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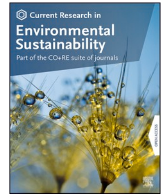

Co-production outcomes for urban equality: Learning from different trajectories of citizens' involvement in urban change

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A R T I C L E I N F O

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A B S T R A C T

The involvement of citizens and communities in processes that affect their lives and livelihoods through co-production methods has gained currency in recent years as a method to deliver place-based action capable of advancing the Sustainable Development Goals. Co-production represents a promising approach that addresses criticisms leveraged against community-oriented and participatory planning approaches. In this paper, we investigate the potential of co-production methods to advance different dimensions of urban equality in urban environments, including progress towards equitable distribution of resources and services, the reciprocal recognition of communities and institutions, the access to political and decision-making processes, and the recognition of multiple forms of knowledge and perspectives.

First, the paper reviews what is unique about co-production as a method in urban development planning. Co-production is distinct because it focuses on delivering a shared outcome. In doing so, it challenges epistemic injustices. Second, the paper presents a collective assessment of the outcomes of co-production practices in six different cities. The comparative analysis of these experiences shows that multiple co-production practices can help to establish long-term, adaptable partnerships to deliver urban equality. However, such a process requires constant adjustment and trade-offs to achieve equality gains in different domains. For that reason, the transformative impacts of co-production are not always measurable, even when its role in social change is evident.

1. Introduction

The quest for urban equality in contemporary cities requires building the cities citizens want. Urban equality relates specifically to the possibility of attaining an even distribution of access to resources, services, and opportunities and to the recognition of social diversity and inclusion in decisions that affect urban citizens' lives and landscapes. This definition relates to long-standing intellectual traditions in urban planning and urban design that call for citizens' involvement in city- and place-making (e.g., Healey, 2003; Cornwall, 2002; Gaventa, 2004; Sanoff, 2008; Madanipour, 2014). A similarly complex understanding of equality informs human development agendas (Conceiçao, 2019) and, particularly, planning practices central to deliver Sustainable Development Goal 11 to make cities inclusive, safe, sustainable, and resilient (e.

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g., UN-Habitat, 2020).

Co-production is a strategy to bring people's concerns into decision-making processes and organize services, economies, and public space. Co-production strategies emphasize urban lives' diverse and layered structure and their complex relationship to urban environments. On the one hand, co-production emphasizes community involvement in knowledge production (Willyard et al., 2018). The assumption is that co-production is needed to build knowledge and research directly relevant to delivering sustainability. For example, in an urban context, diverse social groups play an active role in understanding urban challenges and devising responses (Durose et al., 2018).

On the other hand, co-production is also a delivery tool. Much work on co-production follows the public administration tradition of public service management that emphasizes the collective, multi-actor management of the commons (Ostrom, 1996). Debates on urban commons extend beyond conflict and competition around property rights (Williams, 2018). In particular, urban commons' management opens opportunities for collaboration and collective action that could lead to radical alternatives for the urban economy, for sustainability, and, indeed, for advancing urban equality (Chatterton, 2016; Ergenç and Çelik, 2021). Co-production also enables spaces for democratic dialogues and political action through contestation and political activism (Bevir et al., 2019; see also Foster, 2013).

Co-production becomes essential when citizens lack access to basic services and safe environments, for example, when local governments do not cope with local infrastructure demands. In this context, co-production can facilitate incremental urbanism, that is, small, modest projects that focus on place-making and community interests (e.g., Rosati et al., 2020; Amoako and Boamah, 2017). Incremental urbanism can deliver radical results in urban environments (Swilling, 2019). For example, through co-production, communities in sub-serviced areas can collaborate to provide urban and environmental services, from water and sanitation to housing, public space, green infrastructure, social support, and security.

However, co-production raises dilemmas about how it is achieved and at the expense of what (Mitlin and Bartlett, 2018). At its worst, co-production is an all-encompassing approach that may bring the opposite efforts to those intended by trying to please everybody (Mitlin and Bartlett, 2018). Moreover, there may be tensions between the objectives of co-production. While science-oriented practices approach co-production as a means to produce knowledge, community-based approaches seek to highlight how communities themselves organize to respond to the limitations of current governance systems. Navigating this diversity requires clarifying co-production's distinctiveness and the relationship between different approaches to urban equality and sustainability outcomes.

The tradition of insurgent planning focuses on counter-hegemonic practices that emerge within grassroots movements and how they disrupt structural mechanisms of marginalization and oppression (Miraftab, 2009). This critical tradition provides a perspective to evaluate if co-production can fulfil its transformative promise towards urban equality outcomes. This paper proposes a framework within that tradition to understand how the co-production of urban environments can deliver urban equality outcomes. The paper examines such transformative promise by analyzing comparatively six knowledge co-production case studies: Havana (Cuba), Lima (Peru), Freetown (Sierra Leone), Kampala (Uganda), Dar es Salaam (Tanzania), and Yogyakarta (Indonesia). Each case reflects long-term collaborative work between researchers and communities committed to activating co-production processes. The comparative analysis has been developed over four years of collaboration among city teams within a research project. A pivotal moment was a workshop in Bangalore (India) in January 2020, where representatives of each city shared long-term experiences of co-production and evaluated their urban equality outcomes. The comparative analysis shows, above all, a diversity of co-production experiences. These city experiences show inherent contradictions to the co-production process. At the same time, co-production emerges as a positive strategy to deliver urban sustainability action and create broader structural changes in ways that are not always predictable.

2. Co-production and the production of tangible, material urban change

As co-production practices have spread, scholars have defined multiple co-production modalities and manifestations. As Mitlin and Bartlett (2018) show in their review of different co-production definitions, defining co-production is a means to appropriate it. Those who do co-production can often not describe it because, within change processes, precise analytical definitions may distract from the multiple ways a transformation process occurs.

A common analytical device is a separation between 'service co-production' and 'knowledge co-production.' Service co-production builds upon the legacy of institutional economics scholars that mobilized co-production as a means to redefine public service delivery (Ostrom, 1996; Percy, 1984; Warren et al., 1984). The focus on knowledge co-production emerges instead from a view on knowledge arising from collective dialogue among actors with different expertise (Rossi et al., 2017; McCabe et al., 2016; Jasanoff, 2004). In both cases, co-production recognizes that citizens hold knowledge, particularly in urban development planning action, requiring experiential learning to deliver sustainable outcomes (Durose et al., 2018). In the context of global sustainability agendas, Miller and Wyborn (2020) argue that it is not enough to create new knowledge: Instead, sustainability requires new co-producers, new processes, and new performances. Knowledge from citizens and communities includes knowledge about themselves, their preferences, their environment, and the dynamic interaction between society and the physical and ecological environment. The differentiation between knowledge and service co-production is, thus, not always helpful, especially when the objective of co-production is to facilitate decentralized governance to deliver specific outcomes (cf. Bevir et al., 2019).

