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Informal Space in the Urban Waterscape: Disaggregation and Co-Production of Water Services

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ABSTRACT: This special issue explores the realities of water provision in 'informal' urban spaces located in different parts of the world through eight empirical, case-based papers. The collection of articles shows that formality and informality are fluid concepts that say more about the authority to legitimate certain practices than describe the condition of that particular practice. In this introductory article we provide a historical overview that links the academic discussion on informality to urban water supply practices. Subsequently, we propose the concepts of disaggregation and co-production to describe how informality works, and how ideas about (in)formality are mobilised to label particular practices and service modalities. Disaggregation reveals that a single service delivery mechanism may incorporate activities, varying according to the degree to which they are formal or informal. Co-production describes a process where hybrid service provision modalities are produced as a result of the articulation of socio-political, economic, biophysical and infrastructural drivers. The article concludes by identifying a series of research directions that emerged as a result of producing this special issue.

KEYWORDS: Informality, co-production, water service modalities, urban waterscapes, governance

INTRODUCTION

Water provision in dynamic urban contexts entails governance and operational challenges that both the public and private sector have been unable, or unwilling, to deal with adequately. In most cities in the Global South, formal utilities only serve between 40% and 70% of the urban population (Nickson, 2002; Mwanza, 2005). Where water utilities do not reach, the water market is fragmented into a large variety of small (formal or informal) agents (Matshine et al., 2008), which operate for profit or for philanthropic reasons (Clark, 1995; Brinkerhoff, 2002; Kariuki and Schwartz, 2005; Batley, 2006). Cities in the Global South have thus grown into heterogeneous urban landscapes, composed of highly diverse and often 'informal' providers, adhering to different operational and service delivery models.

With this special issue, we link the academic discussion on informality to urban water supply practices. Services identified as 'informal' are associated with a large number of (contradictory) adjectives such as inefficient, creative, expensive, complicated, traditional, unsustainable, or illegal. Far from being 'backward' or a survival strategy of the poor, such provision includes stable enterprises and dynamic businesses able to accumulate capital and economic development in many areas and sectors (Chen, 2007; Ahlers et al., 2013b). We explore the manifestations and interpretations of informality in water supply provision through empirical, case-based papers. In doing so, the collection of articles shows that formality and informality are fluid concepts that say more about the authority to legitimate certain practices than describe the condition of that particular practice. In developing the different interpretations and consequences of informality the authors engage with this fluid concept from different angles. Consequently, the application of the term (in)formality is often more confusing than explanatory because it is mobilised in multiple and contradictory ways. In this respect Varley (2013) argues that, despite a commitment to disrupting conceptual dichotomies, current discussions of informality actually reproduce them or introduce new binaries. The papers in this issue show that the definition and application of (in)formality have social and political implications. We suggest that the concept of co-production helps us to avoid binary and normative categorisations and contributes to better understandings of how water provision actually works. However, we choose not to erase the terms 'formal' and 'informal' or render them invisible, as their application carries meaning and has concrete, material effects. Co-production describes a process where hybrid service provision modalities are produced as a result of the articulation of socio-political, economic, biophysical and infrastructural drivers whose interaction constitutes new practices, thereby producing new meaning. Unlike the more familiar application of co-production as the cooperation between state and non-state actors (Joshi and Moore, 2004) the papers in this issue show that co-production is far from collaborative but instead tense and riddled with power asymmetries and political aspirations, thereby producing uneven and highly contested water service provisioning.

Below we first explore the recent surge in interest in the concept of informality. As part of this discussion we highlight two streams of literature, which we term policy-oriented literature and critical literature, and describe the approaches to informality that emerge from these streams. After this discussion we elaborate on two cross-cutting themes that run throughout this special issue: the disaggregation of service delivery modalities and the co-production of services. The former highlights that a single service delivery mechanism may incorporate activities, which vary according to the degree to which they are formal or informal. The latter shows that users, providers, policy-makers, and government authorities interact through a dynamic set of social and material relations to access, provide, and control water supply. These interactions, which take place within a particular biophysical context, operate at multiple scales and are mediated by technological development. We argue that the resulting service provision configuration is a product of this negotiation, which is not only highly political but also produced by, and producing, a variegated citizenship.

