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– GRABBED URBAN LANDSCAPES: Socio-spatial Tensions in Green Infrastructure Planning in Medellín

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Abstract

Cities confronted with unsustainable development and climatic changes are increasingly turning to green infrastructure as an approach for growth and climate risk management. In this context, recent scholarly attention has been paid to gentrification, real-estate speculation and resident displacement in the context of sustainability and green planning in the global North. Yet we know little about the environmental-justice implications of green infrastructure planning in the context of self-built settlements of the global South. To what extent do green infrastructure interventions produce or exacerbate urban socio-spatial inequities in self-built settlements? Through the analysis of a greenbelt project, an emblematic case of green infrastructure planning in Medellín, we argue that, as the Municipality of Medellín is containing and beautifying low-income neighborhoods through grabbing part of their territories and turning them into green landscapes of privilege and pleasure, communities are becoming dispossessed of their greatest assets—location, land and social capital. In the process, community land is transformed into a new form of aesthetically controlled and ordered nature for the middle and upper classes and for tourists. By contrast, communities' planning alternatives reveal how green planning can better address growth and climate risks in tandem with equitable community development.

Introduction

Cities confronted with unsustainable development and growth patterns, as well as increasing climate risks, are often turning to green infrastructure planning as an approach for containing urban expansion, reintroducing nature into the city, and adapting to and mitigating climate change. While much attention has been paid to the drivers of and approaches to urban resilience, green infrastructure and adaptation planning, the socio-spatial implications of concrete interventions have not received much consideration, especially as far as self-built settlements in the global South are concerned. Self-built settlements are an important conceptual, political and socio-spatial category because of their global scale and the fact that there has been an increase in the absolute numbers of slum dwellers over the past 24 years, from 791 million in 2000 to 881 million in 2014 (UN-Habitat, 2016: 57–58). Attention to self-built settlements in the context of resilience and adaptation planning is critical because of the long trajectories of displacement, relocation, vulnerability to new evictions and unsecure land tenure that their residents often face.

Residents of self-built settlements are often the first to be victimized or blamed in the case of 'natural' disasters, uncontrolled growth and illegal land use. They have little access to decision makers, while others—more economically, socially and racially privileged groups and agencies in the city—tend to have greater political power and the freedom to carry on unencumbered (Anguelovski *et al.*, 2016). Yet climate adaptation

We wish to express our gratitude to the people of Comuna 8 who generously shared their knowledge and their community with us. We also recognize the contribution of academic and government-official interviewees from multiple institutions, as well as planning studio participants from the Universidad Nacional de Colombia, Medellín and Bogota; Universidad Pontificia Bolivariana, Medellín; Universitat Internacional de Catalunya and Columbia University. This article is based on research results presented in Lia Brum's master's thesis on green infrastructure planning in Medellín. We dedicate this article to Jairo Maya, late leader of Comuna 8 and contributor to our work. The research described in this article was supported by the MINECO Ramon y Cajal grant program (RYC-2014-15870), the Juan de la Cierva grant program (IJCI-2016-31100), the EU H2020 ERC project GreenLULUs (GA678034) and the Maria de Maetzu [MDM-2015-0552] funding scheme.

or resilience-related interventions have implications for distributive justice (Bulkeley *et al*., 2013; Chu *et al*., 2015), with interventions ideally promoting progressive social contracts that redress existing vulnerabilities and produce more socially and spatially equitable distribution of goods and services (Pelling and Dill, 2010). In the context of new interventions, there are growing concerns today regarding the inequitable distributional impacts of projects meant to protect residents and livelihoods from climate risks (Irazábal, 2010; Leichenko, 2011, Anguelovski *et al*., 2016).

With municipalities increasingly employing sustainability, 'smart city' planning, and (climate) resilience discourses to justify new green infrastructure (Connolly, 2018), public officials and planners are indeed often able to sidestep politically difficult choices around the redistribution of risks and resources and around social vulnerability by framing benefits as universal (Wilkinson, 2012; Brown, 2014; Connolly, 2018). Specifically, green infrastructure might exacerbate vulnerabilities and inequalities for some because of three interrelated outcomes. First, such projects might displace the urban poor living in risk-prone areas. This outcome may occur because of physical displacement due to project location or as a result of green projects serving as place-based anchors for generalized processes of urban economic expansion that lead to erasure of the social infrastructure of some established communities. Secondly, business districts might mobilize resources to build exclusive, protective infrastructure that creates 'ecological enclaves', while worsening flooding or other effects elsewhere and attracting funds (public and private) at the expense of investment in poor, vulnerable communities. And thirdly, resettlement sites for urban poor who are moved in the name of public-health concerns or ecological upgrading might not be free from the risk of hazards and might lack access to livelihoods and social networks (Anguelovski *et al*., 2016; Keenan, 2018).

The increasing reliance of municipalities on public–private partnerships and private investments for land-use planning and infrastructure development to achieve urban ecological upgrades further embeds self-built settlements as 'forgotten places' in the context of green urban upgrading (Shatkin, 2004; Irazábal, 2016). In this mode, whether built in the name of the smart, sustainable or resilient city, upgrading initiatives may contribute to the creation of elite green ghettos. Such (green) spaces might jeopardize efforts to create a just city with urban commons at the center of urban planning (Marcuse, 2009) and to achieve equitable adaptation outcomes (Hodson and Marvin, 2010; Letelier and Irazábal, 2017). Green spaces that are central to these initiatives might lead to new environmental privileges (Park and Pellow, 2011) and to environmental gentrification—the 'displacement or exclusion of the most economically vulnerable human population while espousing an environmental ethic' (Dooling, 2009). Gould and Lewis (2017: 1) call it 'green gentrification', arguing that in some circumstances a greening initiative 'richens and whitens', especially when global green cities become the beacon of the sustainability class and push low-income, working-class and minority residents away. Green gentrification can thus be perceived or experienced by residents via threats or risks of displacement, eviction or social exclusion (Marcuse, 1985; Anguelovski, 2016).

To date, however, empirical studies on the justice implications of green infrastructure interventions in self-built or informal settlements are lacking. Few studies examine the multiple forms of displacement affecting socio-spatially vulnerable communities in the context of urban ecological upgrading in the global South. This article contributes to filling this gap by examining to what extent municipally sponsored green infrastructure interventions exacerbate urban socio-spatial inequities in self-built settlements and trigger new forms of control and resistance. Through a qualitative analysis of the Cinturón Verde greenbelt project planning and development in Medellín, Colombia—involving the construction of a 74-square-kilometer corridor around the city to contain growth and protect residents and infrastructure against landslides—we examine the creation of what we call landscapes of pleasure and privilege. Through

these new landscapes, metropolitan areas are transformed towards an aesthetically controlled and 'acceptable nature' for some. In doing so, we respond to recent calls for research on mundane and chronic forms of urban injustice (Bickerstaff *et al*., 2009) and for new scholarship on urban redevelopment and socio-spatial change in the global South through the lens of gentrification, urban upgrading and capital-driven urban reshaping (Janoschka *et al*., 2014). In this article we aim to offer a critical exploration of large-scale urban green infrastructure; provide a complementary and alternative analysis to the commonly shared positive marketing of the Cinturón Verde greenbelt––and its pilot project, Jardín Circunvalar (Encircling Garden) in particular—the latest at the 2018 IPCC Cities conference in Edmonton; and analyze the different perceptions, experiences and perspectives of residents, community leaders, municipal planners and planning scholars who have worked on, observed or experienced the first phase of construction of the greenbelt in and around the neighborhood of Comuna 8.

Although we acknowledge that there are other forces and projects that contribute to the creation of new socio-spatial inequities in Medellín (including the socio-spatial control of some comunas by non-state armed actors, or megaprojects such as the revitalization of the Rio Medellín), our analysis of green inequities and privilege in the context of large-scale green infrastructure interventions reveals that the greenbelt project in Medellín is producing inequitable displacement or relocation, diminishing place security and livelihoods, erasing traditional ways of life and uses of nature, weakening social networks and voice for low-income residents and creating new environmental privileges for upper-class locals and visitors. We find that, as the Municipality of Medellín tries to contain and beautify low-income neighborhoods, some local communities are dispossessed of their greatest traditional assets (location, land and access to nature, social capital and voice) under the rationale of serving the greatest public good and providing parks, vistas and an urban growth boundary 'for all'. While low-income residents have not yet physically been replaced by wealthier newcomers, the retrofitting of neighborhoods has made space for visitors to enjoy new greenery, creating formalized, enclosed and disciplined green spaces that promote the production of agricultural goods to be sold to the upper classes in El Poblado's farmers market. As a consequence, the Medellín greenbelt is creating new landscapes of pleasure and privilege that are slowly penetrating the self-built and traditional lifestyles of low-income communities and are accumulating value through (green) dispossession and appropriation (Harvey, 2007).