More recently, co-production scholars have highlighted the importance of knowledge co-production as a methodology to develop and maintain institutional platforms capable of linking challenges on the ground with international discourses of action (Perry et al., 2018). In this line, co-production becomes a social innovation method to maintain long-term multi-actor negotiation processes and deliver positive societal outcomes (Voorberg et al., 2015). This change of emphasis manifests in a commitment to place-based co-production processes whereby communities are involved in delivering outcomes that benefit them directly, regardless of whether those outcomes are knowledge or services. The distinction between knowledge co-production and service co-production blurs if we acknowledge that services require knowledge, and knowledge delivery depends on having appropriate services. For example, long-standing analyses of service co-production emphasized the need for institutions to ensure delivery. The constitution of such institutions will depend on knowledge production to legitimize and sustain them (e.g., Boyd and Folke, 2011).

Another way to rethink co-production categories is to examine the roles of different actors and their modes of involvement. The distinction between knowledge and service co-production, for example, is fundamentally a differentiation between co-production processes led by knowledge-oriented actors (e.g., universities) and those led by service delivery actors (e.g., the public sector). This strict separation in binaries, however, may not correspond to the actual institutional realities the separation between knowledge-oriented and service delivery actors may not be clear cut: academics may be deeply embedded in service delivery while many non-academic institutions may actively work to produce knowledge, sometimes with dedicated research branches in public, private and civil society sectors. Different co-production types also emerge depending on the role that citizens or communities play in the process. For example, citizens and communities may participate as co-

implementors, co-designers, or initiators (Voorberg et al., 2015). Co-production can deliver new designs, new service provision modalities, new planning outcomes, or even new paradigms to reimagine urban futures (Castán Broto and Neves Alves, 2018). In summary, co-production is characterised by a great diversity of co-production practices and forms of organization.

This diversity is at the heart of the misrecognition of co-production as a collaborative process that brings together different institutions. For example, in debates on health research, this has led to critiques of co-production as having a 'dark side' (Oliver et al., 2019). While there are indeed risks of co-production- like in any other research practice- critiques often conflate co-production pitfalls with bad practices or lack of training. Williams et al. (2020) argue that these analyses follow too broad definitions of co-production as a collaboration between people of different institutions, assuming that everything goes in co-production contexts. However, co-production is distinct because it is characterised by a commitment to foreground unheard voices to produce more egalitarian outcomes in health and other sectors (Williams et al., 2020). In urban environments, the political intent embedded in co-production is manifest, for example, in the integration of diverse knowledges into planning, the recognition of experiential knowledge, and the possibility for mutual learning even under the dominance of conventional planning approaches and siloed thinking (Munoz-Erickson, 2014; Frantzeskaki and Kabisch, 2016).

The first challenge in evaluating the urban equality outcomes of co-production processes lies in defining what counts as advancing urban equality. Fraser (1995) argued for an analytical distinction between economic and cultural injustices that create, foster, and perpetuate inequalities while recognizing that they are intertwined. For example, gender-based discrimination leads to the financial exclusion of women (e.g., the gender pay gap) and overlapping forms of symbolic violence (e.g., the confining of women to specific societal roles). Fraser et al. (2003) argued in favor of a framework that encompasses two types of claims: for social equality and for the recognition of difference. Both redistribution and recognition depend on ensuring that citizens can access political and decision-making processes (Harriss, 2005; Levy, 2013) or what Fraser labels 'parity participation' (1998). Fig. 1 summarises these dimensions in an evaluative framework for urban equality.

The framework is the starting point for the evaluation of co-production outcomes. However, when examined against recent debates on co-production and its role in the integration and recognition of diverse knowledges, it appears that each dimension of urban equality relates to processes whereby some people's views and experiences are systematically ignored or denied. Sociological ideas of symbolic violence- whereby normative understandings about what constitutes actionable knowledge about the world obliterates the perspectives of those who are not in power- have been examined in environmental and sustainability planning (Castán Broto, 2013; Zhang, 2018). If co-production is to advance urban equality, it can only do so by addressing existing epistemic injustices.

Epistemic injustices are forms of oppression and discrimination related to the production and acceptance of knowledge (Fricker, 2007). In line with justice theories, epistemic injustices divide between distributive forms of epistemic injustice (when people lack access to 'epistemic goods' such as education or information) and discriminatory forms of epistemic injustice (when people's knowledge and experience are ignored or not recognized (Fricker, 2013). While the former emphasizes questions of access and distribution, the latter emphasizes questions of recognition. Fricker further distinguishes two forms of discriminatory epistemic injustice. Testimonial injustice relates to the deficit of credibility that some people face because of existing prejudices. Hermeneutical injustice relates to the exclusion of people in the generation of social meanings that deny some people's understandings and experiences even before any communication. Claiming epistemic injustice is an initial step towards recognizing that the process of knowledge production follows a global history of colonialism in which multiple forms of knowledge were degraded and dismissed (de Sousa, 2007; de Sousa, 2015). At the same time, people who already face discrimination are likely to suffer an additional layer of epistemic injustice because their lack of credibility and the denial of their experiences is systematic. The history of the organization of slum dwellers and their efforts to portray themselves not as passive, vulnerable people but as people holding knowledge resources speaks to attempts to make visible epistemic injustice.

Addressing epistemic injustices is an initial step towards broader efforts to deliver urban equality. However, co-production strategies may address epistemic injustices but may also generate new ones. Knowledge co-production strategies involve an active process to redefine what counts as knowledge, such as redefining who is authorized to produce knowledge within existing power configurations (Mignolo, 2007). Tackling epistemic injustices requires processes which: 1) ensure access to available knowledge resources to all concerned participants; 2)