FROM (IN)FORMALITY TO CO-PRODUCTION

Contextualizing informality

From its initial use by Hart (1973) in discussing informal income opportunities in Ghana, the concept of informality has been subject to a variety of interpretations and approaches (see Kudva, 2009; Rakowski, 1994) and has a history of moving in and out of (inter)national policy and academic circles (Chen, 2007). The current interest in informality lies with a number of interconnected developments related to broad state-societal changes as well as shifts specific to the water sector. The first development concerns the changing nature of state-society relations which have characterised the onset of neo-liberalism in the past decades. These changing relations, which Swyngedouw (2005) depicts as a move to "governance-beyond-the-state", meant that non-state actors became more prominent in providing and organising

services which previously were, at least on paper, the purview of the state. This shift is constituted by a variety of trends which, together, have provided a window of opportunity for the small-scale private sector to become an accepted mode of water service provisioning. First, there has been a policy shift¹ from state responsibility for providing services to provision of services by private economic actors in which the role of the state is limited to enabling and regulating. This shift emphasises commercialisation of water service provision. The water reforms which globally swept through urban water sectors all shared a common thrust to create room for private-sector participation in service provisioning. In a related vein, this shift also altered "the concept of citizenship from one relating to participation in the public realm to one referring to consumption in the private realm" (Walsh, 1995). Part and parcel of these reforms concerns the encouragement by donors and lending agencies for small-scale decentralised forms of service delivery. Although this move to decentralised production has been subject to considerable debate and criticism (Manor, 2004; Blaikie, 2006), decentralised service delivery signals a move away from the hegemony of large-scale, standardised service provisioning.

A second factor which has heightened the profile of urban informality relates to the trend of rapid urbanisation and the growth of 'informal' or hybrid economies that have permeated diverse sectors of society throughout the global south (Simone, 2001; Kudva, 2008). Urban informality is then viewed as "an organizing logic, a system of norms that governs the process of urban transformation itself" (Roy, 2009: 148). In this perspective, informality does not necessarily denote poverty or slums. Varley (2013) illustrates how such informality appears in highly formalised middle or upper class areas, while simultaneously high-end residences are produced by informal residential subdivisions at the urban peripheries.

A final factor that placed informal water provisioning on the international agenda is the emphasis placed by the international donor community on the Millennium Development Goals (MDG) and particularly the target of reducing by half the number of people without adequate access to water services in conjunction with the disappointing results of 'formal' service delivery modalities. The MDG target setting for access to clean water created incentives for policy-makers and water practitioners at international and national levels to accept alternative service modalities in order to expand access to water services. Moreover, the 'formal' service modalities of monopolistic public or privatised water utilities that characterised the 1990s, failed to achieve these targets. As a result, policy-makers and practitioners started to embrace small-scale independent providers, largely ignored a decade earlier. The promotion of small-scale independent providers as a promising service modality appears to be strongly linked to the search for new private sector champions by proponents of private-sector involvement. The promise attributed to the large multinational private sector at the start of the 'water privatization decade' (1993-2003) appears to have been substituted for that of the small-scale private sector (Ahlers et al., 2013b). In Manila, for instance, the expansion of the formal private utility did not lead to the elimination of the small-scale informal providers, but rather to a selective formalisation of those providers operating in areas considered more risky and, thus, less serviceable by the formal utility (Cheng, this issue). Thus the reappraisal of small-scale private providers was spatially limited and strategically led by the formal utility.

APPROACHES TO INFORMALITY

In the past decade informality has been subject to considerable debate. In particular two general streams of literature can be distinguished. The first concerns a more policy-oriented literature stream.

¹ We highlight that this, in many cases, is a policy shift rather than actual shift as in many countries the state never was able to provide universal services.