In the section that follows, we review critical scholarship on urban green infrastructure and sustainability planning, placing it in the context of a new global orthodoxy that increasingly combines notions of the smart, green, sustainable and resilient city. Both in the global North and South, many cities are branding themselves as leaders in terms of various elements of this orthodoxy, a move increasingly linked with economic development strategies in a context of competitive urbanism. Medellín followed this trend in Latin America (Angotti and Irazábal, 2017; Franz, 2017; Sotomayor, 2017). We then present our case study of Medellín's greenbelt project, followed by an analysis of the intervention in greater detail, before discussing our main theoretical contributions and offering some concluding remarks on the equity challenges of urban green infrastructure projects in the global South.

The pathway between green cities and urban environmental privilege

Often labeled one of Latin America's 'smartest cities',[1] Medellín rapidly rebranded itself in recent years as a place that is attractive to young knowledge-economy workers. Green urbanism is central to this rebranding through the creation of new parks and plazas in different parts of the city (for example, Parque Arvi and Medellín

1 See http://smartcities4all.org/20170627_press_release_English_pdf.php (accessed 25 September 2018).

River Park). Knowledge-economy workers, who tend to be wealthy and white, have a high degree of freedom to choose cities that provide amenities such as access to high-quality green spaces. This is why new green amenities are part of the argument as to why Medellín's new Innovation District—a cluster of companies, entrepreneurs and institutions that focuses on growing the local advanced-service economy—will succeed (Franz, 2017). Thus, greening and the new economy go hand in hand in Medellín, potentially reinforcing racial and class inequities in the distribution of larger and better-maintained green spaces (Heynen *et al*., 2006; Hastings, 2007; Landry and Chakraborty, 2009; Dahmann *et al*., 2010; Park and Pellow, 2011). Thus, while the greenbelt is not officially linked with knowledge-economy initiatives in Medellín, it augments efforts to attract knowledge (or other middle- and upper-class) workers with new bikeways and leisure spaces conducive to their preferences, and has already brought in new real-estate development projects for middle- and upper-class residents, as we show below.

In addition to augmenting smart city goals, the greenbelt is also central to Medellín's environmental sustainability initiatives. The preserved land is partially framed as an anti-sprawl measure aimed at promoting more compact urban growth patterns, protecting agricultural and natural areas, reducing overall greenhouse gas emissions, and providing permanent carbon sinks for existing emissions. However, scholars in urban political ecology, urban geography and urban planning have shown that injustices may be created or exacerbated by sustainability planning when interventions do not explicitly focus on social justice (Agyeman, 2013). Sustainability agendas that focus on compact growth often become attached to real-estate development and economic goals (Gibbs and Krueger, 2007; Tretter, 2013). Real-estate developers can benefit by building a high-end version of municipal visions of dense sustainable urbanism and command public resources to support these efforts (Bunce, 2009; Quastel, 2009). In such circumstances, rather than protecting urban commons, sustainability planning and implementation reproduces a logic of private capital accumulation (Gibbs and Krueger, 2007; Keil, 2007). Scholars in critical urban geography call this process 'accumulation by green dispossession' through the appropriation of 'common collective land and resources' by new urban pioneers redeveloping land deemed empty, marginal or underused for (green) capital accumulation (Safransky, 2014).

Green dispossession and environmental gentrification are consequences of what is sometimes called the urban sustainability fix. Sustainability fixes intervene in institutional conflicts between growth and preservation of the environment. These strategies aim to 'achiev[e] and sustain accumulation in the face of countervailing forces that are internal and external to the capitalist system' (Castree, 2008: 146). Greenbelts have been examined as sustainability fixes that encourage new infrastructure projects and threaten the livelihoods and ability to stay of certain groups of existing residents (Macdonald and Keil, 2012). As urban growth agendas become embedded in large-scale projects such as these, green policy becomes necessarily contested as a vehicle for privileging economic competitiveness over social and environmental goals (While *et al*., 2004; Hof and Blázquez-Salom, 2015; Long, 2016; Walker, 2016). Importantly, sustainability fixes involve efforts to erase contestation and can have the effect of muting demands for social justice (Long, 2016). These tensions demonstrate the limits of urban green infrastructure to adequately balance environmental, social and economic agendas in a wider regional space (While *et al*., 2004; Keil, 2005; Macdonald and Keil, 2012; Temenos and McCann, 2012).

Medellín's greenbelt is also a resilience measure through growth control, ecological restoration, ravine protection and recuperation, and risk mitigation (Agudelo Patiño, 2013; EDU and Alcaldía de Medellín, 2013; Alcaldía de Medellín, 2015). The greenbelt is meant to increase the capacity of the city's infrastructure to withstand extreme weather events that may generate mudslides and flooding. In the context of climate risks and impacts, municipalities are increasingly devising plans and

interventions such as these to protect residents, infrastructure and ecosystems against the effects of extreme weather events (Anguelovski and Carmin, 2011; Carmin *et al*., 2012; Anguelovski *et al*., 2014). However, climate impacts and actions to reduce such impacts are interwoven with local socioeconomic and political contexts that constrain mitigation and adaptation planning (Bulkeley and Tuts, 2013; Friend and Moench, 2013). Thus, integrating resiliency initiatives into land-use planning does not necessarily reduce the vulnerability of the communities most at risk if existing plans and planning practices do not prioritize the most vulnerable or do not take into account systems-based environmental management (Bautista *et al*., 2015; Anguelovski *et al*., 2016). As a result, the growing emphasis on 'resiliency' among academics, policy makers and development and humanitarian organizations may sidestep politically difficult choices around the equitable redistribution of risks and resources (Fainstein, 2015; Matyas and Pelling, 2015). Additionally, the tendency to incrementally address existing socio-spatial inequalities and resilience is not enough to achieve just outcomes because it does not address the underlying drivers of vulnerability in current urban governance and development paths (Pelling, 2011; Pelling and Manuel-Navarrete, 2011; O'Brien, 2012; Pelling *et al*., 2014).

In sum, Medellín's greenbelt is a flagship project that aligns the city with a global smart–sustainable–resilient orthodoxy for urban planning. Since the 2000s, the Medellín case has become representative of the ways in which the language of each of these frameworks for green urbanism merges within policies, plans, reports, communications and public-relations materials to create an image of positive growth throughout the metropolis. From this perspective, projects such as the greenbelt are indicative of numerous urban interventions presented by policy and planning agencies in an apolitical manner that purports benefits for all, but are subject to increasing scrutiny over the extent to which these benefits, in fact, target at the most well-off (Checker, 2011). As such, the planning and development of the greenbelt provides important insights into the extent to which theoretical critiques of the current smart–sustainable–resilient planning orthodoxy, which were mostly developed through analyses of cities in the global North, extend to cities in the global South that, like Medellín, are embracing this orthodoxy (Angotti and Irazábal, 2017).

Methods

This article is based on a critical and emblematic case of urban greening, growth containment and climate resilience intervention in Medellín, Colombia. The Cinturón Verde, and, as part of it, the Jardín Circunvalar, is part of a twenty-year effort on the part of the city of Medellín to actively rebrand itself by changing its image from a place plagued by violent crime and drug trafficking to a welcoming and safe city (Franz, 2017; Sotomayor, 2017) that is in tune with its environment (Alcaldía de Medellín, 2015). Thanks to 'social-urbanism' and 'urban-acupuncture' projects that target the urban poor and as a result of new infrastructure construction, Medellín has received several international awards, including the accolade of 'most innovative city of the world' by the Urban Land Institute[2] and the prestigious Lee Kuan Yew World City Prize for a city that 'celebrates life—resolute in its commitment to create a more just, more human, freer and happier home for its inhabitants'.[3] Announced in 2012, the metropolitan greenbelt (72 kilometers long, at a projected cost of US $249 million) is part of this process of urban reinvention (Franz, 2017; Sotomayor, 2017).

We collected data for this article during three phases of fieldwork in Medellín (2013, 2016 and 2017), which corresponded to different stages for the greenbelt: the

2 See https://americas.uli.org/urban-land-magazine/medellin-named-most-innovative-city/ (accessed 25 September 2018).

3 From https://www.leekuanyewworldcityprize.com.sg/laureate_Medellín.htm (no longer available online).

design, planning and completion of a pilot phase of the project. Data collection included interviews with urban planners from the Municipality of Medellín; staff members of the urban development agency EDU (Empresa de Desarrollo Urbano, the public corporation in charge of implementing the greenbelt); staff from the public utilities agency EPM (Empresas Públicas de Medellín); Colombian planners, engineers and architects; university scholars who were involved in the planning and implementation of the greenbelt as expert consultants and also provided technical support to community groups that expressed concern about the social impacts of the greenbelt; and community members and leaders of low-income neighborhoods that were affected by the pilot phase.

