström, 2006; Hall, 1993; Kern et al., 2014; Pahl-Wostl et al., 2011; Vij et al., 2018). Instead of using the word 'paradigm', some scholars use terms such as approach, lens or framework to *denote* paradigms. Sadoff et al. (2020) call for revisiting the paradigms of water economics and engineering in light of the current reality of inequality, climate change and environmental degradation. Thommandru et al. (2025) talk about the "neoliberal paradigm" and use it to analyse marginalisation in water access in countries of the Global South. Gimelli et al. (2019) argue for the adoption of Max-Neef's fundamental human needs (FHN) framework in the water sector in order to gain a clear, holistic and dynamic understanding of how well-being shaped in the water sector. Many researchers discuss one of the two paradigms covered in this paper as they pertain to water sector (see Bayliss and Deekshit, 2024; Kalbar and Gokhale, 2019; Kalbar and Lokhande, 2023; Tiwale, 2021).

### The centralised infrastructure paradigm

The centralised infrastructure paradigm is known to influence many infrastructure sectors, including water (Braadbart, 2009; Duque et al., 2024; Hughes, 1983; Kalbar and Lokhande, 2023; Kim and Byrne, 1990; Winner, 1980). It is considered to be the "global gold standard for potable water delivery" (Stoler et al., 2022) and has been dominating mainstream policies and practices in the water sector since the

mid-19th century. While Duque et al. (2024) call it "traditional", suggesting that its relevance has waned, Kalbar and Lokhande (2023) point out that in developing countries the urban water sector continues to rely heavily on this paradigm. Many factors underlie such a wide-scale and continuing acceptance of the paradigm and its dominance over the urban water sector. It is credited with bringing to urban areas, "safe and reliable drinking water" (Wutich et al., 2023) and, "improved public health and a higher standard of living" (Lawson et al., 2024). For the Global South, the main attraction of the paradigm has been its promise of universal access and its assurance of universal service standards (Tiwale et al., 2025).

Central to this paradigm are large-scale, integrated technical systems with centralised structures, operations and controls; these are presumed to offer managerial convenience and efficiencies, and thus economies of scale. Urban water supply systems operating under this paradigm are characterised by large centralised sources of water; large equipment including pumps that can transport water over long distances; a network of broad-gauge water pipes that can carry large volumes of water; and spatially concentrated user groups. Other necessary large-scale equipment includes filtration plants, distribution-side storage reservoirs, and distribution networks that are spread over vast areas and can supply water to tens of thousands of homes and other establishments (Arora et al., 2015; Bowonder and Chettri, 1984; Leigh and Lee, 2019; Rabaey et al., 2020; Wagle et al., 2011).

Despite its professed advantages, this paradigm has attracted severe criticisms that cite a number of associated problems (Baghel and Nüsser, 2010; d'Souza, 2003). These criticisms include hidden economic subsidies, economic irrationality, and large-scale social and ecological disruptions such as the displacement of communities and the destruction of local, regional and even global ecosystems. In the case of the urban water sector, the paradigm is also seen as having failed to address "modern challenges and societal expectations" (Tiwale et al., 2025). Other disadvantages and limitations include extensive lead times, excess capacity, high initial costs, and limited adaptability (Duque et al., 2024). In many cities of the Global North and South, centralised systems are also suffering from aging infrastructure, poor maintenance and lack of reinvestment, and thus are reaching "the end of their service lives" (Stoler et al., 2022; Tiwale et al., 2025).

Centralised systems in the urban Global South have failed – mainly due to capital shortages – to minimise leakages, provide water of satisfactory quantity and quality, carry out timely and adequate repairs and maintenance, and expand the distribution network in fringe areas (Tiwale et al., 2025). Stoler et al. (2022: 1) point out that, despite broad acceptance of the centralised paradigm, "2 billion people globally lack access to safely managed drinking water, with 4 billion facing severe water insecurity at some point each year". Various scholars have also foregrounded climate change as another major factor leading to the shortcomings of the paradigm (Arnaud et al., 2024; Kalbar and Lokhande, 2023; Stoler et al., 2022; Wutich et al., 2023). Arnaud et al. (2024: 1), for instance, point out that the centralised infrastructure that was "historically designed for milder conditions cannot manage [the] growing water demands and extreme events" caused by climate change.

In response to a growing awareness of these disadvantages and limitations, scholars have expressed the need for a paradigm shift (Kalbar and Lokhande, 2023; Stoler et al., 2022) and for prioritising different decentralised alternatives (Coutard and Rutherford, 2010; Duque et al., 2024; Ghorpade et al., 2021; Kalbar and Lokhande, 2023; Lawson et al., 2024; Poustie et al., 2015; Tiwale et al., 2025). Possible alternatives include: 1) a vertical shaft and manifold system for pressure management and equitable distribution; 2) innovative designs of water connections; and 3) demand-side interventions to reduce water consumption. Wutich et al. (2023) provide an exhaustive list of water supply systems based on alternative or decentralised paradigms. It is claimed that such systems can "fill gaps left by inadequate centralised water distribution systems", and can also help "[ensure] water security in an era of disruption" and "improve system resiliency" (Stoler et al., 2022). Tiwale et al. (2025) argue that, in fact, these alternatives cannot be ignored or avoided as the scale of their deployment is already comparable to that of centralised systems, especially in the urban Global South.

### UN/HRW institutional paradigm

The second paradigm discussed in this paper is the 'United Nations' institutional paradigm of the human rights to water', referred to here as the 'UN/HRW institutional paradigm' or the 'HRW paradigm'. Developed and named by this author, the UN/HRW institutional paradigm is a specific example of the broader category of equity and justice lenses that includes political ecology, political economy, environmental justice and social justice. It concretises abstract and broader ideas of justice and equity, with a specific and substantive focus on HRW as interpreted by the UN. Its novelty on the analytical plane lies in the comprehensive and systematic framework it provides for the analysis of the issues shaping water access. On the policy plane, this novel paradigm provides a framework for systematically assessing urban water policies.