The second stream of literature is more critical in nature and has its origins in the human geography and urban planning disciplines. The two approaches are elaborated upon below.

Policy-oriented literature

The policy-oriented literature shifted from describing 'the informal sector' "as a disadvantaged residual of segmented labour markets" to praising it as an "unregulated micro entrepreneurial sector" (Maloney, 2004: 1159). A key component of this stream of literature is the adherence to a strong formal-informal dichotomy with a rather crude distinction between formal and informal sectors, where the informal sector is always defined in relation to the state, and particularly as everything outside of regulatory influence of the state. At the same time, this stream of literature incorporates an almost paradoxical notion about informality. On the one hand, it celebrates the virtues of the informal sector by emphasising its entrepreneurial spirit. Actors disparagingly labelled as 'informal providers' in the 1980s and 1990s, became known as 'small-scale entrepreneurs' (Eales, 2008) or 'independent water entrepreneurs' (Solo, 2003) and 'local entrepreneurs' (Conan, 2003) a few years later. However, what this literature celebrates is not necessarily the informal, but rather the private-sector characteristics of these small-scale independent providers. Entrepreneurship is linked to characteristics such as competition, innovation and flexibility, financial incentive structures, the willingness to invest and ability to recover costs without governmental subsidies (Plummer, 2002; Njiru, 2004; Kjellén and McGranahan, 2006). On the other hand, the strong formal-informal dichotomy also embodies a certain disdain for the informal sector. This is particularly visible in the policy prescription to formalise informal service providers. The underlying assumption is that informal providers develop outside formal state control (Dovey and King, 2011) in an unrecognised and 'hostile' environment (Njiru, 2004). Through formalisation, so the argument goes, informal providers can be "brought out of the woods" (Schaub-Jones, 2008) and into the formal service-provisioning system. While this will benefit the providers by granting them access to water and financial resources, stability and recognition (Njiru, 2004; Sansom, 2006; ADB, 2008; Schaub-Jones, 2008; Ahlers et al., 2013b), these benefits will also be "passed on to consumers" (World Bank, 2009: 70). This framing, therefore, maintains a more 'traditional' binary categorisation of the formal and informal and carries clear normative values: the formal is identified as that which is modern and necessary, and the informal as that which is backward, undesirable, to be eliminated or incorporated in the formal through formalisation and state regulation.

Critical literature

A very different approach to informality is being developed in the critical social science literature. More attention is given here to the inherently political nature of processes and practices of urban informality, rather than to the sector and providers. Assaad (1996) argues that informality is not the property of actors or locality, but concerns social transactions and the institutions that shape these transactions. "Transactions are informal when they do not rely on standardized bureaucratic rules and procedures for their execution or enforcement, and are not legally recognized by the state" (Assaad, 1996: 117). Roy (2005, 2009) portrays informality as a particular mode of urbanisation, and strongly argues against reproducing the dichotomy of two sectors, formal and informal. Informality, she insists, is "at the very heart of the state and is an integral part of the territorial practices of state power" (Roy, 2009: 84). Through the application or suspension of its legal and planning apparatus the state may selectively formalise, temporarily legitimise or normalise selected informal practices or providers (Roy, 2005; Kamete, 2012). In this interpretation, the state mobilises 'informality' to actively delegitimise unwanted service modalities and temporarily tolerate 'acceptable' ones (Cheng, this issue). In doing so the state develops flexible and opaque modalities of governance which provide room for manoeuvring without the threat of legal reprisals. What is informal and formal is continuously redefined and subject to negotiation. Such flexible modalities of governance frequently cater to particular social hierarchies that may be both class- and/or racially defined (Misra, this issue; Kooy, this issue). Although the active role

of the state in producing informality is shared by several authors, the degree to which the state controls the production of informality is subject to debate.