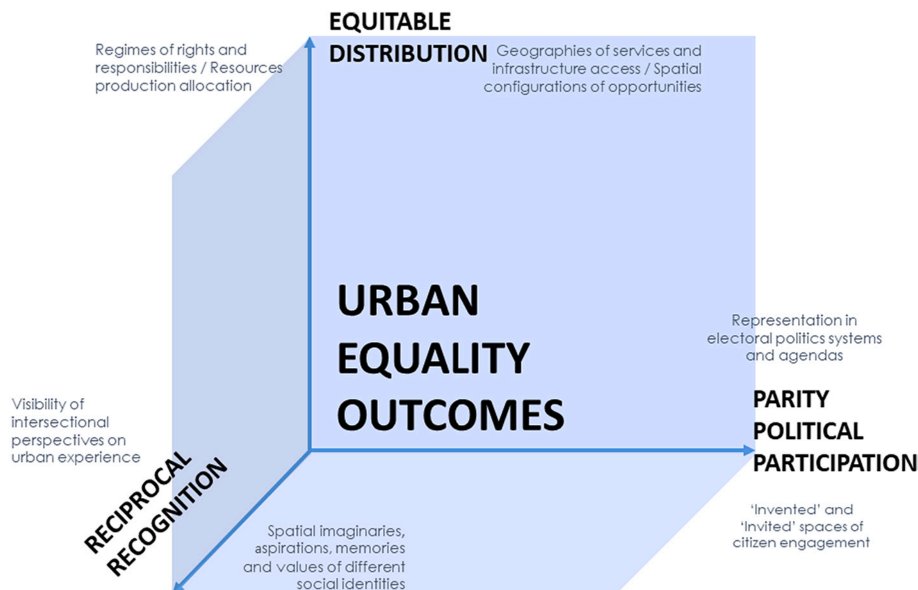

Fig. 1. A multi-dimensional representation of urban equality outcomes.

address explicitly any deficits of credibility, recognizing the value of people's situated experiences; and 3) examine the exclusion of some groups of people from the collective generation of social meanings. In the vocabulary of epistemic injustice, co-production is a means for testimonial and hermeneutical recognition. Yet, even when addressing existing epistemic injustices explicitly, co-production processes may not automatically translate into urban equality outcomes.

In practice, most efforts focus on understanding the mechanics of co-production (how to do it) rather than its outcomes (Voorberg et al., 2015). Most co-production processes focus on increasing effectiveness and facilitating citizens' involvement (Voorberg et al., 2015). The emphasis of co-production projects on changing citizens' behavior to prevent future problems (Bovaird and Loeffler, 2012) deviates attention away from the need to change existing institutions when they provide inadequate responses to citizens' problems. The theory of social change embedded in co-production practices is an incrementalist one. It emphasizes recognizing fundamental rights at the project level to develop new patterns of urban governance and to challenge the structural drivers of discrimination (Galuszka, 2019). However, co-production outcomes are not always desirable: co-production processes do not consistently deliver urban equality. Co-production projects assume that social change will follow positive results. However, perceptible structural changes (such as improved social cohesion, new institutions, or the democratization of public services) rarely follow a single co-production project. Structural change depends on multiple outcomes from entangled processes, including a given co-production project. A simplifying analysis of causes and effects fails to acknowledge the complex impacts of co-production in urban environments (Brix et al., 2020).

Fraser's (1995) well-known framework differentiates affirmative or transformative strategies to deliver equity. Affirmative action aims at correcting inequitable outcomes without changing the underlying framework that generates them. Transformative action instead focuses on changing the underlying generative framework. While affirmative actions dominate co-production research and practice, there are examples of transformative ones. For example, Mitlin (2018) compares co-production practices with the long-term strategies of social movements that seek to reframe their relationship with the State, echoing experiences such as those reported in contexts of informality in Kenya (see Lines and Makau, 2018). Co-production here enables social movements to gain political relevance and influence (Mitlin, 2018). Only long-term commitments to co-production can integrate both affirmative and transformative outcomes.

Co-production raises questions regarding the extent to which powerful actors and political systems are open to including communities (Moretto et al., 2018). Other work has asked if communities already exposed to extreme environmental conditions and risks should be part of co-production processes and should be involved and what capacity communities mobilize to support the delivery of knowledge and services (Adams and Boateng, 2018). These questions reveal as much about co-production processes as about the assumptions that inform their evaluation. Nevertheless, such debates also underscore co-production reliance on meaningful partnerships that tolerate both conflict and difference. In sum, co-production generates forms of urban development planning for citizens to reclaim urban spaces and urban environments, but further clarity about its outcomes enables combining affirmative and transformative action towards greater equality in access to space and resources.

The tradition of insurgent planning challenges distributional, political, symbolic, and epistemological drivers of injustice (Miraftab, 2009). Insurgent planning is not necessarily something new. Sandercock (1998) advocated the reconstruction of planning histories to demonstrate how reclaiming urban spaces has been part of planning practices. Planning practices that disturb relationships of power while also enabling a critical re-examination of the drivers of those relationships link insurgent practices with justice outcomes (Sletto, 2013). An insurgent planning perspective casts co-production as a resistance strategy and inspires a transformative intent to ground planning with practices that emphasize both testimonial and hermeneutical justice as implied by the notion of epistemic injustice (Fricker, 2013).

Decolonizing, grassroots-led planning embraces insurgent planning as a counter-hegemonic, transgressive, and imaginative movement (Miraftab, 2009). Rather than reject state-regulated and institutionalized spheres of citizen engagement, insurgent planning recast them as invited spaces. The simultaneous construction of invited (State-sanctioned) and invented (collectively-imagined) spaces facilitate the construction of practices of political freedom through the dialectical interaction of processes of contestation and construction of urban space. Hou (2010) operationalizes the tension between invited and invented spaces linking insurgent planning to the material expression of outcomes in urban space. Hou (2010) has developed six categories of actions that help map the potential emancipatory outcomes of co-production: Appropriating, reclaiming, pluralizing, transgressing, uncovering, contesting (Table 1).

3. Methodology

The project KNOW (Knowledge in Action for Urban Equality, 2018–2022) aims to develop co-production strategies to deliver knowledge that advances urban equality goals in different settings. KNOW's key strategy is delivering city-based knowledge co-production, led by local partners in each city. Community-based organizations have a central role in each process, although they may be involved in different capacities, whether leading or delivering the co-production process in partnership with other actors.

KNOW partners have worked together through in-person meetings and, since the pandemic, remotely, sharing co-production practices as they emerge in different contexts. In January 2020, KNOW partners came together for their annual meeting in Bangalore, India. A workshop on co-production outcomes was part of the meeting. The workshop included 42 participants, including academics from the universities that integrate the project KNOW, as well as grassroots activists and community organizers. The workshop was conducted in English.

The discussion focused on six cities within the project, which were examined comparatively. Each city case represents knowledge co-production between a higher education institution and community groups, with the latter organized in grassroots organizations. Each city team has a specific purpose, which depends on the city's immediate needs and the diagnosis of structural drivers of inequality (see Table 2). Those purposes are linked to different dimensions of delivering prosperity while building resilience. The starting point for each project is a city profile and co-production research proposal from each team. Regular programmes of interaction between academic and community groups followed the proposal. The workshop in Bangalore took stock of three years of activity in each case.

At the workshop, city partners sat with colleagues from other cities in separate groups of 5–8 people with a grid that facilitated their collective evaluation of the strategies mobilized through co-production using Hou's insurgent planning outcomes against the different dimensions of urban equality (see Table 1). Each city group sat for about an hour,

Table 1
emancipatory outcomes of co-production (adapted from Hou, 2010).