Scholars use different terms when discussing the HRW paradigm. Hałub-Kowalczyk (2023), for example, uses the term 'Human-Rights Approach to Water'; Roaf and Winkler (2024), on the other hand, profess that the "lens of human rights", based on "human rights principles", should be used for "policy guidance"; and Bayliss and Deekshit (2024) refer simply to the human right to water paradigm. Meier et al. (2014) suggest developing normative HRW-based frameworks for securing justice through public policies, and Grosboth and Wolf (2008) present such a framework for "identifying and addressing violations of the human right to water". The Centre on Housing Rights and Evictions (COHRE, 2007) presents another such HRW-based framework as a tool to assist policymakers and practitioners in developing strategies. This paper builds further on this range of ideas of the HRW frameworks, lenses and paradigms by articulating a version of the HRW paradigm that is based on formal UN documents and is especially useful for policy analysis.

In 2010, the human right to water was formally accepted by member states of the United Nations, including India, through UNGA Resolution 64/292 (UNGA, 2010a, 2010b). The resolution explicitly referred to, and endorsed, the conceptual and practical aspects of HRW that are elaborated on in other UN documents such as HRC resolutions, General comment No. 15 (GC15) which was issued by the UN CESCR, as well as various reports of the UN's own IEs and SRs (CESCR, 2002; HRC, 2007, 2010, 2011, 2015; UNGA, 2010a, 2010b). The HRW framework is discussed in these documents, and they are specifically designed to guide the thinking, decisions, actions and measures of the state agencies in different countries that bear the primary responsibility for fulfilling the HRW. Together, they explain various critical aspects; these include the definition of HRW the set of normative criteria for fulfilling the HRW; the legal and core (or immediate) obligations of the state that are entailed by a commitment to the HRW; and the grounds for identifying violations of the HRW. The documents helped in the development of the UN/HRW institutional paradigm; they articulated both the conceptual and the practical aspects of HRW that are used in this paper. It needs to be noted that formal UN documents clarify that either 'socialist' (public) or 'capitalist' (private) modes of water provisioning can be used to realise HRW (CESCR, 1999). They specifically recommend, however, that state parties use "a range of appropriate low-cost techniques and technologies", especially "to ensure that water is affordable" (CESCR 2002: 10).

Many and diverse scholars have critiqued the concept of HRW and the strategic and political implications of how HRW has been defined and elaborated in UN documents (Fantini, 2020; Karunananthan, 2019; Sultana and Loftus, 2019; Wagle, 2020). This section presents the debate around the issues that are directly relevant to this paper. The main practical critique is the vagueness of the normative criteria in the UN documents. This vagueness is said to adversely affect decision-making on the ground (Meier et al., 2014), tariff-setting procedures (Winkler, 2012), attention to local power dynamics (Sultana and Loftus, 2015), and the justiciability of HRW (Tully, 2005). Langford (2006a, 2006b), however, argues that the criteria are adequate for helping judges hold the state accountable.

The strategic and political critiques are focused on concern about the appropriation of the UN's HRW discourse by the neoliberal agenda (Baer, 2017; Bakker, 2010; Sultana and Loftus, 2015). The ambiguous position of HRW discourse with regard to private sector participation is feared to help justify and

legitimise the neoliberal principle of full-cost recovery (Sultana and Loftus, 2015). Bakker (2010) argues that the main UN document, GC15, actually facilitated the marketisation of water. Some scholars, on the other hand, are concerned that the state-centeredness of the HRW obligations would lead to co-optation of the HRW discourse by the capitalist state (Karunananthan, 2019; Parmar, 2008; Sultana and Loftus, 2015). The formal HRW discourse has also been criticised on environmental grounds. It has been characterised as anthropocentric and as ignoring the ecological water needs and environmental implications of water use (Bakker, 2010; Fantini, 2020). The mainstream discourse on HRW has also been observed to be quite Eurocentric (Fantini, 2020).

In the scholarly debate over legal issues, Tully (2005) questioned the legitimacy of the right to water as defined in GC15 of the UN CESCR. He argued that a UN committee such as CESCR does not have a mandate to derive a new right directly from the text of a treaty covenant, that is from the International Covenant on Economic, Social, and Cultural Rights (ICESCR). Logical objections were also raised against the rationale underlying the derivation of HRW from the right to the standard of living as it is set out in the ICESCR. Justifying the logic underlying the rationale of HRW, Langford (2006a and 2006b) argued that the ICESCR (articulated in 1966) should be seen as a living document that is open for interpretation as global and on-the-ground situations change. This debate continued at the academic level with a few other scholars joining (Cahill, 2005; Winkler, 2008, 2012).

On the policy front, however, the issue was settled by the UNGA, which came out with three resolutions explicitly endorsing the contents of GC15. India was a signatory in 2010 to the ICESCR treaty and to UNGA Resolution No.64/292 on the Human Right to Water and Sanitation (HRtWS) (UNGA 2010b). In 2017, India invited the UN's Special Rapporteur on the human rights to safe drinking water and sanitation for an official country visit (HRC, 2018). The Indian government, in its response to the issues raised by the SR, claimed that India had been following all the obligations related to HRtWS and that it had always been a supporter and implementer of UN measures on HRW (HRC, 2018). At the city level, the MCGM's WfA policy does mention the constitutional right to water in South Africa and the High Court orders for the right to water that are based on Article 21 of the Indian Constitution. During my fieldwork, I found that all categories of respondents saw HRW as a progressive development and that some activists and experts were enthusiastic about it; in short, there has been no real opposition or reservations about HRW at the national or city level in India or in Mumbai per se, and it can thus be assumed that the HRW discourse carries due legitimacy and acceptance.

## UN'S INSTITUTIONAL PARADIGM OF HUMAN RIGHT TO WATER: KEY ELEMENTS

This section presents a brief articulation of the UN/HRW institutional paradigm, which is based entirely on the content of the formal UN instruments. The elements of this paradigm provide a set of metrics with which to analyse policies governing water access; these include the definition of HRW, normative criteria, and the state's obligations. These elements are elaborated below with the aim of facilitating an understanding of the analysis of the Water for All policy.

### Definition of HRW

As General comment No. 15 (GC15) states clearly, "the human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses" (CESCR 2002: 2). HRW thus essentially means that everyone or every individual human being is entitled to water.