Our study is also based on participant observation and community interaction with elected community leaders during a collaborative, diverse and international urban planning workshop/studio course called 'Rethinking the Urban Fringes', which took place in Medellín in March 2013. The workshop was organized by the National University of Colombia–Medellín, in partnership with Columbia University (Urban Planning Studio and Irazábal, 2013), the International University of Catalunya (Brum, 2013) and the Planning and Management Council of Medellín's Comuna 8. Comuna 8 is where much of the community organizing took place during the greenbelt planning and where a large part of the greenbelt pilot phase was implemented. From the date the greenbelt was announced, its members formulated and expressed numerous concerns about the social effects of the project on the territory of the comuna. As part of our fieldwork, we also observed meetings between municipal planners and residents. Lastly, we analyzed press releases, newspaper articles and media footage about the greenbelt, as well as risk maps, land-use plans, and municipal and metropolitan plans related to the greenbelt. These plans included the Metropolitan Greenbelt Plan (2012), Medellín's Development Plan (2012–2015), Plan Director Bio 2030 (developed from 2010 to 2011), the 2015 Territorial Ordering Plan (POT) and Integral Urban Projects (PUIs).[4] Data was collected at different times and complemented by written exchanges with interviewees after the fieldwork periods, the latest data collection taking place in November 2017. We analyzed our data using thematic analysis on the present or possible socio-spatial impacts of the greenbelt, procedural versus distributional equity and related planning challenges, as presented by the respondents.

Initial development of the Medellín greenbelt (2012–2017)

Climate change is having a disproportionate effect on tropical zones, where fragile ecosystems are largely unable to withstand seasonal shifts in weather (IPCC, 2014). Climate-disaster risks in Medellín are based on the higher prevalence of torrential downfalls as a result of a prolonged rainy season; an increase in the frequency of extreme rainfall events; extended dry periods that exacerbate the instability of sloping soils; and increases in temperature, which affect the Andean ecosystems that supply water for urban areas.

About 180,000 households throughout Medellín are located on hillsides and ravines that are at risk of mudslides and other climate-related events. Low-income residents are exposed to higher risks during the rainy season because lack of engineering and zoning oversight have led to inadequate structural foundations and poor building placement (local interviews with engineers, 2014). Up to 50% of residents living in

4 More information about these plans is available at: https://www.medellin.gov.co/irj/go/km/docs/wpccontent/Sites/Subportal%20del%20Ciudadano/Medio%20Ambiente/Secciones/Publicaciones/Documentos/2012/ForoCiudadesSostenibles/Exposición%20Área%20Metropolitana%20del%20Valle%20de%20Aburrá.pdf (accessed 25 September 2018); https://www.medellin.gov.co/irj/go/km/docs/wpccontent/Sites/Subportal%20del%20Ciudadano/Plan%20de%20Desarrollo/Secciones/Publicaciones/Documentos/Pla Desarrollo2012-2015/2012-04-30_Proyecto%20de%20acuerdo%20VERSION%20COMPLETA.pdf (accessed 25 September 2018); http://www.eafit.edu.co/centros/urbam/articulos-publicaciones/SiteAssets/Paginas/bio-2030-publicacion/urbam_eafit_2011_%20bio2030.pdf (accessed 25 September 2018); and https://www.medellin.gov.co/irj/go/km/docs/pccdesign/SubportaldelCiudadano_2/PlandeDesarrollo_0_17/ProgramasyProyectos/Shared%20Content/Documentos/2014/POT/RevistaPOT2014.pdf (accessed 25 September 2018).

'high-risk' zones in self-built communities in Medellín are poor rural-to-urban migrants, internally displaced people within Colombia from decades of armed conflict, during which rural areas were plagued by guerrillas, paramilitaries and drug traffickers (Tovar-Restrepo and Irazábal, 2014). However, poverty and unsanctioned construction practices are not the only challenges. Threats of landslides are also present in wealthier formal areas, such as Comuna 14 or El Poblado, where tall and heavy buildings are constructed on highly unstable sandy soils.

In response to these diverse challenges, as one of the 31 flagship projects by Medellín's mayor Aníbal Gaviria (2012–2015), the greenbelt was officially presented as a tool to address several land-use and ecological challenges—namely to curb unregulated growth [5] and sprawl in the hillsides around the city; to protect water basins and forests that are key to the region's biodiversity; to control climate-change effects; and to reduce the risk of landslides during extreme weather events (Agudelo Patiño, 2013; Alcaldía de Medellín, 2015).[6] As a pilot project within the greenbelt, the Jardín Circunvalar is meant to protect the territory against formal and informal land invasion. In that sense, this green infrastructure project with its clear goals of controlling growth and protecting residents and infrastructure against landslides, is ambitious and laudable. Its commitment to key environmental concerns presumes its benefits to be universal, urgent, indispensable and long-term. Original ideas for the Cinturón Verde also included urban and rural integration, preservation of the local ecology and comprehensive territorial planning. At the heart of the greenbelt, the municipality is also planning a Clean Mobility Corridor. Initially, this plan centered on the creation of a new mobility system (light rail) and included new bike lanes (Ruta de Campeones)[7] and hiking trails (Camino de la Vida),[8] among other interventions. However, discussions around the mobility plan are ongoing.

The greenbelt project is today best represented by its pilot project, the Jardín Circunvalar, on the Pan de Azúcar mountain in the northeastern part of the city in the self-built settlement Comuna 8, an area consisting of 34 smaller neighborhoods (see Figure 1). According to the Medellín System of Identification and Classification of Potential Beneficiaries of Social Programs (SISBEN), 35,834 households were living in Comuna 8 in the early 2010s, although in reality this number approaches 40,000 (to account for non-census households, i.e. those that tend not to report themselves when located in high-risk areas) (Urban Planning Studio and Irazábal, 2013). Many of the Comuna 8 residents work in the informal economy or service industry. Small plots of farmed land can often be found next to residents' homes. Residents had also established community gardens at the foot of the mountain peak, which reflected many residents' rural traditions and their reliance on land for their livelihoods. Some of the Jardín Circunvalar construction workers included Comuna 8 residents. The piloting of the Jardín Circunvalar project in Comuna 8 made the community the most vocal comuna in Medellín. Comuna 8 resisted the way the project was proposed top-down, and proposed bottom-up alternatives instead. The comuna reached out to other comunas that were bound to be affected by the greenbelt project, which led to a larger city-wide mobilization effort.

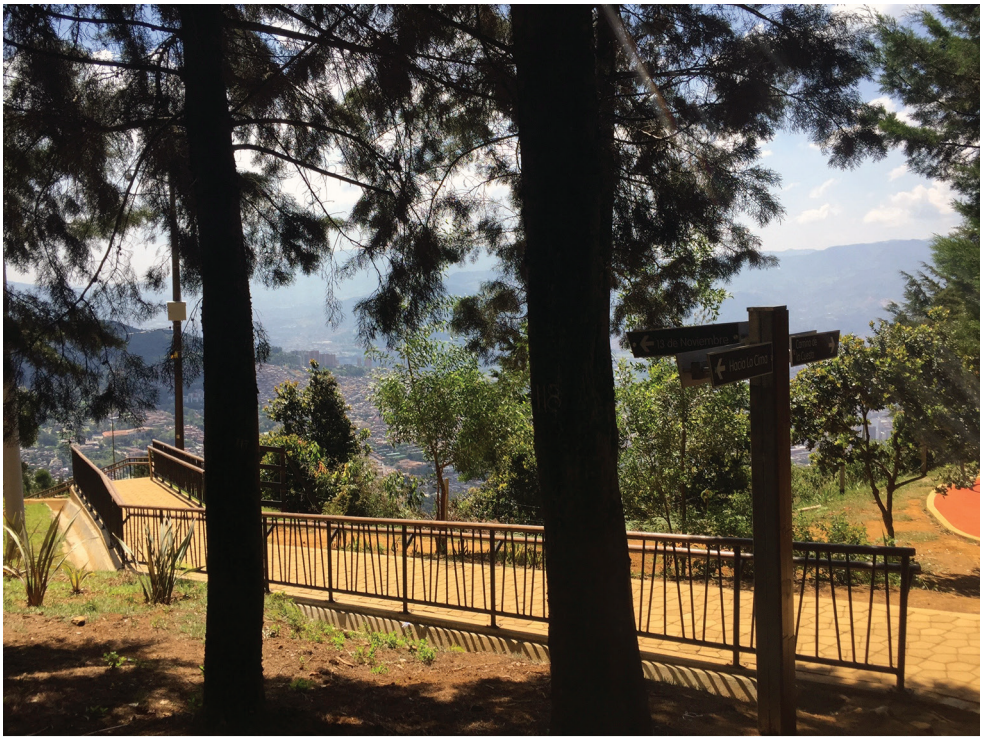
Defined as an ecological park and natural reserve offering walking trails, recreational areas and ecological education programs, the greenbelt is being implemented in coordination with existing and new local plans. Initially, the Plan Director Bio 2030 (developed in 2010–2011) for Medellín and the Valle de Aburrá, a metropolitan land-use plan developed by a local university (EAFIT) in consultation with neighborhood and regional stakeholders in 2013, identified the hillsides as