Strategy	Short definition
Appropriating	Repurposing urban resources for citizens' interest
Reclaiming	Using underutilized resources to achieve citizens' objectives
Pluralizing	Adaptation of planning practices to reflect a broader set of interests, particularly incorporating the interests of minorities
Transgressing	Crossing institutional boundaries to deliver alternative visions of existing institutions
Uncovering	Reinterpretation of urban resources to make them visible and usable by citizens and communities
Contesting	Actively disputing dominant framings and modernist city visions

Table 2
Conditions of co-production in each of the cities studied.

CITY	Key city partner	Inequality drivers targeted by co-production action	Co-production strategies	Enabling factors
Havana, Cuba	CUJAE (Technological University José Antonio Echeverría)	Universal access to essential services (e.g., education, health care, housing, food, and infrastructure) does not meet population aspirations. The dual-track economy has created deep economic inequalities visible in the urban fabric. Lack of investment results in uneven access to urban amenities and public transit.	Project aims to develop a shared vision of 'prosperity with equality' while recognizing different definitions of what prosperity means to different people. Groundwork has characterised the realities of different cases while working on cross-site themes. Participatory processes focus on developing policies and urban design proposals.	National-level recognition of science and universities as facilitators of local development. Long-term partnerships between universities and local governments and institutions sustain current strategies. New strategies emphasize synergies with previous projects and platforms.
Lima, Peru	PUCP (Pontifical Catholic University of Peru)	Extractive flows of capital and growth of peri-urban neighborhoods exacerbate inequality in the centre and the periphery in a city with an entrenched history of inequality. Social, territorial, and political fragmentation exacerbates structural inequalities. Institutional practices overlook steep inequalities and, at best, focus on localized, fragmented actions.	Strategic approach to move from concrete projects to city-wide action against inequality. Co-production strategies tailored to different actors' needs. Participatory research to develop the evidence base for city-wide action. Co-design processes involve people directly in the making of the city. Training programmes are directed towards academics and experts, to understand the community's conditions.	PUCP has a privileged position of access to policy makers and other influential actors. The alliance with grassroots organizations in the centre and periphery of the city enables justice-oriented work via long-term partnerships with disadvantaged communities but required groundwork to build relations of trust, which remain fragile.
Freetown, Sierra Leone	SLURC (Sierra Leone Urban Research Centre)	Limited provision of essential services to informal settlements that bear disproportionate burdens of disaster risk. Unclear structures for citizen participation in urban planning discourses obscure and exclude the lived realities informal of settlement residents.	SLURC's main strategy is the creation of city and community "learning platforms" to open up spaces for learning and sharing. Different actors can gather through these platforms to discuss experiences and develop proposals to upgrade informal settlements in Freetown. Proposals are translated into community plans and other mechanisms to visualize community priorities.	Existing community networks and community organizations support organized action to address vulnerabilities and build resilience. Community platforms focus on building the capacities of community residents and groups (with particular attention to women and young people). City platforms focus on establishing processes of sharing and scaling up community lessons to influence city authorities.
Kampala, Uganda	Makerere University's Urban Lab	Lack of resources and institutional support for basic services in the context of declining urban markets and increasing exposure to climate risks. Fragmented markets and livelihood to which vulnerable members of the community do not always have access. Material constraints in the urban context include the growing proliferation of waste and lack of means to manage it; the regular floods that impact everyday life directly, and that force residents to take additional efforts to address the impacts of floods and their prevention (when possible); and lack of energy access and reduction of alternatives.	Co-production strategies mobilize local resources engaging with circular economy principles. Co-produced knowledge includes inventories of local waste streams, mapping of marketplaces, and the development of collective business plans. The co-production of business plans is also a strategy to redefine the local economy in a way that works for the local community's needs, for example, by demonstrating the market potential of briquettes and other community services, by mobilising fashionable narratives of circular economies.	Communities are self-organized in community groups that support their members through livelihood support. A strong and long-term partnership with Makerere University enables academics to intervene as intermediaries between community groups and institutional representatives at the local, national, and international levels.
Dar es Salaam, Tanzania	Ardhi University	Large rates of unemployment, often as high as 70% of the population. Restrained opportunities and institutional support to facilitate upgrading amidst escalating urban poverty in the 1990s. Most settlements are overcrowded and located on marginal land exposed to environmental risks. Individual households often become responsible for basic services such as sanitation, framed as private.	Current research focuses on analyzing critically the historical efforts to upgrade communities and improve neighbourhood environments, exploring the lessons from upgrading programmes in the 1990s and their structural impact today. The focus of this project was an upgrading project in the settlement of Hanna Nassif, a co-production project led by an international consortium in the mid-1990s.	The Hanna Nassif upgrading project took advantage of wider programmes of urban upgrading but re-focused them by highlighting local skills, and emphasising the need to provide opportunities to disadvantaged households, such as women-headed ones. Academics who participated as advisors and observers now work on a long-term evaluation of the impact of collaborative upgrading programmes such as Hanna Nassif.
Yogyakarta, Indonesia	Arkom Yogya	This project focuses on an extremely unequal city. Poverty concentrates spatially along the riverbanks. Tenure is a significant factor which reinforces poverty and prevents investment in individual and shared services.	Co-production has followed the formation of a city-wide community network (Kalijawi, with technical support from Arkom Yogja) based on savings groups and formation of cooperatives. Tactics and tools include mapping and surveying, land tenure security self-assessments, community planning, negotiation, and advocacy. The network is now engaged in mobilising institutional partnerships to consolidate their work	One of the main strengths of the network is its size: it cannot be ignored, and it has leverage in negotiations with the government. Customary practices of mutual aid, reciprocity and saving have helped to create a collectivist culture within the network.

discussing the grid. Once they completed it, they presented the results to the project's colleagues, fostering discussion. First, the discussion focused on examining each city's narrative from the perspective of other cities' experiences (as advocated by McFarlane, 2010). The final hour took stock of the exercise, looking for comparative insights. All the team members have discussed the results in this draft paper, and discussions were kept alive until a final workshop to bring the process to a close in September 2021 (online).

4. Results: city co-production experiences

For each case, we sought to understand the context (Table 2) and link observed outcomes with the insurgent planning strategies/coproduction, and how such strategies advance urban equality. Table 3 provides an overview of the main strategies found in each case, expanded in narrative form below.