### Availability, quality, accessibility, affordability and non-discrimination

The HRW paradigm prescribes its normative content in the form of five main criteria: availability, accessibility, quality/safety, affordability and non-discrimination. These are used to assess the

appropriateness of water access provided by the state to citizens (CESCR, 2002; HRC, 2010). The 'availability' criterion requires that the water supply "must be sufficient and continuous for personal and domestic uses" (CESCR, 2002: 5). GC15 directs that the water quantity needed to fulfil this criterion should correspond to WHO guidelines. Referring to GC15, the WHO defines three increasing levels of water availability; these are: basic (a minimum of 20 litres per capita per day, or LPCD), intermediate (about 50 LPCD), and optimal (between 100 and 200 LPCD) (WHO, 2003: 13). The legal obligation to achieve full realisation of HRW would thus require the 'optimal level' of access corresponding to water availability of about 100 to 200 LPCD. The quality or safety criterion further stipulates that, "the water required for personal or domestic use must be safe [and should not] constitute a threat to a person's health" (CESCR, 2002: 5). GC15 interprets the accessibility criterion in terms of physical, economic and equitable access (CESCR, 2002), and the physical access criterion requires that, "sufficient, safe, and acceptable water must be accessible within, or in the immediate vicinity of, each household" (ibid: 6).

The criterion of 'affordability' or economic accessibility pertains to "the direct and indirect costs and charges associated with securing water" (ibid). In addition to the cost of buying the water, the affordability criterion includes: the cost of extending the network, the cost of a water connection, and the costs of constructing the facilities required for community water provisioning (HRC, 2010, 2011, 2015). The state is also required to ensure access to water, "when people are unable, for reasons beyond their control, to gain access (…) through their own means" (HRC, 2010: 9). Under the cross-cutting criterion of non-discrimination, the GC15 requires that water, "must be accessible to all, including the most vulnerable or marginalized sections of the population, in law and in fact, without discrimination" (CESCR, 2002: 6). Water must also be made accessible via means that are, "specific to disadvantaged and marginalized members of society" (HRC, 2011: 15); these include residents of "deprived urban areas, including informal human settlements, and homeless persons" (CESCR, 2002: 7), and, "no household should be denied the right to water on the grounds of their housing or land status" (ibid).

### General and specific legal obligations

The HRW paradigm further specifies two types of legal obligations, general and specific (CESCR, 2002). The 'general' legal obligation requires the 'optimal' level of access of about 100 to 200 LPCD (CESCR, 2002; WHO, 2003); the GC15, however, allows for the progressive or delayed realisation of this legal obligation in view of the possibility of resource constraints faced by the state (CESCR, 2002). 'Specific' obligations include the requirement to protect, respect and fulfil the HRW; this is further divided into obligations to *facilitate* and to *provide*. The 'obligation to facilitate', more specifically, "requires the state to take positive measures to assist individuals to enjoy the right" (ibid: 10); similarly, the 'obligation to fulfil' requires state parties to make special efforts to ensure the fulfilment of HRW when (in language that anticipates the 2010 Human Rights Council report quoted above) "individuals or a group are unable, for reasons beyond their control, to realize that right themselves by the means at their disposal" (ibid).

### Core obligations

While allowing progressive realisation of the aforementioned legal obligations, GC15 also imposes nine 'core' obligations that are applicable with "immediate effect" (CESCR, 2002). These obligations are meant "to ensure the satisfaction of, at the very least, minimum essential levels of (…) rights" (ibid: 12). The critical obligations among these nine include: ensuring access to a minimum amount of water for personal and domestic uses, ensuring non-discrimination in access to water, and adopting water programmes that are designed to protect vulnerable and marginalised groups (ibid). The steps taken to fulfil these core obligations must be "deliberate, concrete, and targeted (…) towards meeting the obligations" (CESCR, 1999: 1). While discharging these core obligations, the states are bound by "a constant and continuing duty (…) to move as expeditiously and effectively as possible towards the full realisation of the right to water" (CESCR, 2002: 8). While fulfilling these core obligations, the states are expected to, "target and prioritize the most disadvantaged in order to realize the right to equality" (HRC, 2020: 14).

In sum, the UN/HRW institutional paradigm provides a framework for the analysis or design of water access policies in terms of key elements drawn from the formal instruments and documents of UN agencies and officials.

## MANIFESTATION OF THE CENTRALISED INFRASTRUCTURE PARADIGM IN MUMBAI

The influence of the centralised infrastructure paradigm on the development of Mumbai's water supply system has been evident since its early days. The first dam for supplying piped water to Mumbai was built in 1860, about 32 km away from the city, and it brought 32 million litres per day (MLD) of water to Mumbai (Dossal, 1988).

At present, Mumbai's water supply is claimed to be the largest in Asia and the seventh in the world by the quantum of water supplied (HED, n.d.). The system is largely owned by the MCGM and was developed by MCGM engineers. It brings in about 4000 MLD of water from seven large dams, most of which are between 100 and 150 kms from the city. Huge transmission pipelines bring water into the city, making use of modern and highly sophisticated technologies (BMC, n.d.b; HED, n.d.; Kelkar, 2014). The Tansa Dam, for example, was the largest masonry dam in the world when it was completed in 1892 (Kelkar, 2014), and the Modak Sagar Dam, completed in 1957, was the first gravity-type dam in India and was built using pre-cooled concrete technology (BMC, n.d.b; HED, n.d.). The total length of the pipeline and tunnel transmission system that brings water into the city is estimated to be around 1000 km (HED, n.d.), and the water that arrives is filtered at two huge filtration plants and then distributed across the city through 27 service reservoirs (BMC, 2024). These service reservoirs feed water into the complex and extensive distribution networks comprising more than 6000 km of pipelines of different dimensions; the water then supplies residential or commercial structures via two kinds of water connections, house-service type or standpost type (HED, n.d.).

Despite this elaborate network, many slum colonies in the city do not receive water because the network has not reached them. Other colonies reportedly lie at the tail end of an overextended water distribution network and thus suffer chronically from low water pressure which brings only a trickle (Interviews with municipal engineers, 2019). In this situation, merely extending the existing pipelines is not helpful. To provide sufficient water with adequate pressure to these colonies, the pressure in the networks needs to be augmented using equipment such as heavy-duty pumps or local reservoirs; however, the land plots required to set up this kind of large equipment were reportedly not available. The engineers also complained that laying new pipelines up to and inside many slum colonies was extremely difficult for various topographical, spatial and/or technical reasons. Most of these slum colonies thus continue to receive only a trickle of water with low pressure, with little possibility of improvement. Mumbai's large, centralised, complicated water supply system thus fails to provide an adequate and reliable supply of water to the large number of its citizens who dwell in slum colonies.