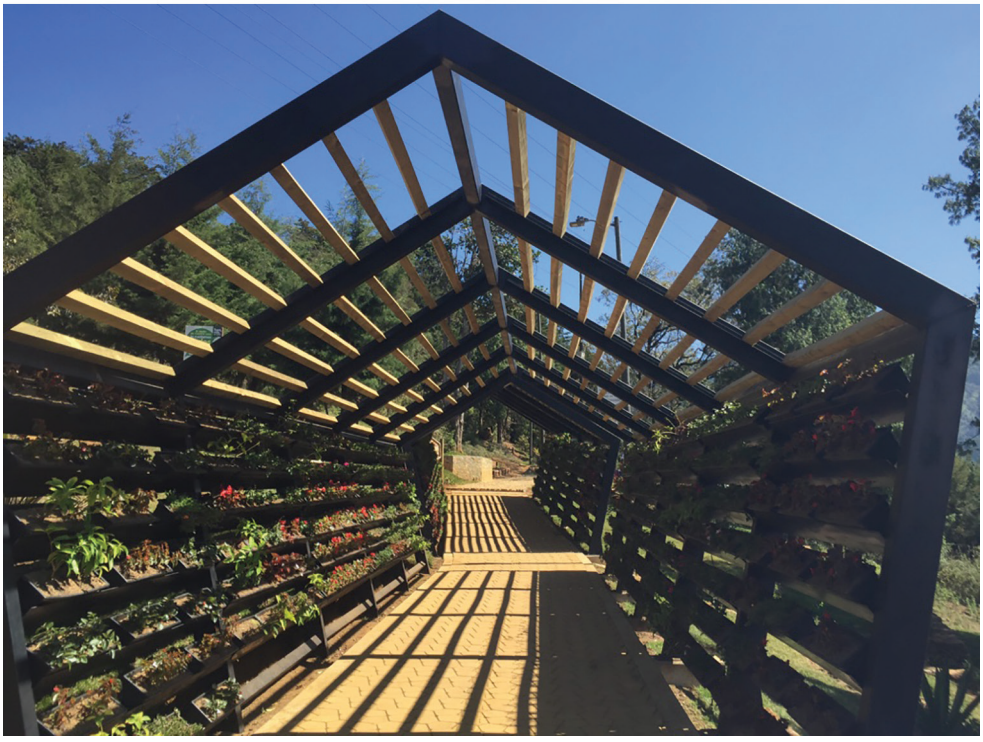
5 From 1955 to 2013, the population of Medellín expanded dramatically from 500,000 to 3 million, a growth driven by industrialization and rural-to-urban migration as a result of the armed conflict.

6 See also the official website for the project: https://cinturonverde.wordpress.com/tag/cinturon-verde-metropolitano/ (accessed 25 September 2018).

7 See https://cinturonverde.wordpress.com/tag/ruta-de-campeones/ (accessed 25 September 2018).

8 See https://cinturonverde.wordpress.com/tag/camino-de-la-vida/page/2/ (accessed 25 September 2018).





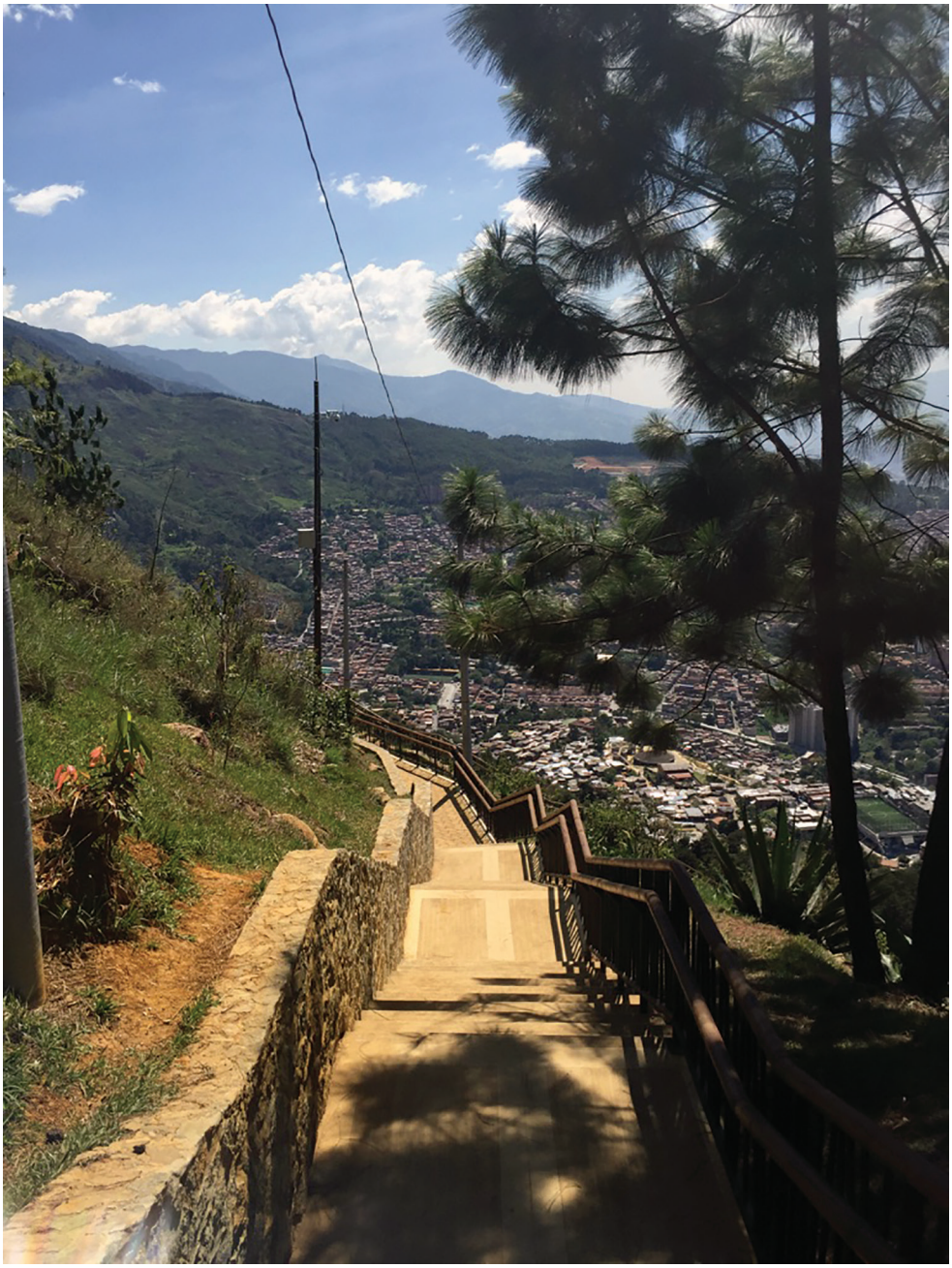


FIGURE 1 Three perspectives on the Jardín Circunvalar in Comuna 8, Medellín (photos by Isabelle Anguelovski, 2016)

strategic territories and proposed the creation of a network of protected areas, of which the Cinturón Verde (for which a plan was developed in 2012 and 2013), was meant to be part. Later, in 2015, the Municipality of Medellín adopted a new POT that included measures to harmonize the city with its natural environment. Cinturón Verde represented one of these measures. In this later plan, Medellín also proposed adding

Integral Urban Projects (PUIs) and comprehensive development projects in ravine areas (Santa Elena and La Iguaná). Overall, the plan was expected to have a direct impact on 230,000 residents who lived in the designated greenbelt territory and above the new urbanization limit of 1,800 meters of altitude (Agudelo Patiño, 2013; Municipality of Medellín, 2013). The greenbelt includes three zones:

- A Protection Zone (the greenbelt itself) with natural habit preservation, ecological restoration of hillsides and rural corridors, natural and community tourism trails, carbon sinks for climate-change mitigation and rural habitat improvement.
- A Transition Zone close to the greenbelt, with the highest concentration of residents living in self-built settlements beyond Medellín's formal limits, often without basic amenities. This transition zone will contain metropolitan parks, farming projects, education gardens, bike paths and risk-mitigation measures.
- A Consolidation Zone to 're-conquer the valley' through the creation of linear parks, multi-family housing for new residents, structural intervention and habitat-improvement projects, land titling and a network of public services.

The construction of such a project is possible owing to Medellín's sophisticated and complex planning institutions. In Medellín, different agencies such as the metropolitan planning agency (Área Metropolitana del Valle de Aburrá), EDU and EPM exercise different degrees of political and economic power and focus on different areas of planning, although there is some overlap. This sometimes makes collaboration difficult or leads to outright competition and antagonism between these agencies. In addition, they have different traditions and mandates for dealing with the public, which makes for uneven participatory processes in decision making. Although there has been significant continuity in the planning agendas of previous city mayors, there have been some challenges as a result of changes in administration. The 'social urbanism' emphasis of Mayor Fajardo was later transformed into the 'civic-pedagogic urbanism' slogan of Mayor Gaviria. Interviewees suggested that the current mayor was somewhat resentful of the great cost of the projects the previous administration advanced in Comuna 8 (including new streetcar and cable car lines and stations) and the larger Jardín Circunvalar plan, which he felt were compromising his administration. As a result, work in the Jardín Circunvalar has virtually come to a halt and focus is being redirected towards the revitalization of the Medellín River Park project instead (Proyecto del Rio).