Havana: Havana's urban fabric reflects Cuban geopolitics. The Revolution brought a "systematic broadening of social equality" (Espina Prieto, 2003). However, long-term disinvestment and international economic blockage result in differential access to international credit and finance visible in the polarization of monetary income and the intensification of social vulnerability (Espina Prieto, 2003). Stagnation and deprivation are visible in Havana, with marked spatial patterns of inequality. Salaries do not match living costs due to financial, commercial, and economic sanctions, and the dual currency system (unified in January 2021). Tourism and foreign direct investment have fuelled differential access to foreign currency and investments.

Havana's singular urban trajectory has produced an urban landscape unlike any other city in the Central America and Caribbean region. Stagnant population growth, low motorization rates, a high percentage of housing ownership, and a declining but preserved downtown heritage confer the city its iconic identity (Peña Díaz, 2015). Key challenges are unmet demand for housing, threats over identity amplified by the reliance on mass tourism, climate change risks, and provision of dignified affordable infrastructure for all.

The team in the Technological University of Havanna (CUJAE) adopted a case-based approach intended to explore the realities of the city and how they were evolving in a changing context and opening opportunities. For example, the project focused on the recovery of the coastal area called 'the Blue Strip' after the Special Period (1991–2000). The recovery of 'the Blue Strip' has been slow at best (Schmid and Peña Díaz, 2008). The new Guidelines for the Economic and Social Policy of the Party and the Revolution [GESP] and the approval of the New Political Constitution in 2019 have updated the Cuban socio-economic model. For example, they have opened possibilities for changes in relationships with international, State-related, and private actors to make viable significant investments, which may change the fate of urban areas such as 'the Blue Strip' (Peña Díaz, 2015).

In each case, the project focused on the co-production of a shared vision of 'prosperity with equality' in the context of a strategic plan for Havana Bay, the city's former port, and in Centro Habana. Discussions on prosperity took place while recognizing the different definitions of prosperity among the city's population. Participatory processes were activated to develop policies (e.g., Perspective development Plan for Havana's Bay, Municipal Development Strategy for Centro Habana, Community Development Plan for Los Sitios) and urban design proposals (e.g., solutions to address the needs of ageing populations).

CUJAE took advantage of the new Government and Constitution (2019) that recognizes universities as active players in local development. CUJAE acts as a 'broker' and sustains partnerships with local governments (e.g., the Mayor's office of Plaza de la Revolución and Centro Habana) to influence their Municipal development Strategies. Another example of this broker role has been CUJAE's work with the Group for the comprehensive development of the bay and Plan Maestro Office at the Historian's Office. CUJAE's co-production strategies also mobilize synergies across research projects such as the VIAS and MAS Habana projects on sustainable mobility with the General Direction of Transport for Havana (DGT-H) and the ageing Cuban society in alliance with the Platform for healthy ageing and the National Office of Design (ONDI).

The key outcomes linked to current co-production efforts are (see Table 3):

- *Pluralising/Reciprocal Recognition*: Working with ageing citizens in the design of their environments in the municipality of Plaza de La Revolución has strengthened an alliance with the National Office of Design and made visible the differential needs and aspirations of the ageing population of the city.
- *Uncovering/Equitable Distribution*: The commission in charge of drafting the Havana Bay Perspective Development Plan incorporated a co-production process involving the University (CUJAE) working with decision-makers, planners, and officials to incorporate the notion of prosperity with equality in the transformation of the Bay Area. This plan will provide citizens access to the waterfront, transform functionally obsolescent industrial areas, and provide new public spaces.
- *Reclaiming/Parity Political Participation*: The University, local authorities, and inhabitants co-designed a dilapidated public space in the neighbourhood of Los Sitios (municipality Habana Centro). This experimental initiative will establish a precedent to facilitate the involvement of citizens in urban design.
- *Transgression/Parity Political Participation:* A novel planning tool, the Plan DesTraBa (Acronym for Neighbourhood Development and Transformation) was inspired by the legacy of the Talleres de Transformación Integral del Barrio. The tool was introduced as part

Table 3
Contributions to urban equality of the six initiatives.

Insurgent planning strategies	Dimensions of urban equality		
	Equitable distribution	Reciprocal recognition	Parity political participation
Appropriating (Repurposing urban assets)	Lima Kampala Yogyakarta		
Reclaiming (Adapting underutilized assets)	Dar es Salaam		Havana
Pluralizing (Adaptation for underrepresented com.)	Freetown	Havana Dar es Salaam	Lima Freetown Yogyakarta
Transgressing (Crossing official boundaries)			Havana Kampala
Uncovering (Making visible assets)	Havana	Lima Kampala Yogyakarta	
Contesting (Disputing over assets/framing)	Dar es Salaam	Freetown	

of the Municipal Development strategy. Los Sitios became a pilot project for the implementation of this approach.

Lima: Lima has faced a dual challenge during the last decades associated with urban change: the degradation of the urban centre due to its insertion in global circuits of capitalist exploitation and the growth of barriadas in the urban periphery, hosting new migrants to the city, often with limited services and exposed to risks of erosion and drought. Social, territorial, and political fragmentation limits the possibilities of challenging the structural drivers of inequality by offering over-localized proposals not integrated with long-term city-wide strategies.

Existing institutions show limited understanding of the drivers of poverty, inequality, and exposure to risks for poorer populations in Lima, including both peri-urban areas receiving migrants from rural areas and city barrios affected by extractive flows of capital (Jaime et al., 2021; Jaime and Bernales, 2021). Recognition is directed instead to localized and fragmented actions and claims. For example, many congress members come from the peripheral areas of Lima and have the formalization of the occupied lands in their agendas. However, while formalization has had some positive results, it is a narrow approach that overlooks other key dimensions of supporting people's livelihoods, such as access to resources and mobility.

In Lima, political recognition is thus distinct from epistemic recognition. To facilitate epistemic recognition, the Department of Architecture at the Pontificia University of Peru (PUCP) has worked as an intermediary between urban planners and local communities. PUCP has collaborated directly with organizations historically involved in mobilising local communities, including the Institute of Urban Development (CENCA), a social development institution that works in the peripheries, and the Centre for Research, Documentation and Assessment of Population (CIDAP), that works in community mobilization in Lima's historical centre. At the same time, PUCP remains actively involved in dialogues with the local government officials, seeking to change existing perspectives on the city and who benefits. The objective is to develop a city-wide approach to address inequality by learning from community experience, promoting the mobilization of political action, and collectively imagining alternative forms of planning and governing the city (Rodríguez, 2017).

PUCP has deployed a three-fold strategy to 1) demonstrate how the high inequalities in the city manifest spatially through visual analysis and local workshops bringing policymakers and planners face to face with the everyday challenges of the city; 2) direct engagement with local organizations with a history of active mobilization of local communities; and 3) delivery of co-design strategies to facilitate the co-production of services which address the needs of the urban environment directly.