Alternatives to the centralised water supply systems were mentioned earlier in the paper. For Mumbai's slum colonies, water kiosks were discussed on different forums as a specific alternative, including at the High Court (High Court at Bombay, 2014). Some experts suggested that 'water ATMs' (small public water kiosks with waterspouts) could be established on public lands in and around slum colonies (Interviews with water policy academics, 2019). These kiosks could be calibrated with water meters and operated by locally available prepaid cards, and they could be supplied with a special pipeline or (in the interiors of slum colonies) via small water tankers. They could be managed by municipal authorities or NGOs under a contract with the MCGM. Indeed, the Government of Maharashtra has already promulgated a government resolution to establish and operate "public water booths" (GoM, 2010). There is also significant evidence in the literature that such metered water kiosks have been working smoothly and effectively, including in other Indian cities (Murungi and Blokland, 2016; Nzengya, 2015; Sarkar, 2022; Schmidt, 2020). Technology experts have also asserted that other alternatives mentioned earlier in the paper had already been established as technically efficient, economically viable,

and managerially workable (Wutich et al., 2023; Interviews with water technology academics, 2019). In fact, the MCGM has recently used some options besides piped connections to provide water to notified slums, including tankers (Interview with an opposition politician, 2019). It also has a scheme called 'suction tank pumping' which supplies water to slum colonies located on hill slopes (CEPT University, 2014). This method involves MCGM delivering bulk water to the bottom of the hill and then community organisations lifting it to a higher level and supplying it to the homes of their members using gravity. During the pandemic, MCGM also used tankers to provide water to citizens living on the roads and footpaths (Vidya, 2020).

Even after pointing out all this evidence, municipal engineers firmly rejected such alternatives even as medium-term solutions, citing technical, procedural and legal difficulties (Interviews with municipal engineers, 2019). According to them, the very size of the slum-residing population in the city made all these alternatives unfeasible. As further barriers, they also pointed to the absence of through streets in slum neighbourhoods and colonies, as well as the closely set configuration of dwellings and their structural weakness due to the use of informal building materials and construction methods. Using this rationale, they stressed the indispensability of standpost-type water pipe connections receiving water from the city's centralised water supply system.

Mumbai municipal authorities, influenced by the centralised infrastructure paradigm, hold a strong conviction that water can be delivered to slum neighbourhoods only through pipes, and this flawed conviction has guided the design and implementation of Mumbai's municipal water distribution system. It can be called a 'flawed' conviction because it persists despite strong evidence to the contrary, as discussed above. We draw here from the assertion by Hemerijck (2020: 812) that policy paradigms, "bolster and entrench policy routines in a path-dependent fashion", an explanation that was also mentioned by expert participants (Interviews with water technology and water policy academics, 2019).

Scholars, including those from engineering disciplines, also complain in the literature that, "the centralized approach has commonly been adopted *without thinking*" (emphasis added) (Kalbar and Lokhande, 2023: 361) by mainstream authorities and engineers, who ignore alternative systems despite the evident limitations of the centralised systems. Tiwale et al. (2025) also point out that the authorities ignore the advantages of alternative approaches and overlook the "ubiquitous presence of alternatives and their access by citizens across income levels" (ibid: 56).

Some respondents traced this (flawed) conviction regarding the indispensibility of a centralised distribution system not to the paradigmatic explanation, but rather to the control of the political economy by politicians and contractors with vested interests, and to the organisational interests of municipal officials (Interviews with water policy academics, 2019). Municipal authorities' decisions regarding the granting of piped connections in Mumbai are known to also be influenced by social discrimination based on religion, language, ethnicity and caste (Anand, 2017; Contractor, 2012; Wagle, 2020). During my fieldwork, I witnessed municipal officials' feelings of negativity and distrust towards slumdwellers, community leaders, local activists and local politicians. This is also evident in their arguments in the case before the Bombay High Court (High Court at Bombay, 2014).

In sum, municipal authorities in Mumbai held the flawed conviction of the indispensability of piped connections, i.e.; the conviction that water could be provided to slumdwellers only through piped connections attached to the centralised water supply system of the city. This conviction was rooted in the unjustified influence of the 'centralised infrastructure paradigm' on municipal authorities as well as in other social and political factors. As shown later in the paper, it has profoundly influenced the design and implementation of the city's water distribution policies.

As the policy analysis in this paper is situated in the exclusive context of Mumbai, in the discussion hereafter, the concept or phrase of 'piped (water) connections' does not mean to convey any commonplace technical contraption, which can be connected at the end of any pipe or network carrying

water. Instead, in this paper, a 'pipe connection' exclusively means the standpost-type connection given from the centralised water supply system in Mumbai to slumdwellers in Mumbai.

## CONTRAVENTIONS OF THE UN/HRW PARADIGM BY THE WATER FOR ALL POLICY

This section presents an analysis of MCGM's WfA policy using the analytical lens of what we are calling here the UN/HRW institutional paradigm. This analysis uses the following metrics as key elements of the paradigm: the definition of HRW; the four normative criteria of availability, accessibility, affordability and non-discrimination; and two types of state obligations: immediately applicable core and legal (or progressive as they allow for some delay). When the WfA policy fails to comply with these elements, it is said to contravene the UN/HRW institutional paradigm. Each section below then presents the rationales shared by the municipal engineers in their interviews with this author to justify the respective contraventions. These rationales are then traced to the aforementioned conviction of municipal authorities regarding the indispensability of pipe connections. The last subsection presents a summary of the discussion in the preceding subsections and brings in the link – explained in the previous section – between the conviction and the centralised infrastructure paradigm.