The different approaches highlighted above share the notion that ultimately what is 'informal' is defined in relation to the state. "[I]nformality is not 'outside' the formal systems, but is instead produced by formal structures and always intimately related to formal structures" (Porter, 2011: 116). Thus, the binary notion of formality and informality is not only unhelpful but fundamentally incorrect. Along with the papers in this special issue, we suggest an intricate and interdependent entanglement of the formal and informal. Seemingly formal service provision modalities incorporate elements of the informal, while formal governance structures produce the conditions for informality to develop. The service provision subsequently produced is highly dynamic as the frontiers between formal and informal continuously shift (Roy, 2009).

Nevertheless, we question the dominance of the state in determining these frontiers. This special issue collection shows that Roy unduly bestows hegemonic authority to the state, thereby reifying the state by making it reign supreme over urban space and practices. This state-centred approach negates the agency of others. Here we suggest an approach that recognises agency as socially diverse, biophysically structured, and technologically facilitated. Clearly, the state facilitates or is complicit in processes of informality, but does not necessarily dominate the process. In this special issue, we seek to uncover the range of other actors and relationships involved in the co-production of informality. As such, we suggest that informality in the water sector is best understood as a process of co-production.

THE DISAGGREGATION OF SERVICE MODALITIES

In discussing informality, service modalities such as in-house or yard connections, standpipes, kiosks, and mobile water vending, are often taken as the basic unit of analysis. In this perspective, a service modality is classified as being either informal or formal. The papers in this special issue suggest that this obscures the complexities of service provision processes. A single service delivery modality may incorporate various activities related to the sourcing, treatment, distribution and storage of water, possibly undertaken by different actors and varying in the degree that they are legal or formalised. Burt and Ray (this issue) describe how 'informal' storage practices persist after achieving 24/7 water supply, thus demonstrating that a service delivery modality may contain both formal and informal elements. Formal elements, such as the contract with the water utility for a household connection, and informal ones, such as the in-house storage of water, coexist in different stages of the same drinking water supply chain.

Similarly, Misra (this issue) highlights how a seemingly legal service connection in an upper class neighbourhood may incorporate obscure extra-legal components (such as resale to unconnected consumers). Informality may thus be nested within formal service delivery but hidden so as to not compromise the veneer of formality of the service. As such, informality permeates the whole urban waterscape, from elite to low-income urban areas, and is not spatially or socially detached from the rest of the city. Part and parcel of this process, although not often made explicit, are the related land and housing arrangements (Misra, this issue; Kooy, this issue).

CO-PRODUCTION OF SERVICE MODALITIES

Users, providers, policy-makers, and government authorities interact through a dynamic set of social and material relations to access, provide, and control water supply. They have to do this within a context structured by bio-geophysical features, and channelled through technological development. The service modalities produced consist of different service provision activities (abstraction, treatment, distribution, storage), involve a variety of different actors in these different stages and are subject to a range of bureaucratic and socially embedded institutions and social relations that shape behaviour and

impact the actors. For this reason, the notion of co-production allows us to analyse the different dynamics that shape such a hybrid service configuration, without falling into dichotomous traps.

Everyday practice: The users

While many authors in this issue adhere to the conceptual framework of urban political ecology, a singular critique of it echoes throughout the collection: the emphasis on analysing global political economic processes shaping capital flows through city-wide infrastructures is not accompanied by an interest in, or scholarship on, the everyday practices of negotiating access to drinking water (see Peloso and Morinville; Zug and Graefe, this issue). The papers in this collection show the wealth of insight the heterogeneity and messiness of everyday practice and experience provide, and how that insight allows us to understand the political economy of how 'lived space' is produced and capital reproduced (Lefebvre, 1991). Or as Brenner (2013: 99) argues, what characterises the contemporary urban condition is the "the perpetual churning of sociospatial formations under capitalism." How global processes shape, and in turn are shaped by, the everyday allows us to link governance modalities, social relations, infrastructural design and biophysical processes related to water provision and consumption.