Diverse capacities, knowledges and interests contribute to the co-design of collective spaces that promote alternative governance and maintenance of the city. The objective is to respond to the diversity of territories in Lima (i.e., collective infrastructure in flat and more consolidated areas vs reconceptualization of public spaces on steep slopes with limited access to basic services) (Desmaison, 2021).

Three perceptible outcomes (see Table 3):

- *Appropriate/Equitable Redistribution*: an essential strategy for co-production has been to examine the existing unused resources in the barriadas to demonstrate how communities can repurpose them for public uses.
- *Uncovering/ Reciprocal Recognition*: while ongoing forms of activism had helped communities share their exclusion experiences, PUCP has systematized knowledge and presented it in reports and public forums directed to institutional audiences. The objective is to visualize existing drivers of exclusion and urban inequality while demonstrating the need to involve marginalized communities in local governance.
- *Pluralizing/Parity Political Participation*: after identifying local needs, the PUCP team has focused on delivering co-design strategies, seeing the built environment as a material point of entry for social change.

Freetown: Freetown is the largest economic centre in Sierra Leone and has seen a significant population growth rate since the mid-1980s, intensified by the internal displacement during the civil war (1991–2002). The city presents multiple pockets of informal, unplanned settlements with residents living in precarious housing conditions on marginal lands, often lacking basic services (Macarthy et al., 2018; Allen et al., 2017). Citizens are exposed to environmental and socio-economic hazards that impact communities' health, wellbeing, and livelihoods (Allen et al., 2020; Satterthwaite et al., 2020). Most city actors have struggled to manage the city's rapid expansion (Macarthy and Koroma, 2016). Current urban planning interventions in Freetown are ad hoc and fragmented. City authorities struggle to understand the needs of communities, especially those living in informal settlements, which are rarely involved in planning processes.

The Federation of the Urban and Rural Poor (FEDURP) and the Centre for Dialogue on Human Settlement and Poverty Alleviation (CODOHSAPA) have amplified the voices of communities, pushing for the inclusion of their lived experiences into urban planning. These organizations mobilize the leadership of community groups in informal settlements in Freetown. The FEDURP is also a member of the global Slum Dwellers International network, which is committed to empowering poor residents in urban spaces (Patel et al., 2012). Calls for a new slum upgrading policy are at the top of the current agenda.

SLURC is a research organization that has developed co-production strategies to extend the participatory planning work of FEDURP and CODOHSAPA. SLURC has focused on the creation of 'learning platforms' at the community and city scales. Such platforms serve as spaces for learning, sharing, and relationship-building between FEDURP, community residents, and external collaborators (including city authorities) (CLP, 2019)—learning platforms sustain campaigns, mobilize resources and facilitate collective action (Osuteye et al., 2020). Much of the work of the platforms consists of visualizing community priorities through design tools that can then be shared with a wide range of influential actors, especially within local government deeply embedded in the 'slum upgrading' agenda. The learning platforms have created the means to address issues of recognition and participation of the urban poor in planning discourses in the city.

- *Pluralising/Equitable Distribution*: The learning platforms facilitate forms of participatory planning that are helping to develop a new 'slum upgrading' agenda in the city, drawing on multiple voices from formal and informal institutions.
- *Contesting/Reciprocal Recognition*: Deepening the understanding of urban equality enables actions, particularly by highlighting the disproportionate burdens informal settlements bear and the overlooked capacity and agency that often exist through organized and structured collectives.
- *Pluralising/Parity Political Participation*: The community and city learning platforms as curated spaces to include diverse voices and actors in planning discourse have become mechanisms for democratic participation.

Kampala: Kampala is one of the fastest-growing urban centres in East Africa, with annual growth rates of over 5%. This growth is linked to the rapid growth of sub-serviced neighborhoods, many of them occupying wetland areas and exposed to significant risks, including floods and linked epidemics (Vermeiren et al., 2012). Communities also face high unemployment rates and lack basic services and mobility.

Local communities have worked with the Urban Lab at Makerere University for over a decade to support developing new business models that provide tangible benefits to the local communities. The KNOW project created new spaces to reimagine available alternatives to

valorise the meagre resources available to communities. The collaboration between communities and the university has generated a circular economy discourse that has revalued communities' activities. Communities organize themselves to sort their neighbourhood waste and use a specific organic fraction to produce briquettes, carbonized waste composites, and commercialise them as household fuel (Lwasa, 2019). Existing community structures have generated a collective sense of purpose, materialised in concrete actions. University partners facilitate networking with local government and support mutual learning across communities, bringing additional knowledge that helps bring the community's ideas to other publics, for example, in the form of business plans.

Empowerment is one of the key elements of the Kampala Know project. Local communities have in situ experience with the technology. They believe they can spread their experiences via multi-community networks and create economic opportunities for small businesses. Throughout the project, the team at Makerere University assists equips and strengthens the community briquette groups unveiling local capabilities and resources. Researchers at Makerere University have built knowledge and political capital through international partnerships, which provides them with legitimacy to build new ideas. Community members can identify, explore, exploit and leverage opportunities to maximize their strength and potential by sharing urban sustainability practices that support new economic opportunities within their neighborhoods. People report fulfilment, success, prosperity, and happiness by working collectively on developing sustainable livelihoods.

The work relates to three primary outcomes (see Table 3):

- *Appropriating/Equitable Redistribution*: This co-production exercise involves, first of all, appropriating in the sense that it challenges accepted meanings, in this case, provoking instability in current management systems and rethinking what waste is and how waste can be reimagined. Reimagining is akin to reclaiming it for local livelihoods. Communities themselves seek ways to mobilize such abandoned resources for the community, attaching new instrumental value to discarded resources and spaces.
- *Transgressing/Parity Political Participation*: Another outcome of the collective work emerges from pluralizing action, whereby excluded groups can access new resources. Women often lead co-producing groups and emphasize that their activities are accessible to disempowered groups within the community. It is also a means to transgress the public and private boundaries by facilitating a social economy that involves the collective production of a shared good that can be 'privatized' to sustain the most disadvantaged. The project has catalysed a social movement capable of organizing the community beyond this specific project, contesting current land use and planning practices, and providing services such as toilets and community-based insurance. The normative intention linked to concrete outcomes is at the core of the briquette-making project.
- *Uncovering/Reciprocal Recognition*: Co-production has uncovered the potential within communities and recording their histories as working together has also created spaces for sharing their common history and development, reframing their collective future, for example, through the development of shared business models that may extend to other areas of action.