In terms of the planning and construction of the Jardín Circunvalar, one of the most delicate interventions that the municipality faces is the relocation of thousands of residents living on unstable terrain or on the site of the greenbelt infrastructure. Relocation efforts are accompanied by programs that are aimed at educating residents about the attendant risks for their homes and lives and suggesting preventative measures that would increase residents' safety. However, since its inception, the greenbelt project has led to what some community groups in the studio course called 'a belt of questions' (Urban Planning Studio and Irazábal, 2013): How is risk assessed and mitigation determined? How will relocation away from unstable terrain be managed? What location and typologies will new housing take on? How will the city respond to marginalized residents' concerns? And finally, for whom is the greenbelt actually intended? (Brum, 2013). We examine these questions in the section that follows.

The production of inequity through land grabbing and disciplining landscapes in Medellín

In this section, we argue that the construction of the greenbelt in Medellín is producing new inequities in the context of managing growth and addressing climate-related risks, while also enclosing, privatizing and exploiting public green

spaces and infrastructure. On the one hand, the Jardín Circunvalar has led to much-needed improvements in accessibility (through new streetcar and cable car lines—the Metrocable Línea H services the comuna), improved pedestrian paths and public spaces along, around and above the transit lines and stations (in the Villa Sierra area), sturdier infrastructure that can withstand heavy rains, new amenities and security (the new transit infrastructure is associated with public spaces and guards). On the other hand, our analysis reveals that a threefold form of nuanced dispossession and displacement by green accumulation is taking place: of lower-income residents' secure access to their homes and habitat, of the nature formations and landscapes they value, and of their participation in decision-making processes, which became concentrated in EDU and local construction lobbies and groups. We develop this argument in the next two sub-sections.

– Inequities in displacement, relocation and territorial management

Since its inception, the Medellín greenbelt has been conceived as an urban growth boundary tool that directs density inwards and upwards elsewhere in the city. In the 1990s, the first POT for Medellín called for inward city growth and greater physical, social, cultural and economic density to achieve a more compact urban form. In the 2000s, this redirection became all the more relevant as the municipal government became increasingly concerned with climate-change risks and as a number of developers built prominent skyscrapers on the city's surrounding slopes (interview with former planner-in-chief, 2016). At that time, municipal decision makers also started to recognize the need for enhancing the quality, connectivity and use of public transportation throughout the metropolitan area.

The greenbelt project, which was announced in 2012, follows logically from this desire for more densification. In the words of the municipal corporation in charge of the project's planning and implementation, EDU, the objective of the greenbelt is to address unsustainable growth patterns in Medellín by 're-conquering the valley'. In that sense, the greenbelt was not only meant to protect the higher-lying mountainous areas against human influence—by means of a border that creates an harmonious transition from the urban to the urban realms—but also as a strategy for containing and intensifying urbanization and for preventing the city's expansion into high-risk, disaster-prone areas. The project is linked with what is known as the 'Macro-project of the Border', which seeks comprehensive improvement and renovation of lower-income neighborhoods by enhancing the provision of dignified housing, overcoming the divide between the formal and informal city, and producing a more balanced urban fabric (interview with local architect and top planner in the planning department, 2016). The greenbelt and the 'Macro-project of the Border' focus in different ways on building resilience in communities living in high-risk areas (namely, Comuna 1, 8 and 13, and Nuevo Occidente).

Since the start of the greenbelt planning process, however, community concerns emerged over the original municipal plans to relocate thousands of families whose houses are self-built on unstable terrain in the Zone of Transition and in controversial 'non-recoverable-risk areas' (areas considered at high risk of landslides or flooding). These relocations are meant to move families to the 'Zone of Consolidation' and other low-risk areas throughout the metro region. For instance, in Comuna 8, where the municipality had originally planned to relocate 6,600 households (but possibly up to 39,200 households) located in what were deemed unmitigable-risk areas (Urban Planning Studio and Irazábal, 2013), residents oppose eviction and relocation to areas that they consider unsuitable, such as creek setbacks, where regulations are traditionally disregarded. Over 155,000 people live in Comuna 8, and 40% of this population had previously been displaced from rural areas as a result of violent conflict. Between one and four families continue to arrive every day according to a door-to-door survey done

in 2010 (Urban Planning Studio and Irazábal, 2013). Comuna 8 received 15,600 displaced people in 2011 alone (*ibid*.).

Some urban planning experts, engineers and architects support the notion that non-recoverable-risk areas are overestimated. They argue that the municipality has not performed adequate risk mitigation studies, exposing conflicts that reveal the political nature of risk assessment (Irazábal *et al*., 2015). In this case, technical assessments designed to support a rational plan for preserving urban nature ignore alternative voices, even from experts. As one of them relates:

> At the end of 2012, a professor from the Universidad Nacional called for the interruption [of work] to the greenbelt until geological and hydrological studies could be completed to address existing needs, risks and conditions, but it did not have an impact. The municipality only called the university after the POT was approved in 2015, and it was called to be part of the Consejo Consultivo de Ordenamiento Territorial [The Consultation Council for Territorial Ordering] (interview with technical expert, 2016).

Furthermore, non-recoverable-risk areas were defined using sources of assessment that showed discrepancies. The Risk Zone Map of the city, the Geological Aptitude Map (a map of geological risks associated with different land types) and residents' estimates of the number of households in non-recoverable-risk areas developed through a university partnership all presented different results (Urban Planning Studio and Irazábal, 2013). These discrepancies demonstrate how data are constructed and used selectively within risk assessments and maps. Rather than a single positive reality, data create multiple pathways for interpreting and managing risk, whereby outcomes reflect the differential power of those who are allowed to stay and those who are deemed movable (Hoberman, 2012; Anderson and Holcombe, 2013).

Residents maintain that the municipality is over-estimating the number and size of at-risk areas to justify housing clearance, greenbelt infrastructure and selective housing construction. Many residents of the poorest comunas fear that, as construction plans are implemented further, they might be forced to live in one-size-fits-all multi-family housing towers in other parts of the comuna or the city rather than being relocated directly to where they would benefit from risk-mitigation measures *in situ* (Urban Planning Studio and Irazábal, 2013; interviews, 2016). Many of these housing towers are located away from jobs, sources of income and social networks, and residents are awarded minimal compensation of US $3,000 per unit. Residents also denounce new apartments that might only be a fraction of current unit sizes. They claim that the municipality is manipulating words such as 'sustainable neighborhoods' (Barrio Sostenible is an EDU program) as a pretext for expropriating residents living in the greenbelt's Transition Zone without considering how to achieve a more comprehensive improvement of the poorest neighborhoods on the borders of the city.

Based on resident testimonies collected in 2017, an indeterminate number of resident displacements have taken place in Comuna 8 to make way for new construction associated not only with the Jardín Circunvalar but also with the cable car station and infrastructural pillars along the cable car trajectory. Some residents have not been relocated anywhere yet and were granted insufficient compensation for finding their own new housing. A few elected to remain in the comuna, staying in the overcrowded houses of relatives. In addition, based on field-visit observations and an interview with a city planner in 2017, new housing had been built near the comuna for residents who had been displaced because of topographically and soil-related unmitigatable risk or poor material conditions, to make space for new infrastructure, and to alleviate overcrowded housing conditions. However, relocation is progressing painfully slow for

multiple reasons, including resistance of residents, some of whom have even challenged relocation orders in court. Furthermore, relocating a household often necessitated the creation of more than one replacement unit (or apartment) elsewhere; often two or three new housing units were needed to avoid overcrowding.

Thus, such operations are more complex and come at a higher cost when large households have to be split over two or three new units, as these need to be state-subsidized to cover housing, utilities and tax expenses, since the households are then legalized and can no longer pool their resources. The state subsidy increases in terms of both money and time based on the fact that household relocation usually entails the household reaching a higher social stratum: official zoning mechanisms in Colombia distinguish six strata, from 1 (lowest-income) to 6 (highest-income), which are associated with correspondent utility costs. Thus, a one- or two-stratum household in Comuna 8 that is relocated to a higher stratum would sign a contract with the municipality by which the utility costs associated with its previously lower stratum would be honored for several more years. While this strategy gives relocated households time to improve their socioeconomic conditions so that they can afford the new service rates, it is nevertheless expensive.

By contrast, not only are higher-income communities granted the right to stay on despite the greenbelt project, but also the right to continue construction even though they are (or will be) on protected land. The locational permanency and continuous expansion of higher-income neighborhoods in Southeast Medellín (El Poblado, Cedro Verde, Alto de las Palmas) have not been questioned even though some, for example, Vía de las las Palmas, have been built higher up the mountainside than city regulations allow. Gated communities such as Alto de Escobero, which are situated adjacent to important reserves of native forest, are also continuing to grow unencumbered (Arango, 2013). In response to this disparity, low-income residents denounce a growth alliance between the municipality (EDU in particular) and powerful associations of construction companies (or companies), such as Camacol and Ramonacha—an alliance further denounced by architects who provide technical expertise to the municipality:

> CAMACOL has an economic and political interest in continuing the expansion … Similarly, a project such as the Cinturón Verde gives jobs to [the] workforce and income to the construction companies. It is ludicrous to think that the private construction lobby of Medellín will abandon its profit-making enterprise. They are controlling the urban planning department to continue with the expansion of the city (interview, 2016).