Daily negotiations over water involve contestation, but also the request for a favour, or gift, or a temporary connection, or buying a small amount, agreeing on a delay in payment of the bill, organising labour to fetch, mend, fix, or pay. With each act, social relations are produced, consolidated, contested, and consequently urban space is reconfigured. Reconfigurations of the urban waterscape may be driven by manifestations of solidarity such as water gifts (Zug and Graefe, this issue), cultural practices or livelihood demands, such as nomadism or poverty (Peloso and Morinville, this issue). These different demands impact the waterscape: the practice of water gifts ensures that water is accessible for those who cannot afford it; nomadic populations seek more flexible water service modalities.

The analysis of everyday negotiations over access to water also shows that the state is not monolithic or necessarily coherent in determining or producing water services. All actors involved (users, providers, policy-makers, authorities) have multiple identities, moving in and out of formality. Users contribute to shaping the urban waterscape through their diverse practices of accessing and actively producing service configurations. Even though users actively select, combine and alter service arrangements and water sources to meet their daily water needs, their room for manoeuvring is not boundless. User agency to change, adapt, or ignore the available arrangements is circumscribed by social relations, and determined by class, age, gender, race, or religion. Moreover, user agency is bounded by geophysical context, as well as type of infrastructure present and possible. For example, restricted by financial resources and social structures, users no longer receiving services from a formal utility employ different strategies to access water. These strategies range from buying water from connected neighbours, to fixing illegal connections, to developing alternative infrastructure managed by a community-based organisation. Consumers seek to satisfy and balance particular preferences in their access to water such as flexibility, affordability, self-service, or partiality for certain providers. These preferences may be shaped culturally, socially, economically, or biophysically (Peloso and Morinville, this issue; see also Ahlers et al., 2013a).

Heterogeneity, agency and assemblage: Service providers

Water providers form a second category of actors actively involved in co-producing the urban waterscape. This group of actors is highly heterogeneous. It includes water users who (temporarily or permanently) turn into providers by selling water or giving water to their neighbours and friends. Some providers start up as a result of community initiatives with the aim of providing basic services to the community. Other providers mimic small private enterprises that may service thousands of people (Ahlers et al., 2013b). These different types of providers are not subject to state regulation, yet they do not function in complete isolation of the state apparatus. On the contrary, they generally have strong links with state actors or the state apparatus. As such, they function on the itinerant frontier between

the formal and informal. Ranganathan (this issue) shows how this allows them to create a manoeuvring space that allows them to fully profit from both formal and informal institutions. The frequent interaction with the state gives the provider a degree of legitimacy and 'public authority' (Lund, 2006). Such legitimacy and public authority can safeguard the business interests of the providers.

While the interaction with the state provides legitimacy, informal water connections can be highly profitable. For profit margins to remain outside of public scrutiny, it may be in the provider's interest to remain outside the state's regulatory mechanisms. Ranganathan (this issue) argues that the 'Water Mafias' in Bangalore, for example, "transcend neat separations between the formal and informal, between public and private, and between state and society", ensuring the two do not completely converge. Likewise, Kooy (this issue) shows that informal water providers in Jakarta were enabled by the public water utility based on a longstanding and interdependent relationship between informal water providers and state authority in Indonesia.

Although providers operate within an environment which may limit or constrain their opportunities to consolidate their business they adopt a variety of strategies to protect their interests. Cheng (this issue) highlights cooperation between small-scale providers and the formal utility as a strategy of securing the interests of providers. Marston (this issue) highlights how scalar manoeuvring of Community-Based Organizations providing water at the peripheries of Cochabamba ensured their long-term integration in the municipal water plans. In other cases, water providers deftly avoid the state in order to secure their water supply. Yet another strategy of safeguarding interests involves organising provider interests in an association of small-scale providers (Ahlers et al., 2013a). The different papers in this issue illustrate that the strategies the providers mobilise are diverse and greatly vary in the degree to which they are successful.