The WfA policy begins by listing the categories of slum dwellings that are excluded from the previous 2017 Policy and promises to provide water connections to them[1] (BM, 2022). The name of the policy – 'Water for All' – claims adherence to the principle of universal water access; it also claims to be "a comprehensive policy for granting water supply to the excluded residents of slums" (ibid: 2). It grants water connections provided that certain legal, technical, financial and procedural requirements (prescribed in its provisions) are fulfilled by the applicant slumdwellers. It offers only one mode of water access for most slumdwellers, the standpost-type connection [Provision 4.A.1] which is meant for a family of five and carries an entitlement of 45 LPCD as per MCGM's current policies (BM, 2001, 2016). This is approximately equal to the 'intermediate-level' of access (around 50 LPCD) as per the aforementioned WHO norm (WHO, 2003).

### Contravention of the definition of HRW

HRW, as explained in Section 3.1, entitles everyone or every human being to water without exception. The WfA policy, in contrast, declares that, "Water *connections* for *residences* (emphasis added) will be granted, as a general rule" [Provision 3.1] (BM, 2022: 2). As it grants "water connections to residences" – that is, dwellings – instead of "water access to individual human beings", the policy fails to adhere to the very definition of HRW and thus contravenes the UN/HRW institutional paradigm. Moreover, in an upfront and summary manner, the policy also excludes all "dilapidated" structures and all "unauthorised" structures on roads and footpaths from formal eligibility for water connections [Provisions 3.8 and 3.9]. By excluding the human beings staying in these structures from water access, the policy contradicts the very definition of HRW and thus contravenes the HRW paradigm.

According to the municipal engineers, these dilapidated dwellings were excluded as they were found to be structurally unfit for providing water connections, and all unauthorised structures located on roads and footpaths were excluded because of the technical difficulties involved in giving water connections and laying pipelines there. Residents of these two types of excluded structures, however, could have been provided with water through alternative means such as water kiosks or water tankers. Municipal

[1] These excluded categories include: 1) slums on footpaths and roads; 2) undeclared slums on private land; 3) hutments existing along the seacoast but not included in the land use survey; 4) hutments existing on land/property that is to be developed for public use; 5) hutments affected by projects, for which planning has been initiated by BMC or any government organisation; 6) hutments in areas where the supply of water is prohibited as per court orders; 7) slums on central government lands such as railways, Bombay Port Trust or salt pans.

authorities clearly assumed that standpost-type connections were the only possible option for supplying water to these residents, which betrays their conviction of the indispensability of pipe connections.

Mumbai's WfA policy also stipulates that structures with lofts, mezzanine floors or upper floors will be treated as one slum dwelling [Provision 4.A.14] and that, as per the municipal policy, this dwelling will be allocated a quantity of water equivalent to the entitlement of one family of five (BM, 2001, 2016). Many slum dwellings in Mumbai have multiple floors and often many families or groups of individuals occupy a single dwelling (Parussini, 2016); thus, even in this instance, the policy contradicts the very definition of HRW stipulated by the UN/HRW institutional paradigm, which obliges state agencies to ensure water access to 'everyone', that is, to every human being. The logic underlying granting only one water connection to one dwelling is rooted in the conviction of the requirement for 'one pipe connection per dwelling with fixed entitlement for a family' (BM, 2001, 2016).

### Contraventions of the requirement of physical access

The criterion of "physical access" in the HRW paradigm requires a state agency to make a sufficient quantity of water available at a "reasonable distance" immediately (CESCR, 2002; HRC, 2007: 21). If the water distribution network is not available near the applicant's dwelling, however, the policy offers a water connection at a location a certain distance away from the slum dwelling, which has been reached by the distribution network and has adequate pressure [Provision 3.10]. The policy does not mention any set maximum distance of such a water connection from the applicant's dwelling. Thus, this offer of a connection "away" from the dwelling, without any effort to specify a maximum or reasonable distance, amounts to a contravention of the criterion of physical access in the HRW paradigm. It is rooted in the conviction of the indispensability of pipe connections for providing water to slumdwellers, while in fact water could be provided through use of the aforementioned alternative supply options.

### Contraventions of the availability criterion

As explained in Section 3.2, achieving full realisation of HRW requires provision of the 'optimal level' of water availability, that is, about 100 to 200 litres per capita per day (LPCD); however, the standpost-type connection offered by the policy carries an entitlement of only 45 LPCD, and the policy thus fails to ensure the level of water availability required by the UN/HRW institutional paradigm. Municipal engineers expressed an inability to provide slumdwellers with the 'house-service' type water connections (entitlement of 135 LPCD) that would ensure full realisation of HRW for slumdwellers. Their justification was financial limitations and the technical difficulties of extending pipe networks and connections to such a large number of closely placed slum dwellings that are far away from main pipelines. This explanation overlooks the possibility of offering the aforementioned alternative supply options to supplement standpost-type connections and thereby augment the water availability beyond 45 LPCD. Again, the perceived indispensability of pipe connections accounts for this contravention of the availability criterion.

The WfA policy also allows for an unspecified number of publicly accessible standpost connections for slum colonies. The colonies in question come in five types: non-notified colonies on private lands, colonies situated in Coastal Regulation Zone (CRZ) areas,[2] colonies affected by state government or MCGM projects, colonies on lands owned by central government departments and agencies, and colonies situated on forest and mangrove lands [Provisions 4.A.15, 4.A.16, 4.A.17, and 4.A.18 respectively]. Because the policy does not specify the number of people or families served by each of these "public connections", it contravenes the availability criterion of the HRW paradigm.

In the case of slum colonies affected by impending state government or MCGM projects, municipal authorities acknowledged the need to provide public connections, but pointed out the futility of giving connections and laying pipelines as these colonies would be demolished in the near future. In the case of

[2] Human activity is prohibited in areas falling within Coastal Regulation Zones of the Central Government.

the other four types of colonies, they justified the provisioning of public connections by pointing out the possibility of adverse legal, judicial or administrative actions by landowners or concerned government agencies; in all these cases, however, they failed to consider other options such as tanker supply or water kiosks to supplement the public connections. These failures again betray the conviction as to the indispensability of pipe connections.