Likewise, residents in the poorer comunas are concerned about the illegal presence of a military base within the city's limits, close to residents' homes. Its presence is not being questioned by the municipality despite the fact that such a location is illegal (POT Regulation, Section 209, prohibits military bases within municipal boundaries). This military presence is a particularly painful reminder of the past for residents who have lived through five decades of civil war. The fact that a state institution with a questionable history of violence and impunity is allowed to remain while residents are forced to move is perceived as another source of inequity, especially in a context in which land could be used for the construction of new housing for residents living in nearby non-recoverable-risk areas:

> The military [base] is surrounded by victims of the conflict. There is a large military base within the city limits [which is illegal] and, within Comuna 8, the community advocates that the base is moved outside the city limits [as it legally should be] and the land used for relocation of people who require it because of real risk-management needs (interview with community leader, 2016).

Residents and experts alike perceive EDU's approach as neglect of territorial planning in favor of what several community residents and former municipal planners see as 'territorial ordering'. The concern that EDU is failing to consider the socio-spatial organization and socioeconomic dynamics and needs of certain areas within the greenbelt's territory is regularly expressed. EDU is perceived as having privileged the urban–rural border on the periphery, allowing large flagship projects on this border (for example, multi-purpose community centers, the green infrastructure of the Cinturón Verde, or transport infrastructure), rather than developing the territory comprehensively and integratively. Its approach has been heavily managerial and engineering-driven, the approval of projects primarily benefiting Medellín's large construction companies, as several community and expert respondents have remarked. By contrast, incremental and community-driven projects to improve communication, transportation, housing or social development for lower-income residents of the comunas have been pushed aside.

In many cases, large and visible infrastructure projects drive growth rather than decrease it and reflect, in the eyes of many local experts, incapacity and/or unwillingness to take metropolitan planning into consideration. As one architect and top planner who worked for EDU explains: 'If you want to decrease growth, do not build a monorail. [Instead,] [s]trengthen the slopes–valley connections' (interview, 2016). As planners and experts from different public and private agencies argue, in a valley, especially that of Aburrá, the transition between the urban and the rural areas and connections with other parts of the country are not simple to address and need to be addressed via integrated local plans. This transition is not linear, and a border such as the Cinturón Verde by itself will not achieve this. The border is not homogeneous, and different conditions need to be considered and integrated into a comprehensive management plan for the territory in terms of livelihoods, connectivity and land management—including rural neighborhoods that lie outside its boundaries. In terms of this systemic view, the Cinturón Verde cannot be the only strategy for growth management.

Furthermore, greenbelt planning reveals a form of institutional and spatial mismatch. First, the relocation of poor residents and the destruction of housing to make way for the greenbelt do not solve the overall challenge of growing low-income housing demand, since the number of new housing units built are lower than the number of units being lost. Secondly, these units are likely to shift low-income housing demand to fragile hillsides and natural and agricultural areas outside of Medellín, which will also destabilize residents' existing social capital built over time in the comunas. While the greenbelt is meant to be expanded to the metropolitan valley, the surrounding municipalities' POTs have not yet incorporated the greenbelt (and its impacts) into their land-use plans.

Finally, the planning of the Medellín greenbelt illustrates a break with the tradition of social urbanism, through which the municipality had recently privileged and encouraged resident participation, input and street knowledge to address urban development challenges in the city. According to comuna residents, former municipal staff and technical experts, EDU worked on its own to develop its strategy for Cinturón Verde, while marginalizing local university and community-based experts. In their view, EDU under Gaviria overlooked Medellín's tradition of dialogue, inter-institutional collaboration and support for alternative community-driven development, which they claim can be attributed to the top-down practices of its leaders at the time. A former chief planner for Medellín explains:

> The problem is that the greenbelt project has been poorly managed since it was announced. The manager of EDU has made several announcements that members of the municipality and residents saw as irrational—including the monorail project. And EDU's community-engagement practices have been very poor. Residents have been very misinformed and disconnected during discussions about the Territorial Ordering Plan (interview, 2016).

Another planner and university professor adds: 'Urbanism is what dominates EDU—the idea of spatial transformation with the ego of the architect going to the neighborhoods'. According to several planners, the practices of EDU under Gaviria and during the pilot stages of the Cinturón Verde failed to recognize the need for the social construction of the habitat, something that seemed especially misdirected in a city such as Medellín, which had had a tradition of social urbanism and progressive planning. Some also accuse Gaviria of cronyism in his appointment of municipal agency managers (such as EDU) who did not have the technical capacity to lead urban projects nor the commitment or managerial skills to build relationships with the municipal planning office and community groups (interviews, 2016 and 2017).

In response to both procedural and substantive concerns over the planning of the greenbelt, residents of Comuna 8 prepared a community development plan, asking the municipality to articulate the greenbelt project relative to their community's Declaration of Needs and Wants. Through a participatory process, Comuna 8 developed and presented the city with its own alternative plans. Based on principles stipulated in the 1991 Constitution of Colombia, residents integrated their priorities into three 'pillars': the social and ecological function of property, the direct participation of citizens in decision making, and the equitable distribution of costs and benefits of urbanization. Many residents have also demanded the creation of a Dialogue Table (Mesa de Concertación) with representatives from EDU. The proposed plan includes comprehensive neighborhood-upgrading projects, food security and urban agriculture, risk management through the construction of proper sewage systems and retention walls, housing permanence and transportation improvements. Our planning studio, and others that followed subsequently, further developed and elaborated these proposals.[9] However, to date, the results of a more meaningful dialogue between residents and EDU have not been tangible, and residents have expressed concerns over the dismissal of their land-use and planning experience and of the proposals they had formulated in a participatory manner.

In sum, the planning process that framed the greenbelt as a growth- and risk-management intervention raised concerns over evaluation of risk, about who is deemed subject to permanence versus relocation and displacement, and about the lack of community engagement and non-inclusion of bottom-up planning from residents of Medellín's comunas. Through these processes, many residents have been exposed to double trauma. First, they experienced displacement from rural areas in a brutal, violent process of accumulation by dispossession performed by multiple political and economic actors in Colombia (legal and illegal armed groups, the Colombian state and transnational corporations involved in large-scale agricultural, mining or infrastructural megaprojects), in which asymmetry of power gave them no choice but to surrender their rural land and possessions to flee to the cities (Gleditsch, 2007; Waldmann, 2007; McDougall, 2009). Secondly, they were subjected to processes of accumulation by dispossession or displacement either through direct threat of eviction from their communal territories or individual plots of land through new, forced and oftentimes slow and uneven relocation processes, or through the system's permissive attitude towards new, illegal high-end real-estate developments. In addition, chronic and new dynamics of violence continue to victimize many members of self-built, urban communities in Medellín.

9 In 2007, the community consolidated its vision and formed the Comuna 8 Planning and Local Development Council. The council is comprised of 32 people from different constituencies within Comuna 8 and is widely considered representative of the community. Council meetings take place monthly. The council also organizes public hearings and workshops about neighborhood development issues and changes happening in Comuna 8. It is organized into several subcommittees (*mesas*) addressing the different needs of the community, such as those who provide assistance for displaced people, women and youth. They critically engage with the various city programs and interventions to shape them to better fit the needs of the community. They have also built strategic coalitions to work collaboratively with other comuna councils on issues of mutual interest.

– The dispossession, enclosure and privatization of public green spaces and infrastructure

Coupled with these inequities, the early rollout of the greenbelt illustrates emerging forms of green-space enclosure, privatization and exploitation—and social and cultural displacement and dispossession. This initial stage of green development raises further concerns over the appropriation and transformation of urban nature for a few privileged groups.

The design of the Jardín Circunvalar greenbelt pilot project reflects a municipal attempt to control, transform and discipline land that had traditionally been occupied by low-income residents. The difference between the municipal government's desired outcomes for the Jardín Circunvalar and those of the area residents is rooted in a conflict over competing visions of nature. The Jardín Circunvalar uses grey infrastructure and concrete-based constructions to contain and formalize green space and control its use according to a rational plan, which, in theory, protects its 'naturalness'. Yet many residents of the comunas perceive the Jardín Circunvalar as a 'built-up' and 'produced' space that does not succeed in integrating existing community relations with nature, nor incorporate low-impact trails into the nature walks. In the eyes of several community leaders, the Jardín Circunvalar is an effort to attract a 'siliconed' or 'made-up' tourism. They believe that EDU chose not to respect the existing nature trails defined and used by residents over the years and instead opted to erect walls with 10-meter-deep foundations throughout the entire Jardín Circunvalar. They regard these walls as a method to occupy, delineate and claim territory rather than as interventions that preserve nature, especially a more indigenous-centered conception of nature or a sociocultural construction of nature:

> They come from El Retiro, from the mountain and they build parcels, destroying ecosystems along the way, armadillos and natural woods. And [yet] they tell us that we are the ones who are going to take the city down. The construction of the territory is political (interview with community leader, 2016).