The state and informality

In the latter part of the twentieth century, infrastructure services reforms in developing countries have been guided by what has been termed the "modern infrastructural ideal" (Graham and Marvin, 2001) or the "integrated urban ideal" (Gandy, 2004). This infrastructural ideal envisages a networked city with public or private infrastructure monopolies providing standardised and universal services (Joshi and Moore, 2004). The modern infrastructure ideal demanded a scalar expansion of infrastructure that provided the state with unprecedented control over the reordering of space. Not only does infrastructure materially organise space, it also does so institutionally (Scott, 1998; Lefebvre, 1991; Harvey, 1996). Certain infrastructural networks (either due to their complexity or scale) not only demand but also produce particular institutional structures (Swyngedouw, 1999), and once in place they influence future path trajectories (Gandy, 2008; Gerrits and Marks, 2008; Thiel, 2010). Nevertheless, the rapid pace of urbanisation, and the social dynamics created by it, made complete state authority an impossible undertaking. Moreover, the degree to which the urban infrastructural ideal, encompassing universal standardised services, was really a guiding principle for the formal water services sector is increasingly questioned (Kooy and Bakker, 2008). Rather than lead to universal services, state-led infrastructural development has often been spatially concentrated to advantage privileged populations and capital interests (Nilsson, 2006; Kooy, this issue). The resulting infrastructural constellations reflect what at that point is deemed legitimate or not, and subsequently characterised as formal or not. In this sense, the presence of state-sanctioned infrastructure can be the legitimisation of a neighbourhood (or a particular space) as formal, or at least condoned, by the state (Kelly Richards and Banister, 2012).

Socio-techno-nature

Co-production results in a continuous alteration of the waterscape due to contestation over which water flows where, at what pressure, and facilitated by which infrastructure. The type and scale of a service modality are highly dependent on the source of water and the terrain it transverses.

Groundwater availability, for example, facilitates small-scale service provision and limits its expansion depending on the topography of the service area and the depth of the water table. Clearly, with access to sufficient capital some of these barriers can be overcome, but not endlessly so.

Similarly, areas that have limited access to water and limited capacity to mobilise sufficient capital undergo a markedly different urbanisation. What concerns us is here is how a hybrid landscape is produced through the articulation of the bio-geophysical (water, land, topography, etc.) with the social and the technological. Issues of land tenure, drainage and capital interests interact to produce a particular service provision constellation in a way that is dynamic, carries meaning, and is at all times relational. This constellation is not innocent but involves the working of hegemonic power both materially and discursively, reproducing particular social relations, knowledge and meaning (Lefebvre, 1991) thereby privileging certain providers and users over others (Kooy, this issue; Björkman, 2012; Lopez, 2012; Rusca and Schwartz, 2012). Nevertheless, the disenfranchised are not without agency themselves, as they tamper with infrastructure, re-route water materially or socially and, in turn, creating yet again new hybrid landscapes.

FURTHER RESEARCH DIRECTIONS

The papers in this special issue have touched on issues of relevance, which resonate beyond the urban or the water sector. In this concluding section we highlight some of these and consider some of the conceptual challenges they generate. The questions raised here are to encourage new research directions to further the critical study of water service provision and access.

Dimensions of inequality: Gender, body and citizenship

This special issue focuses on how waterscapes are co-produced by multiple actors within a particular biophysical context and mediated by technological development. The diverse papers richly illustrate the plural, political and contested nature of co-production, and how this results in uneven development, social differentiation and variegated citizenship. This production not only embodies active contestation, but also solidarity, within and between each of these constitutive relations. Within this contestation, (in)formality is actively and opportunistically defined and used by all involved. Hence, rather than seek agreement on a singular definition of the term, its meaning and application need to be analysed. What is celebrated as formal, also celebrates its user as legal, respected as a recognised and legitimate actor within the system, or in more political terminology, as a fully-fledged citizen. Access to water thus becomes an emblem of citizenship. The informal user, on the other hand, is labelled as illegal and therefore criminal, dangerous (jeopardising the system), or dirty.