### Contraventions of the affordability criterion

As explained above, the affordability criterion applies not only to water charges but also to all direct and indirect costs and charges. The MCGM's water tariff for standpost connections is higher than that of other residential water users, but it is low compared to the cost of procuring water by other means. The upfront costs of obtaining water connections through this policy are quite high, however; they include the cost of buying and laying pipelines and the cost of constructing drainage facilities at the site of the connection. More burdensome still are the informal payments demanded by gatekeepers such as local politicians, municipal engineers, and the middlemen or local agents who manage compliance with technical, procedural, legal and administrative requirements for obtaining formal water connections (Patil et al., 2025: 45). These have been reported to involve "huge sums of money". The policy thus contravenes the affordability criterion as it fails to offer alternative affordable water access options such as water kiosks or tanker supply, which do not require such high upfront costs, security deposits or informal payments. This contravention could also be traced to the conviction of municipal authorities about the indispensability of pipe water connections.

In slum colonies where the pipe network has not reached near an applicant's dwelling, the policy offers a water connection some distance away from the dwelling [Provision 3.10]; however, once the pipe network is installed near the applicant's dwelling, the policy requires them to obtain a new connection at the new location. The slumdweller is therefore forced to pay twice for all the aforementioned connection-related expenses [Provision 4.A.10]. The policy thus contravenes the availability criterion in the case of residents of slum colonies not yet reached by a pipe network. The policy could use other options to immediately (if tentatively) ensure a 'basic' level of water availability; municipal authorities' conviction about the indispensability of the pipe connections, however, largely prevents them from considering this possibility.

### Contravention of non-discrimination criterion

As explained in an earlier section, the non-discrimination criterion requires that water must be provided to the most vulnerable or marginalised sections (including residents of informal settlements) irrespective of the status of their houses or lands; however, the WfA policy, which is designed specifically for slum colonies, discriminates against slumdwellers in multiple ways on the grounds of their housing or land status. As explained before, the policy excludes the residents of "dilapidated" structures and those who inhabit unauthorised structures located on roads and footpaths [Provisions 3.8 and 3.9], an exclusion that is justified based on the structural and spatial status of their houses. In the case of the hutments situated in forest areas and on mangrove lands [Provision 4.A.19], water is denied their inhabitants on the basis of the legal or judicial status of their housing, as the policy cites the "legal restriction" and "court orders" as grounds for their exclusion. As seen before, the policy restricts the water availability of residents of dwellings with lofts, mezzanine floors or upper floors [Provision 4.A.14], which also amounts to discrimination based on the structural status of the houses. Further, the policy restricts water access by providing public water connections to residents of the aforementioned five types of slum colonies [Provisions 4.A.15, 4.A.16, 4.A.17, and 4.A.18, respectively]; in that case, the discrimination is based on the legal status of the lands. As explained before, in all these cases, these justifications can be traced to the conviction of municipal authorities about the indispensability of pipe water connections.

### Contravention of general and specific legal obligations

As mentioned in Section 3.3, general legal obligations require supply of the 'optimal level' of water of about 100 to 200 LPCD (CESCR, 2002; WHO, 2003); however, the WfA policy provides only for standpost connections with an entitlement of 45 LPCD, which does not achieve full realisation of HRW. The policy thus contravenes this particular legal obligation. As explained in Section 5.3, municipal engineers fail to consider alternative supply options to enhance the availability beyond 45 LPCD due to the conviction of municipal authorities of the indispensability of pipe connections. The HRW paradigm also allows for progressive realisation of the legal obligation to provide the 'optimal level' of access. GC15, while allowing for progressive realisation of the legal obligations, imposes another obligation that is immediately effective, which is, "to take steps [that are] deliberate, concrete, and targeted towards the full realisation of the right to water" (CESCR, 2002: 8); the WfA policy, however, restricts itself to providing only standpost connections (with entitlement of 45 LPCD) and does not specify any deliberate, concrete or targeted steps to provide optimal access. It thus also contravenes this particular immediately applicable obligation.

Specific legal obligations include the "obligation to facilitate" and the "obligation to fulfil". As per GC15, the obligation to facilitate and the obligation to fulfil, together, "require the state to take positive measures" to ensure the fulfilment of the HRW of people (like slumdwellers) who are unable to exercise their HRW (CESCR, 2002: 10). Instead, however, the policy effectively raises various procedural barriers to the fulfilment of the HRW of slumdwellers; it stipulates, for example, that the applicant for a water connection must provide formal documents as identity proof and occupancy proof [Provisions 3.5 and 3.6]. The literature has amply demonstrated that, for Mumbai slumdwellers, obtaining such formal documents has historically been one of the main barriers to getting a water connection (Anand, 2017; Wagle, 2022). Even so, and ironically, this most recent WfA policy continues to raise this well-known procedural barrier. Patil et al. (2025: 16) explain this barrier and the crucial role of a social movement to help slumdwellers obtain the documents; as they put it,

> the struggle (…) to get a legal water connection was long and involved several layers of paperwork. To begin with, the MCGM asked for No Objection Certificates (NOCs) from authorities who owned the land where the particular settlement was built, subject to which applications for legal connections were being accepted. PHS[3] (a social movement) [was] crucial in procuring these NOCs. This meant constant applications to various authorities, requesting meetings with officials and convincing them to give such a document.

Without the active support of a social movement, slumdwellers would find it impossible to even apply for a connection. Municipal authorities justified this procedural requirement by citing the need to ensure the bona fide intentions and credentials of the person before granting access to public infrastructure; however, these two specific legal obligations to facilitate and fulfil the HRW could have been achieved by the policy by offering water access at a 'basic' level through alternative options such as water kiosks and water tankers. These options would not impose such procedural requirements and thus would help people who find it difficult to secure those documents.

### Contraventions of core obligations

Among the nine core obligations imposed by the UN/HRW institutional paradigm that are to be fulfilled with "immediate effect", one requires the state to ensure non-discrimination in "the right of access to water services" (CESCR, 2002: 12). As part of non-discrimination and equality, GC15 includes residents of, "deprived urban areas, including informal human settlements, and homeless persons" in the category of

[3] Over the past decade, the Pani Haq Samiti (Committee for the Right to Water) or PHS has been actively involved in getting water access for residents of informal settlements across Mumbai (see https://panihaqsamiti.org/).