In response to this, Comuna 8 members articulated a vision for Pan de Azúcar mountain, which is managed by the community itself through reforestation projects and 'urban paths' aimed at strengthening and visibilizing residents' traditional uses of the territory. Their proposals contest cultural and social forms of dispossession and displacement. Residents resist what they regard as a regrettable choice to use plants that are neither native nor based on ecological principles of nature conservation. According to EDU, however, nature had to be ordered, structured and manicured for the common good. The plantings that were chosen were seen as more attractive than many native plants. Furthermore, several interviews with experts in 2016 revealed that construction contracts for the Jardín Circunvalar went to development companies that had close ties with elected officials and narco-traffic leaders, which further explains the choice of grey infrastructure over lower-impact green infrastructure. Companies came in with powerful machinery and materials to build the 'green' infrastructure of the Jardín Circunvalar. Such interventions seemed to be about more than preserving the local ecosystem or resilience for local residents in the face of a changing climate.

As a result, community leaders and organizations in the comunas claim that residents cannot easily make the Jardín Circunvalar their own and that the project is designed to be attractive to middle- and upper-class visitors and tourists rather than locals. This is especially true of the cycling paths: observations of community meetings (2013) and interviews (2016) revealed that the greenbelt is likely to bring tourists and wealthier residents to this area that surrounds the low-income, self-built neighborhoods, thus dispossessing long-time residents of their green space in favor of formal recreation and middle- and upper-class aesthetics. One community leader expressed this sentiment as follows:

> For [the municipality], the Jardín Circunvalar is the 'redemption of Medellín' and it is created for skilled and prepared residents—residents able to compete professionally—and for tourists who consume in the new spaces. The Jardín Circunvalar is not built for the people with little education and little ability to survive in the urban capitalist economy. Those are the ones who end up being expelled from their houses and facing again multiple forms of social and health and food risks. There is now this idea of false and impossible competition between residents of comunas and higher classes/visitors that are now the emblem of a new Medellín (interview with community leader, 2016).

The approach of disciplining nature offers new landscapes of pleasure and recreation to creative-class visitors who come to the beautified and orderly comunas for leisure and recreation.[10] It is amplified by the relatively new phenomenon of 'slum tourism' (Frenzel and Koens, 2012): access to Comuna 8 has been facilitated by the new cable car and the securitization of the surrounding areas by police and transit officials. In these new landscapes, long-term residents are being socially and/or physically displaced from the newly remade and rebranded green space. Questions of interactional justice—the recognition of different uses, practices, preferences and needs in green infrastructure planning—are at stake here (Kabisch and Haase, 2014) as Medellín rebrands itself nationally and internationally as a green and livable city. The urban territories of the comuna residents have been grabbed for nature conservation, as has happened in many rural communities around the world whose land has been transformed into natural reserves (Robbins, 2011).

Our fieldwork revealed that EDU planners conceived official social use of the Jardín Circunvalar primarily from an urban perspective—for inner-city residents who lacked easy access to public green spaces and parks and who could now enjoy an almost rural and 'natural' space in the upper parts of Medellín, even if it is surrounded by heavy concrete and stone-supported walls and pillars, which residents see as 'scarring' the landscape. The local community can hence become dispossessed from their greatest assets (location and land) under the utilitarian rationale of serving the greatest public good (offering parks and vistas and containing urban growth). Green gentrification here takes on a new form, whereby low-income residents living in informal settlements are replaced by a transformed and newly valued nature—and not only by Medellín's middle- or upper-income residents. In other words, Medellín's biophysical resources are being subordinated to a neoliberal logic and the practices of negotiated political compromise, green space privatization and common resource enclosure at the expense of local communities. This process occurs via the commodification of natural resources (Castree, 2008).

Coupled with the perception that EDU is making and branding the Jardín Circunvalar as a project for more socially privileged residents, there is increasing fear among long-time residents that real-estate prices of areas adjacent to the Jardín Circunvalar and the cable car stations (Metrocables) will surge, and that only a few residents who are located close to these will benefit from this. Municipal councilors and planning experts concur with this view and further argue that the greenbelt may raise land and utilities prices, lead to local residential or property tax increases, to new real-estate projects being permitted under a 'state of exception' (Vainer, 2011), and eventually to changes in the social composition of hillside communities. In other neighborhoods, the Cinturón Verde has already attracted new real-estate investments, including two projects by Macca Immobiliaria and Immobiliaria Pymsa in Sector Las Palmas in El Poblado at an altitude of 2,180 meters, which is above the altitude limit set for new

10 These have not yet been developed for residential use, although this has happened in some areas in the favelas of Rio de Janeiro that, like Medellín, are subject to violence.

constructions in the Cinturón Verde.[11] Such projects pave the way for new hillside real-estate developments under a state of exception.

In response to these land changes, residents from Comuna 8 have developed proposals for the recuperation of land and nature through a community memory approach. Their goal is to build social trails that trace and make explicit the collective trajectory of displacement and relocation of residents on the hills of Medellín in the context of violent conflict and 'natural' disasters. According to these residents, memory should be recuperated and visibilized in community spaces and projects. This approach builds creatively on projects such as the Jardín Circunvalar, rather than relying only on museums, such as the Museo Casa de la Memoria, inaugurated in 2012 at the foothill of Comuna 8, to understand, examine and overcome the legacy of the armed conflict and the diverse types of violence in the country. An active community leader stated that:

> Memory is not only connected to ongoing hard work and to community-building practices in the territory. It is also connected to traumatic experiences regarding land dispossession and the memories of loved ones lost to violence in previous lands and this new territory (interview, 2016).

Residents propose using green spaces to address trauma and displacement by promoting traditional recreational and productive uses of nature and open space, offering interpretative paths through meaningful community sites, and confronting the criminalization and manipulation of community practices of land use and occupation. They also denounce and visibilize land invasion and development (for example, in Vía de las las Palmas) by local construction companies and real-estate groups, whose activities (such as 'parcelization'—conversion of rural land into parcels for housing construction) have actively or passively been condoned by elected officials.

The exclusion of community voices and uses is best characterized by the way in which EDU has enclosed and formalized urban agriculture in the Jardín Circunvalar. EDU seems to have co-opted the theme of urban agriculture to impose its own vision of what forms and aesthetics urban farming should take and by dismantling existing farms and community gardens where residents had been growing food for community sale and benefits, as our field observations revealed. These farms and gardens were deemed illegal, as well as unappealing and undesirable. Yet comuna territories and housing layouts allow residents to maintain and pass on to new generations some of their rural customs, including communal and micro-farming practices. While these farming traditions help supply nutritious foods and nurture a sense of community and place, they also ease the transition and adjustment of residents towards the demands of urban living (Irazábal and Punja, 2009).

During the construction of the Jardín Circunvalar, EDU created a new urban agriculture program, in the process eliminating small gardens through direct destruction or through relocation of residents. It selected several parcels of land now managed by some families from Comuna 8 to grow vegetables in formal gardens and sell them at high-end farmers markets such as the Sunday El Poblado farmers market in the South of the city. Observation of farmers markets revealed that agricultural products are marketed to white, wealthy South Medellín residents searching for local, fresh and healthy food. In other words, urban agriculture has now been preferentially subordinated to the expectations (of 'organic' and 'healthy' food) of high-income urban shoppers, who are seen to be following acceptable eating habits and displaying progressive environmental behavior, and subjected to the vision of what is regarded as aesthetically acceptable and 'green' in a city in search of a marketable, sustainable image (While *et al.*, 2004). An

11 From http://www.maccainmobiliaria.com.co/Ficha_Proyecto.asp?xId=436340 and http://www.inmobiliariapymsa.com.co/properties/lote-en-parcelacion-en-cinturon-verde/ (1 April 2018, no longer available online).

architect working at a local university highlights the centrality of the image of urbanity within the planning process:

> The problem is that Medellín as a city does not seem to consider the rural very much in its planning—it is very much focused on the urban—even though it also puts so much emphasis as a municipality on urban growth control (interview, 2016).

Staff members from the EDU Urban Agriculture (UA) program seem to favor a professional type of urban farming because through it they can formalize and insert farmers into authorized market circuits and control their production, sales and income. UA has been integrated into the local capital economy within formal market circuits. EDU staff members are the ones who present and defend the UA initiative, market products and articulate their views on UA—rather than the few farmers themselves who sell at those markets. Nature here is a product and resource to be tamed, transformed and re-regulated within a dominant market ideology (Harvey, 2007; Castree, 2008) to legitimate elected officials' urban vision and the food preferences and practices of more privileged residents.