Even though the majority of the papers in this collection touch on relations of inequality, we suggest that there is a gap in the exploration of agency, gender and embodiment. Despite being a critical variable in the analysis of socio-ecological processes of access to and provision of water services, a gendered perspective remains rare in the literature. The production of social space through gendered politics produces a gendered social order of water management that is shaped by and shapes everyday practices, social relationships, and water control. One gap here concerns how we conceptualise the body in the construction of the waterscape (Hungerford, 2012)?

Governance, legitimacy and institutionalisation

In the co-production of services, the workings of authority are opaque and institutions create shadowy places, which defy easy access and analysis (see also Douglas, 1987; Berry, 1994). Further, there is a danger that an emphasis on plurality and complexity obscures the more structural patterning of urban waterscapes. Rich and fascinating though it is, mapping plurality is not enough to explain the processes through which water access is produced, and water inequalities reproduced or transformed. To pursue

such explanations we need conceptual framings that enable us to explore both broad patterns and particular configurations of urban water services in specific contexts.

Understanding how authority and structural patterning of hybrid service modalities are constructed and their effects, requires placing them in dynamic relation both to societal structures and outcomes (Franks and Cleaver, 2007). Many of the papers here focus on mapping the various mechanisms or context-specific arrangements for organising access to water. *Explaining* just how these mechanisms work, leads us to question what are the hybrid arrangements for governing water service provision and access which endure over time and space, and which broader physical and social processes are reconfiguring the patterns of economic, legislative, discursive resources within which these take place? How do the varied actions of service providers and users become institutionalised, and to what effect? How is authority to legitimate certain practices acquired, used and renegotiated, and to what effect?

Papers in this issue raise questions about the role of the state in the construction of water governance regimes. The focus on co-production of the urban waterscape demands a nuanced and contemporary analysis of the state, its complementary capacities and limitations at different operating scales. This analysis needs to account for the various 'technologies of government' enacted through its bureaucratic apparatus, regulatory practices and diverse modes of legitimation. As the papers in this collection make clear the ability to define and enforce collectively binding decisions on members of society are not the exclusive domain of governmental bodies (Ranganathan; Peloso and Morinville; Burt and Ray, this issue), though government bodies may have a significant role in incorporating and normalising so-called 'informal' practices and arrangements (Misra, Ranganathan, this issue). Similarly, the notion of the 'negotiated' or 'mediated' state (Menkhaus, 2007; Hagmann and Péclard, 2010) describes contested processes of authorising hybrid arrangements, particularly in situations where government is weak. These perspectives offer a useful way of moving beyond the unsatisfactory formal/informal terminology applied to service delivery arrangements and to focus on issues of governance through authority and legitimacy creation.

There is considerable scope for applying some of the insights of a wider literature on negotiated statehood to water service delivery. Such analyses could be pushed further through a comparative examination of how hybrid water services are configured in different governance regimes, and what the implications are, not just for access and livelihood outcomes but also for political voice and representation.

Biophysical configurations, infrastructure and technology

Although a few papers in this collection touch on issues of location, and spatial dimensions of particular modes of urbanisation, we argue that there is need for a more rigorous and systematic spatial and material analysis of different modes of water provision. A more interdisciplinary analysis that attributes a greater role to biophysical processes and material infrastructure in shaping the everyday politics of water may contribute to illuminating the reproduction of inequality. In this respect the concept of infrastructural violence may be helpful, defined as "the conscious development of infrastructure to regulate normative social and territorial relations" (Rodgers and O'Neill, 2012: 7). But it may also make visible the manifestations of contestation by the disenfranchised when infrastructural inequality (either in terms of too much, too little, low-quality or complete absence of infrastructure) is countered with creative alternative infrastructural solutions.