Dar es Salaam: Dar es Salaam city is the main commercial hub and cosmopolitan centre in Tanzania. According to the Dar es Salaam City Master Plan (2012−2032), the population is increasing by about 226,000 people annually (URT, 2018). The city attracts population from surrounding districts, upcountry regions, and areas beyond the country's borders. Spatial and demographic growth without adequate and affordable housing and infrastructure services has increased socioeconomic and spatial inequalities. In 2020, about 70% of the population lived in informal or unplanned settlements deprived of critical services. Indeed, the rate of growth of the informal settlements- with stark manifestations of poverty and social exclusion- is two times the average urban growth rate of the city (Kombe, 2014; UN-Habitat, 2003:11). Inequalities can also be seen among the marginalized groups (i.e., women) because of socio-cultural norms and practices that perpetuate hardships related to employment and income, basic services, housing, and land. Unemployment, for example, is more pronounced among women. Over 60% of households in Dar es Salaam work in the informal sector and do not have a regular income.

Previous experience of upgrading with approaches such as the "sites and service and squatter upgrading projects (SSSUPs) in the 1960s–70s and community infrastructure upgrading projects (CIUPs) in the 1980s and 1990s. During the 1990s, the informal settlement of Hanna Nassif faced basic infrastructure deprivation and poor-quality houses. Attempts by the government of Tanzania and development partners to conventionally address infrastructure deficits and improve the wellbeing of low-income communities living in informal failed to deliver responses suited to communities' needs. Instead, in Hanna Nassif, a process to co-produce basic infrastructure with communities led to significant improvements in infrastructure services. The main strategy was building upon grassroots institutions and local potentials to engage people in building their neighbourhood. The project focused on learning from local innovations and experiences and mobilising existing capacities. The project also provided employment opportunities for women-headed households, which accounted for a third of all the households approximately.

There is a strong memory of the initial program and its impacts, which still mobilizes and brings the community together. These experiences, however, were at risk of being lost. Recovering co-production memory is essential for the project led by Ardhi University. More recent co-production strategies have focused on establishing a platform to facilitate discussion and exchange of knowledge and experiences. Their work will help mobilize existing resources from local community members, municipal technical staff, research institutions, and international development partners. Lessons from Hanna Nassif have supported a policy discussion that has established the terms of a critical appraisal of previous experiences and the development of new plans.

Three main strategies were identified (see Table 3):

- *Contesting/Equitable Distribution*: The historical process of co-production involving communities has challenged the need for conventional networked and pit-latrine technologies, breaking down taboos and facilitating the adoption of in situ, easy-to-access technologies. Recovering co-production memories has also helped to capture funds for sanitation.
- *Reclaiming/Equitable Distribution*: The process depended on the capacity of communities to reclaim space and resources through the mobilization of their human labour and social capital, most notably women's capacities and skills.
- *Pluralising/Reciprocal Recognition*: Co-production served to demonstrate the multiple voices that had not been previously recognized. In this case, the process articulated the voice of disabled residents, children, and women who participated actively and are now recognized as change-makers in their neighborhoods.

Yogyakarta: With 3,68 million inhabitants, the special region of Yogyakarta is the only sultanate in Indonesia. This special status was granted in 1950 as a recognition for its contribution to the independence struggle. Kota Yogyakarta is the cultural capital of the Javanese region and an important university center. The high Human Development Index (HDI) and the average poverty incidence indicators (BPS, 2018a) place Yogyakarta as a region with a good quality of life. However, the province has the worst inequality index of the country (0.440 in 2017). Yogyakarta province is the most unequal in Indonesia (BPS, 2018b). Poverty in the city is spatially concentrated along the riverbanks of the Code, Gajahwong, and Winongo rivers. Around 75% of the poor live in these three riverbank areas on Sultan grounds (Iqbal, 2018), under

different types of tenure that have become less secure due to growing market pressure linked to the demands of the tourism and education sectors.

Land tenure is the main driver of inequality. National and local policies rarely take a territorial approach and do not tackle land tenure insecurity. Lack of public investment and eviction threats in riverbank communities result, among other factors, from the concentration of land ownership in the country, the special land tenure status that offer customary rental arrangements on Sultan grounds, and the land market pressure due to increasing tourism-led development. The liberalization of the housing sector has led to supply-driven and individualized financial mechanisms that undermine collective action around land and housing.

The Kalijawi community network, with the support of the local support group Arkom Jogja, has been working together since 2010 to find solutions to the housing issues faced by the riverside communities. In 2012 the Kalijawi Community became one of the large and active community associations engaged in negotiating planning with the government. Negotiation has prevented evictions. Among other activities, the communities have formed savings groups, mapped and assessed the living conditions and assets of the riverbank communities, negotiated for more secure land arrangements, improved housing conditions, and formed cooperatives. It builds on customary practices. For example, many activities follow a shared principle of 'goton royong' (mutual aid and reciprocity). The Community Development Fund (CDF) follows a traditional practice known as "arisan" (rotating savings and credit). Kalijawi is building national-level partnerships to overcome the limitations they face in securing tenure.

Their achievements include (see Table 3):

- *Appropriating/Equitable Redistribution*. Informal occupation of the riverbanks is an insurgent strategy that leads to redistribution of land. Negotiations seek to ensure a 'right to stay,' often made after occupation, and to increase the communities' tenure security.
- *Uncovering/Reciprocal Recognition* – Mapping and surveying activities value communities' knowledge and make visible the existence and the scale of excluded communities. This helps to reinterpret the riverbanks as places of inclusion and environmental protection.
- *Pluralizing/Parity Political Participation*: The formation of savings groups and later formation of the Kalijawi network has created a space for involvement that has facilitated the inclusion of communities in formal (invited) spaces of participation.

5. Discussion

A concern with addressing epistemic injustices is common to the six co-production initiatives. They all put at the heart of the initiatives the views and experiences of people living in informal settlements or vulnerable neighborhoods. They all move beyond a conceptualization of people living in those vulnerable neighborhoods as passive receivers of projects and interventions. Instead, people are seen as active makers of their environment. Upgrading programs and other participatory interventions, such as the participatory program in Hanna Nassif, in Dar es Salaam, emphasize this active role.

All projects examined address testimonial injustice. For example, all projects move beyond the unjust hierarchy of knowledge that separates expert and lay knowledges, deeming the former more valuable than the latter, regardless of their relevance. They also challenge deficits of credibility caused by the discrimination of informal settlement dwellers in their respective locations. In the case of Lima, city partners actively engage with the tensions arising as co-production brings together diverse knowledges, expectations, and interests, seeking to allow platforms where these exchanges can take place in a transparent form in the identification of shared goals. Actively engaging with such tensions is a means to overcome the current fragmentation in social mobilization. In Yogyakarta, Kalijawi's advocacy activities (with the support of Arkom Yoja) assert Gotong Royong and Arisan as traditional practices of the Javanese culture that need to be integrated and supported through land and housing policies to address the needs of the urban poor better. Other initiatives such as Havana and Freetown, also put epistemic injustice-hermeneutical and testimonial- at the center of their interventions. Fig. 2 provides summarises of co-production strategies that challenge epistemic injustices to achieve greater urban equality.