As several residents and experts mentioned, and as interviews with EDU staff revealed, the UA project was planned in a top-down manner that patronized community relationships, values and foodscapes. Furthermore, it did not recognize the social construction of the habitat by long-term residents, especially the way in which these residents used local land to preserve their traditions and secure their livelihoods. EDU staff members also articulated an exclusionary discourse about the practices of Comuna 8 residents related to agriculture and nutrition. They invisibilized and flattened the foodscape and sustainability practices of residents by claiming that residents did not know how to farm in a productive way, did not eat healthy food, and had no knowledge of 'good' nutritional habits (interview, 2016). EDU staff members also seemed to accept only those whom they regarded as professional farmers in the Jardín Circunvalar, to facilitate the monitoring and controlling of their practices—and thereby the territory where urban agriculture is officially practiced and sponsored.

To address their loss of communal practices, livelihoods and identity, community members proposed an alternative plan for a resident-led agricultural belt and agrarian district to highlight the importance of open space as productive land and not only as recreational public space. An architect had been engaging with the municipality and with residents for years supported this approach:

> The productive border is key. The municipality needs to tune down its emphasis on public space and put more weight on urban agriculture. The municipality also needs to give a productive use to the land. It needs to also use the strengths of the community rather than consider them assisted residents. People are self-organized, they have done a lot of self-construction (interview with architect, 2016).

Comuna residents had, over time, demonstrated their ability to manage their own land through low technology, vernacular practices and materials, replication of traditions and a strengthening of the relationship between community and territory and between the city and its rural hinterland. Yet their alternative plans for income generation, livelihood protection and environmental management of their territory have so far been largely ignored by EDU. This is a betrayal of various bottom-up planning and neighborhood-regeneration proposals developed by community organizations, local universities, experts and residents during the 'golden' era of Medellín's 'social urbanism'. Thus, the voices and capacities of residents are being muted through this process of top-down urban agriculture promotion.

Rural-to-urban migrants who have settled modestly in Medellín are thus confronted by a new capitalism crisis, whereby a process of renewed accumulation by nuanced green dispossession and displacement renders some of them disposable once more—a mere inconvenience hampering the capture of a new frontier of capital accumulation via new land uses, flagship green projects and real-estate projects coveted by a city with global aspirations. Here, green gentrification, by which the city heightens its attractiveness to higher-income classes, tourists and investors, has resulted in a new wave of dispossession and displacement (from traditional access to and use of nature) of residents already leading precarious lives.

Conclusion: compromising a just and green city

In this article, we contribute to the growing critical literature on urban greening and resilience planning by examining the ways in which green infrastructure interventions reproduce or exacerbate socio-spatial inequities, especially in informal settlements in the global South. Our research in Medellín illustrates that local governments, planners, and building companies and developers often promote new environmental projects in ways that transform existing urban development patterns to produce socio-spatial control and environmental, distributional and procedural inequalities.

The case of Medellín's Cinturón Verde greenbelt project reveals the uneven enforcement of land-use regulations, relocation and evictions in the name of environmental risk management, growth control and climate adaptation. In the context of green infrastructure planning and exclusive planning processes, these practices allow wealthier formal settlements to remain in place and even to grow—despite risks—and to benefit from new green spaces, while residents of poor informal communities are displaced or relocated. In Medellín, greening, sustainability and resilience discourses and interventions collectively produce social and physical isolation, as well as cultural, economic and physical displacement, and distress in vulnerable urban residents.

These green discourses and interventions also produce newly redesigned and recreated 'natural' landscapes of pleasure and recreation for specific groups—what we call landscapes of (green) utopia (Anguelovski *et al*. 2018), while overlooking the importance of social cohesion, political recognition and livelihood protection for the long-term wellbeing of low-income communities. In this sense, the creation of ecological enclaves through green infrastructure projects of this scope can jeopardize long-term municipal efforts to create a more just city. This ambitious environmental framing with its clearly stated ecological goals nevertheless leads to avoidance of politically difficult questions about the fair distribution of costs and benefits of greening the city. The global appeal of urban green projects is instrumentalized to absolve project leaders and beneficiaries from addressing the needs of socially vulnerable residents more effectively.

We see here a threefold combination of displacement and dispossession by green accumulation: the forced physical displacement or logistically and socially complex relocation of families living in the area of influence of the greenbelt (versus the accumulated privileges of upper-class residents and developers, whose benefits and permanence are not being questioned); the displacement of vernacular uses and imaginaries of landscapes and nature in favor of elitist ones; and the displacement of traditional voice, participation and decision-making power in neighborhood development projects by top-down, hard-infrastructure-driven planning—all through the creation of new landscapes of privilege and pleasure in Medellín.

This study also illustrates the presence of two competing visions of nature and sustainability. The first one is defended by the Municipality of Medellín, which has crafted an urban vision of growth control and territorial ordering by, first of all, building a greenbelt that relies heavily on hard infrastructure as opposed to community-sponsored green projects. Secondly, nature is imagined and transformed according to

a manicured aesthetic for green infrastructure (seeming to appeal, in reality, to more socially privileged visitors) and exogenous productive assets (commodified agriculture), in contrast to more endogenous communal spaces and forms of agriculture traditionally practiced by the community. Community-based agriculture has no space in this vision. Even when EDU staff attempt to support urban agriculture gardens, they do so with a view to disciplining 'undesirable' nature and integrating it into the local capital economy. Public authorities control gardeners by ordering, recreating and sustaining a structured nature according to an official municipal top-down vision. Many comuna residents, by contrast, defend their urban agriculture as a socially and environmentally sustainable practice that should be protected. Our study highlights how sustainability fixes can be limited by producing not only tensions between ecological, economic and social agendas (Macdonald and Keil, 2012; Tememos and McCann, 2012), but also competing visions for nature and for accepted social and environmental practices and aesthetics.

Furthermore, this article illustrates the perils associated with a lack of both explicit planning for equity in municipal neighborhood sustainability projects and strong political leadership to address distributional and representational equity—even in cities such as Medellín, where equity planning has had a relatively well-established and respected tradition. It highlights one unresolved key challenge for land-use and sustainability planning: how to address conflicts and controversies that emerge in the wake of the implementation of sustainable development and livability initiatives (Godschalk, 2004; Godschalk *et al*., 2003) and the deployment of new visions for urban nature and nature use. As the example of Medellín illustrates, urban sustainability planning, resilience interventions and the process of bringing nature back into the city are often romanticized and simplified, and might actually reify the inequities of old urban renewal schemes in city development. Although the metropolitan government of Medellín, the Área Metropolitana del Valle de Aburrá, is perhaps one of the best and most effective in Latin America and has improved metropolitan coordination and comprehensive territorial planning, the Medellín greenbelt planning process and outcomes reveal how commitment to a green, smart, resilient and livable city can be at the expense of the needs and identities of lower-income residents in favor of a so-called 'common good'.

The disenfranchisement of low-income and non-white peoples to which green gentrification has led in cities of the global North (see, for example, Gould and Lewis, 2017, on Brooklyn in New York City) is compounded in the context of the global South (exemplified here by Comuna 8 in Medellín) by further displacement of the displaced to the point where the negative effects of accumulated dispossessions become severe. Rural-to-urban migrants, who tend to make up a large percentage of the population in urban informal settlements (at least 40% in the case of Comuna 8), originally had no other option than to migrate to the cities from their rural places of origin—mainly owing to civil-war-related violence in the case of Colombia, aggravated by factors such as disinvestment in rural areas, mechanization of agriculture that displaced labor, lack of livelihoods and a combination thereof, both in Colombia and elsewhere in the developing world. The currently displaced or at-risk-of-displacement urban settler in informal settlements, such as in Comuna 8, given new green gentrification and urban growth management projects and dynamics such as the Medellín greenbelt, now has no clear place to go to. A return to their original rural communities would mean confronting multiple risks, from total destitution (as land will have been grabbed) to chronic or fatal violence. Displacement within the city, however, would force low-income urban settlers of Comuna 8 (and settlers in other, similar contexts) to move further away from this new frontier of capital accumulation that the city is intent on capturing (in this case, the territory of Comuna 8) to urban, peri-urban or ex-urban territories, where carving out a living may be even more challenging than in their present location. In such contexts, processes of green gentrification and urban growth

management render low-income residents disposable; they represent the collateral damage to Medellín's 'highest aspiration' of becoming a globally recognized 'sustainable city'.

In response, how can planners better address growth and climate risks in tandem with equitable community development? While those in charge of the restoration or creation of new green amenities are focused on enhancing the quality and quantity of urban commons with a strong environmental value, they often neglect the effects of their plans on the socially most vulnerable groups that live in the 'benefiting' neighborhoods. In the context of climate-change adaptation and resilience planning, it might well be that socially vulnerable groups are—as climate justice scholars have already demonstrated (see Parks and Roberts, 2006; Irazábal, 2010)—bearing the brunt of climate-related effects while having contributed least to carbon emissions. They also often seem to benefit least from adaptation projects such as greenbelts. Accumulation by dispossession resulting from green gentrification in the context of the global South may be the last stripping the subaltern subject can endure. In this context, the question is no longer: Can the subaltern speak? (Spivak, [1988] 2010), but rather: Where can the subaltern *go* in next wave of displacement and dispossession? Where can the subaltern live? Can the subaltern live?

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