Embodied knowing and the logics of everyday practices

Water supply and use are often studied through a highly instrumental focus; rather literally focusing on the front stage dynamics of negotiated access and on the obvious instrumental uses of water for drinking, washing, cooking, cultivation and so on. However, water matters to people beyond its immediate consumption: everyday practices have symbolic and cultural meaning beyond such material functionality. Everyday logics of water use and management may be different to those of the engineer,

economist or ecologist and are imbued with what Pink (2012) calls the "embodied knowing of ... skilled practices". Routinised practices have wider meanings in terms of perceptions of the gendered social order, as we have considered in the case of water storage above, or of broader conceptions of distributional ethics and moral action (Sayer, 2011).

How then can we better understand the formation of various hybrid arrangements for water service delivery? Such processes are not only a question of power and authority but of meaning, belonging, senses and emotions, strongly shaped by physical layouts and technology. Arrangements are legitimised through meaningful everyday practices and social interactions, not just in strategic negotiations and contestations. So we need to integrate understandings of the everyday into a wider set of social, political and economic exchanges (as hinted at by Zug and Graefe). This seems like a fruitful, if methodologically challenging direction for further critical study of water service delivery.

Implications for policy

Increasingly, policy perspectives are moving away from seeing hybrid forms of service delivery governance as dysfunctional, and instead seeing them pragmatically as 'arrangements that work' which can secure a best fit between development imperatives and local practices. Such arrangements are seen as a way of 'working with the grain' – of adapting to an existing context and extending the realm of governance from formal domains of professionalised and public decision-making into everyday interactions (Booth, 2012). However, embracing the informal in the form of hybrid arrangements is no shortcut to progress. To what extent do practical and everyday governance arrangements expand the room for manoeuvre for non-state actors, or instead multiply their disadvantages and the opportunities for elite capture? Promising new directions and insights may be offered here by the increasing critical application of political economy and institutional analyses to water service delivery, as suggested by Jones (2013), and Harris et al. (2011).

We have argued that the concepts of disaggregation and co-production help to describe how informality works, and how concepts of (in)formality are deployed strategically to label particular practices and service modalities. Disaggregation reveals that a single service delivery mechanism may incorporate activities, which vary according to the degree to which they are formal or informal. Co-production describes a process where hybrid service provision modalities are produced as a result of the articulation of socio-political, economic, biophysical and infrastructural drivers.

To conclude, this special issue attempts to capture the dynamic and multiple faceted nature of water provision, venturing into the inaccessible in order to shed light on the opaque. By doing so, we hope to dispel binary and normative² notions of (in)formality as they reproduce spatial and social tags for complex socio-spatial relations and processes that cross-cut diverse social and spatial categories.

The special issue

With the debates and concepts outlined above in mind we introduce the collection of papers that make up this special issue. All of them were written for a conference organised by UNESCO-IHE called Informal Space in the Urban Waterscape, held in Delft on 5-6 December 2012. Of the 15 papers presented, eight are included in this special issue. The first paper is by Misra who examines if current conceptualisations of (in)formality capture the realities of water provision in developing contexts and suggests an alternative framing derived from the organisational literature. In the paper that follows, Kooy uses the case of Jakarta to show that the so-called informal is not only resilient but also often the dominant mode of supply strongly facilitated by development projects. The third paper by Cheng, describes the process of formalisation in Manila and how that involves the selective inclusion and

² This includes celebrating informality as resistance or romanticising informal practices as community-oriented and better-adapted.

exclusion of small-scale water providers. The fourth paper takes us to Bolivia where Marston examines the strategies used by water committees to imitate the state. Ranganathan writes about water mafias in Bangalore in the fifth paper and argues how they are constitutive and formative of the post-colonial state. The next set of papers focuses more on the consumers. Burt and Ray discuss the case of Hubli-Dharwad where informal practices persist even after formal service provision is fully functional. Peloso and Morinville examine the daily struggles to access water in Ghana and identify an assemblage of coping strategies and infrastructures. Finally, Zug and Graefe emphasise the focus on everyday practices and study the occurrence of water gifting in Khartoum, finding that social heterogeneity facilitates this but that it can really be understood if we recognise the socio-cultural meaning of water transfers.

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