"those individuals and groups who have traditionally faced difficulties in exercising [the right to water access]" and to whom the, "states parties should give special attention" (CESCR, 2002: 12). These stipulations of the HRW paradigm require that special attention be paid to categories of slumdwellers who, in contrast, are either excluded or constrained in their water access under this policy as demonstrated before [in the cases of Provisions 3.8 and 3.9]; this includes: slumdwellers staying in dilapidated buildings and structures, those living in dwellings located on roads and footpaths, residents of slum dwellings with multiple floors, inhabitants of undeclared slums on private lands, and people living in hutments along the sea coast. The WfA policy thus contravenes this particular core obligation of the HRW paradigm. Again, such constraining of access and failure to fulfil the HRW can be attributed to the municipal authorities' conviction regarding pipe networks.

Another core (immediate) obligation requires state parties, "to ensure access to the minimum essential amount of water" (CESCR, 2002: 13). This minimum essential amount should correspond to at least the 'basic' level of access according to the WHO standard, which is pegged to about 20 LPCD (WHO, 2003); however, "wherever there is no water distribution network available near the applicant's structure", the policy allows the municipal engineer to wait for the availability of the network and to provide water connections "in due course" [Provision 3.10] (BM, 2022: 3). The WfA policy thus contravenes the UN/HRW institutional paradigm, as its "due course" provision allows municipal officials to escape their responsibility to immediately provide the "minimum essential amount of water" (CESCR, 2002: 13). This contravention occurs as the policy does not have any option for providing water other than standpost connections, which yet again starkly betrays the conviction of the indispensability of pipe connections.

### Role of the centralised infrastructure paradigm

In summary, the analysis in this section demonstrates that the MCGM's new WfA policy contravenes a range of key elements of what we have termed the UN/HRW institutional paradigm. The analysis also traced the roots of these contraventions to, in most instances, the conviction held by municipal authorities as to the indispensability of pipe connections as the sole option for providing water access to slumdwellers. Section 4 in this paper discusses this conviction and traces it to the strong influence on Mumbai policymakers and municipal authorities of the centralised infrastructure paradigm. Thus, essentially, the contraventions of the UN/HRW paradigm are rooted in the influence of the centralised infrastructure paradigm on the thinking and actions of municipal authorities.

## DISCUSSION

### Re-politicisation: Replacing dwellings and connections with humans and access

As the analysis above demonstrates, municipal authorities' conviction that a pipe connection is the only way to provide water access – and the reflection of this conviction in policy – has caused 'water access' to be reduced to 'pipe connections'. In doing so, the 'human being' (to whom access was to be provided as her right) has disappeared from the policy and has been replaced with the 'dwelling unit'. The policy was thus designed to provide 'pipe connections to dwellings', instead of 'water access to everyone'. In its effect, the political issue of the human right to water was reduced to the techno-administrative requirements to grant formal water connections. This reduction is the outcome of the dual cause: the strong influence of the centralised infrastructure paradigm on municipal authorities, and the complete absence of any influence on those authorities of the UN/HRW institutional paradigm. Hence, if urban water distribution policies are to actually fulfill the HRW of the urban poor, they should centre 'access' and 'human beings' instead of 'connections' and 'dwellings'. The excessive influence of the centralised infrastructure paradigm should be shed, and the current 'water distribution' policies should be converted into 'water access' policies, thereby fulfilling their obligations under the HRW paradigm.

### Clarifying core diagnosis and prescription

In its diagnosis, this paper does not altogether condemn the standpost-type pipe connections offered by the WfA policy, only its sole reliance on them is objected to. Inherently, this type of connection imposes legal, technical and procedural requirements on many slumdwellers that act as barriers to their water access. The paper instead insists that the policy should offer other alternative modes of water supply that would provide at least a 'basic' level of water access to the slumdwellers who are not able to obtain standpost connections. The WfA policy needs to supplement standpost connections by also offering water supply options such as water kiosks located at conveniently located public land plots, tanker water supply, and community managed public water connections. The last option can be developed along the lines of the BMC's current suction tank pumping scheme involving local community organization on a large scale (CEPT University, 2014). The policy will have to incorporate rules to operationalise, monitor and regulate these options, and to provide preliminary technical, managerial and other specifications. In fact, the Government of Maharashtra has already started this process by promulgating a government resolution for the regulation of the establishment and operation of public water booths (GoM, 2010).

### Water for All Policy: A retrogressive policy?

The analysis of the MCGM's WfA policy presented in the paper highlights many contraventions of the UN/HRW institutional paradigm. Similar observations have been cited in the literature. Before the promulgation of HRW-specific UN instruments, Gleick (1998: 489) hoped that explicit acknowledgement of the human right to water by the UN would help "maintain a spotlight of attention on the deplorable state of water management in many parts of the world". After the promulgation, scholars brought out many gaps between the contents of the HRW-related UN instruments and the on-ground reality of policies and practices. Neves-Silva et al. (2023) talk about similar neglect of the human rights to water and sanitation (HRtWS) by state-level governments during the deliberations over a water law in Brazil. Meier et al. (2014) point to the "translation failure", by which they mean the gap between the UN HRW instruments and the policy reforms required by the UN documents on HRW. Sultana and Loftus (2015) point out that despite the UN instruments granting HRW, the national and/or subnational policies directly or indirectly deny water in various way that are clearly in violation of these instruments.

Interestingly, Mumbai's WfA policy constitutes wide-spread contraventions of the UN/HRW institutional paradigm while the language of its official document, at the same time, refer to South Africa's constitutional right to water and Indian High Court Orders that uphold the HRW. This brings in the issue of co-optation by the Indian state of HRW-related UN discourse and instruments. As mentioned before, scholars have discussed this issue with many examples of such appropriation (see Karunananthan, 2019; Parmar, 2008; Sultana and Loftus, 2015). In the case of South Africa, scholars have criticised the state's appropriation of HRW by consistently interpreting it in the "narrowest sense" (Bond, 2004; Clark, 2017; Dugard and Langford, 2011; Mehta et al., 2014). Similarly, in northwestern Mexico, HRW was used to justify water transfers that served the interests of powerful real estate and industrial interests at the cost of farmers and rural households (Radonic, 2017). Scholars have also pointed out how the Supreme Court of India allowed the construction of a mega dam by citing the constitutional provisions and UN resolutions related to water rights, while ignoring the destruction the dam caused to the livelihoods of a large number of Indigenous people (Parmar, 2008; Rajagopal, 2005).