In contrast, the initiatives differ in how they address different aspects of urban equality. Some insurgent strategies are more common than others (for an overview see Table 3). The most common strategy to address equitable objectives is 'appropriating strategies'. Active efforts to repurpose urban assets are visible in Kampala, Lima, and Yogyakarta. In contrast, confrontational strategies of transgressing and contesting- which constitute an open challenge to established structures- are less common or even absent. Kampala, Lima, and Yogyakarta also show similarities in terms of how they seek to advance recognition through uncovering strategies that make visible existing urban conditions to advance equality. One strategy common to all cities is 'pluralizing,' often directed towards democratizing action to directly address epistemic injustice. Table 3 shows that co-production extends the range

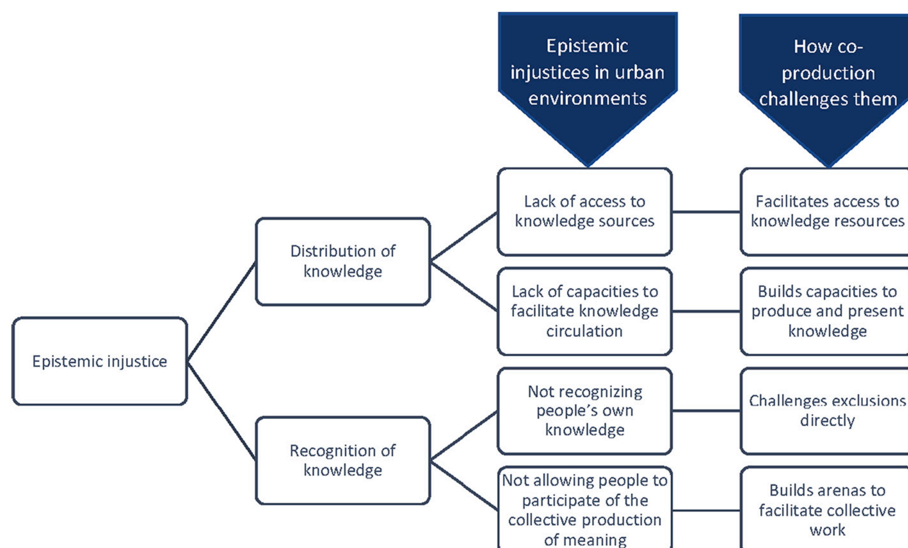

Fig. 2. How co-production strategies challenge epistemic injustice.

of voices involved in urban governance, helps to appropriate assets, and to reclaim underused resources.

Such strategies facilitate feasible change within existing conditions rather than seeking broader changes that will move the wider structures that reproduce inequality. Nevertheless, some of these co-production initiatives have contested existing resources and representations, as evident in Dar es Salaam and Freetown cases. In both cases, contestation has been most noticeable in the long term, as the effectiveness of local actors in responding to challenging conditions has become evident. By challenging epistemic injustices (for example, by recognizing the experiences and knowledge of disadvantaged groups or uncovering skills and resources) co-production may remove structural barriers to delivering urban equality outcomes in the long term.

Outcomes also interact, reinforcing each other. Rather than fixating on a single outcome, most co-production exercises recognize the variety of actions whereby social movements can achieve urban transformations (cf. Lines and Makau, 2018; Mitlin, 2018). Moreover, incremental co-production initiatives may have a more prolonged impact in the long-term, helping challenge the existing living conditions- whether this is done in invited spaces with the State (such as in Havanna and Freeetown) or by creating alternatives (Yogyakarta and Kampala). Sometimes questioning the State is the primary outcome, as happens in Lima, where researchers and communities work together to challenge static institutional framings. Contesting and transgressing may be part of the repertoire of practices, but also uncovering and appropriating, thus showing available opportunities that public institutions' passivity or lack of capacity obscures.

Two elements are common to all these projects: long-term commitment to a cooperative process of knowledge production and flexibility to engage with multiple outcomes in urban environments, examining urban sustainability and resilience with expansive looking glasses. Most of the projects include a utilitarian element, seeking to influence existing planning forums, but they all emphasize their transformative potential (Sorrentino et al., 2018). Do they transform society? They all do; the question is when and how. The fundamental challenge- unfair to co-production processes- is that those transformations are only observable over the long term, through which the relationship between cause and effect becomes muddled and through the shift of perspective that follows the dismantling of structures of epistemic injustice. Not only does co-production have a tangible impact: but it is also essential in constructing sustainable futures.

6. Conclusion

There is a certain wariness among many scholars who struggle to bridge the localized impacts of co-production projects with their intent to deliver transformative change. Mitlin (2018) has questioned whether it is fair to attribute a normative character to co-production. At the same time, there is an inherent normative intent in actions whose objective is to challenge multiple and overlapping systems of oppression that affect community dynamics. Some ask: what is co-production, if not a normative attempt to transform the locality and institutions that shape community life?

Co-production is, above all, a strategy to challenge existing epistemic injustices, but there is no guarantee that it will not generate new ones. Yet, sustainability science's attention to the close relationship between uncertainty and political decision foregrounds the role of citizens in processes such as those of co-production. Community accountability is crucial in tracking the implication of multiple knowledges and intentions in co-production processes (see also Shaw et al., 2020). Like participation before co-production, these are processes open to appropriation, but not more appropriation than any expert-led assessment.

In contrast, the separation between affirmative and transformative outcomes may provide an unfair assessment of co-production because of the complex relationships between multiple outcomes and how their impact varies over time- perhaps even after the observer stopped looking. The Hana Nassif example in Dar es Salaam points to the loss of institutional and social memory about common achievements. The analysis of outcomes is contingent on the moment and intention of the analysis and critical frameworks such as the one used in this paper have limitations, not least because they are external and do not reflect accurately the interpretation and experiences of urban dwellers.

The diversity of co-production outcomes exemplified in these six case studies demonstrates that co-production cannot be easily predicted and planned. Instead, co-production entails a complex, long, continuous change process contributing to what Miraftab et al. (2019) and others have called 'humane urbanism.' Analyses of co-production within a broader political context of service provision and knowledge development link co-production to the development of notions of citizenship that enable fairer and more accessible urban development processes (Moretto et al., 2018). In doing so, co-production challenges knowledge hierarchies and epistemic injustices embedded in environmental management to gain political influence (Mitlin, 2008). With the rise of populism and the privatization of urban commons in the last decades, co-production is more than ever a practicable alternative towards urban equality that harnesses the enormous potential of existing social movements.

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