This discussion of contraventions raises another question. While discussing the 'general' legal obligation, the GC15 expresses apprehension over "retrogressive measures taken in relation to the right to water" (CESCR, 2002: 8), that is, measures that may result in a rollback of water access. The contraventions demonstrated in this paper effectively deny HRW to a large number of slumdwellers either by excluding them altogether or by raising procedural, technical and legal barriers. In view of this, should this policy, by its very nature, be called a 'retrogressive measure'?

### Significance of paradigmatic dimension

Scholars discussing water access denial in Mumbai do talk about the role of technology and water infrastructure. Through their rich ethnographic work, Anand (2017) and Björkman (2015) provide interesting details and insights into the community-level effects of the pre-eminence accorded to technology, water infrastructure, engineers and plumbers. Wagle (2022) discusses how the technical and procedural implications of this technologically dominant approach manifest in the particular structural and spatial criteria that determine the un/suitability of the dwelling for a water connection. Against this background, the paper discusses the paradigmatic dimension of the denial of water access to Mumbai's slumdwellers, suggesting that it emerges from a combination of the strong influence of one paradigm and the utter neglect of another. In a sense, it brings out a clash between the two paradigms. While adding a novel paradigmatic dimension to the debate on this issue, this paper also provides an explanation for the dominance of the engineers and their technological approach to water distribution policies in Mumbai, as discussed by other scholars (Anand, 2017; Björkman, 2015; Tiwale, 2026).

Bayliss and Deekshit (2024), while discussing Mumbai's WfA policy, explain how global paradigms of human rights and neoliberalism intersect with structures, politics and institutions to create contextually specific outcomes in the city. They conclude that, "the experience of Mumbai shows that water systems cannot be understood in terms of broad paradigms but rather need to be considered in terms of the politics, power relations, and associated narratives" (ibid: 9). Quoting Peck and Theodore (2010), they contend that standard policy packages based on global paradigms mutate when "released into the wild" (Bayliss and Deekshit, 2024: 9) and that the local political economy, as manifested through a combination of formal and informal spaces and practices, is what in the end determines water access. While I support this conclusion, I still want to underscore the enduring influence of such paradigms on the authorities that are designing and implementing policies, and whose members play a significant role in shaping water access. Municipal authorities hold an unwavering conviction with regard to the indispensability of pipe connections despite the contrary and overwhelming evidence of the feasibility of other options. This conviction cannot be explained without considering the strong influence of the centralised infrastructure paradigm.

## CONCLUSION

In summary, this paper argues that Mumbai's new Water for All policy contravenes key elements of the UN/HRW institutional paradigm. It further argues that the rationales justifying these contraventions, in turn, are rooted in the influence on these authorities of the centralised infrastructure paradigm. The paper describes and explains the centralised infrastructure paradigm, and articulates the UN/HRW institutional paradigm by drawing from the content of formal UN documents and instruments on HRW. The latter paradigm is articulated in terms of its key elements: the definition of HRW, the five normative criteria, and the two types of state obligations (legal and core). To support its arguments, the paper engages in a systematic analysis of the policy using the metrics of the UN/HRW institutional paradigm. The analysis demonstrates how the city's WfA policy contravenes the key elements of the paradigm and it explains how this contravention is rooted in the conviction of the municipal authorities about the indispensability of piped water connections and pipe networks. It also demonstrates that this conviction is the outcome of the influence of the centralised infrastructure paradigm.

This acceptance and ignoring of the two paradigms, respectively, was accompanied by other important developments related to the issue of water access denial; for example, MCGM deployed some alternative supply options such as municipal tankers, but they did not do so in the non-notified slum colonies referred to in this paper. The alternative supply arrangements that were resorted to by slumdwellers in non-notified slum colonies included: NGO-supported water kiosks, private water supply networks, private vendors, and water-pouch sellers. These arrangements, however, were not just costly and unreliable, they were also woefully inadequate for the large population residing in these colonies,

which is estimated to be about two million people. Similarly, some incremental policy reforms did take place; however, they failed to provide significant relief to slumdwellers who were denied water access. While replacing the 2017 Policy with the WfA policy, for example, some legal barriers were removed (for slums on municipal and state government lands) or lowered (for slums on central government and private lands). Despite the explicit court order, however, most vulnerable sections of slum populations continued to be excluded, even by the WfA policy; these included: the residents of all "dilapidated" structures, the occupants of all unauthorised dwellings located on roads and footpaths, and people living in huts on forest lands and mangrove lands.

Adding the paradigmatic dimension helps enrich the academic debate and the policy and practical understanding of the chronic, convoluted and well-investigated issue of the denial of water access to Mumbai's slumdwellers. At the academic level, this paper demonstrates that taking a paradigmatic view helps shed new light on the complexity of this issue and complements the ethnographic and other types of research work by various scholars. It provides a novel and relevant explanation of the issue in terms of the acceptance and ignoring of two paradigms by the municipal authorities. At the policy level, analysis of the issue from the paradigmatic perspective helps bring to the fore the comprehensive contraventions of UN resolutions and guidelines that the country has signed. It underscores the need to replace the current focus of the water distribution policies in the Global South on 'water connections' and 'dwellings' with a new focus on 'water access' and 'human beings'. This policy insight will, in turn, help understand and rectify the design of not just Mumbai's WfA policy but also the water distribution policies of other cities in the Global South. For this purpose, the UN/HRW institutional paradigm, articulated in terms of its key criteria and obligations, can be used as a tool for analysing the water distribution policies across different countries. At the practice level, the paradigmatic explanation provided in this paper could be strategically valuable to social movements working at the ground level to secure the HRW of marginalised social groups. These social movements can specifically plan their activities to dispel the influence of unwarranted paradigms on policymakers and policies, as well as to propagate the desirable paradigms that would help their causes, such as the UN/HRW institutional paradigm.

In conclusion, the paper adds to the long-standing conversation in academia that considers paradigms as acting like mental filters and enduring over long periods, and as affecting policymakers, their policy designs, and the resultant policy outcomes. Some paradigms result in seriously adverse outcomes and some can provide effective remedies. The paper thus presents a compelling call to policymakers and activists to view access and justice issues through a paradigmatic lens and to take corrective steps to ensure that policy outcomes will not be adversely affected by negative paradigmatic influences.

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