

Title: Grabbed urban landscapes: Socio-spatial tensions in green infrastructure planning in Medellín

Journal: International Journal of Urban and International Research

This is the peer reviewed version of the following article: Anguelovski, I. , Irazábal-Zurita, C. and Connolly, J. J. (2018), Grabbed Urban Landscapes: Socio-spatial Tensions in Green Infrastructure Planning in Medellín. Int. J. Urban Reg. Res., which has been published in final form at <https://doi.org/10.1111/1468-2427.12725>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions.

Authors:

Prof. Isabelle Anguelovski (corresponding author: Isabelle.Anguelovski@uab.cat)

Prof. Clara Irazábal-Zurita

Dr. James JT Connolly

Postal address:

Isabelle Anguelovski, PhD
ICREA Research Professor
Director, Barcelona Lab for Urban Environmental Justice and Sustainability
Universitat Autònoma de Barcelona
Address: Carrer del Dr. Aiguader, 88, 08003 Barcelona, 112-04

Funding:

Research supported by the MINECO Ramon y Cajal grant program (RYC-2014-15870 and by the EU H2020 ERC project GreenLULUs (GA678034)

Acknowledgements:

We'd like to express foremost gratitude to the people of Comuna 8 who generously shared their knowledge and their community with us. We also want to recognize the contribution of academic and government official interviewees from multiple institutions, and planning studio participants from Universidad Nacional de Colombia, Medellín and Bogota; Universidad Pontificia Bolivariana, Medellín; Universitat Internacional de Catalunya; and Columbia University. This paper was also made possible by Lia Brum's Master's thesis on green infrastructure planning in Medellín. Lastly, we dedicate this work to Jairo Maya, late leader of Comuna 8 and contributor to our work.

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 to 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 class and for tourists. In contrast, communities' planning alternatives reveal how green planning can better address growth and climate risks in tandem with equitable community development.

Grabbed landscapes of pleasure and privilege:

Socio-spatial inequities and dispossession in infrastructure planning in Medellín

Introduction

Cities confronted with unsustainable development and growth patterns and 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 and approaches for urban resilience, green infrastructure, and adaptation planning, the socio-spatial implications of concrete interventions have not been as much of a focus, especially for self-built settlements in the global South. Self-built settlements are an important conceptual, political and socio-spatial category because of their global scale and the fact that there has been a 28% increase in the absolute numbers of slum dwellers over the past 24 years (UN-Habitat 2016, 57-58). Attention to self-built settlements in the context of resilience and adaptation planning is also critical because of the long trajectories of displacement, relocation, and vulnerability to new evictions and unsecure land tenure that their residents often face.

The residents of self-built settlements are often the first to be victimized or blamed in case of “natural” disasters, uncontrolled growth, illegal land uses. They also 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 have the freedom to go on unencumbered (Anguelovski et al. 2016). Yet, climate adaptation or resilience-related interventions have implications for distributive justice (Chu et al., 2015, Bulkeley et al., 2013), 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 (Leichenko, 2011, Anguelovski et al., 2016, Irazabal, 2010).

With municipalities increasingly employing sustainability, “smart city” planning, and (climate) resilience discourses to justify new green infrastructure, 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 inter-related 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 urban economic expansion that lead to erasure of the social infrastructure for some established communities. Second, 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, third, resettlement sites for the urban poor that are moved in the name of public health concerns or ecological upgrading might not be free from hazard risks and might lack access to livelihoods and social networks (Keenan, 2018, Anguelovski et al., 2016)

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 (Irazábal, 2016, Shatkin, 2004). In this mode, whether built in the name of 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 environmental gentrification – the “displacement or exclusion of the most economically vulnerable human population while espousing an environmental ethic” (Dooling, 2009). Gould and Lewis (Gould and Lewis, 2017), p. 1) call it

“green gentrification,” arguing that in some circumstances a greening initiative “richens and whitens,” especially so as 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 paper 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 a greenbelt (Cinturón Verde) project planning and development in Medellín, Colombia – involving the construction of a 74 km² 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 those new landscapes, metropolitan areas are transformed toward an aesthetically controlled and ‘acceptable nature’ for some. Here, we respond to recent calls for research on the 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). Our goal with this paper is to offer a critical exploration of large-scale urban green infrastructure; to provide a complementary and alternative analysis to the commonly shared positive marketing about the Cinturón Verde (and its pilot project Jardín Circunvalar (Encircling Garden) in particular, the latest of which at the 2018 IPCC Cities conference in Edmonton); and to analyze the perception, experiences, and perspectives of different residents, community leaders, municipal planners, and planning scholars who have worked, observed, or lived during 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 mega-projects 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 green belt 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 privilege for upper class locals and visitors. We find that, as the municipality of Medellín is trying to contain and beautify low-income neighborhoods, some local communities are becoming 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 are not yet physically replaced here by wealthier newcomers, the retrofitting of their neighborhoods makes space for visitors enjoying new greenery, creates formalized, enclosed, and disciplined green spaces, and promotes the production of agricultural goods to be sold to upper classes in El Poblado's farmers' market. As a consequence, the Medellín greenbelt creates new landscapes of pleasure and privilege that slowly penetrate the self-built and traditional lifestyles of low income communities accumulating value through (green) dispossession and appropriation (Harvey, 2007).

The next section reviews 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 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 (Sotomayor, 2017, Franz, 2017, Angotti and Irazábal, 2017). After presenting our case study of Medellín's green belt project, we analyze 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

Labeled Latin America's "smartest city" (Future Cities, 2017), 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 (e.g., Parque Arvi and Medellín River Park). Knowledge economy workers, who tend to be wealthier and whiter, have a high degree of freedom to choose cities that provide amenities like access to high quality green spaces. This is why new green amenities are a part of the argument for why Medellín's new Innovation District – a cluster of companies, entrepreneurs, and institutions focused on growing the local advanced service economy – will succeed (Franz 2017). In this way, 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 (Landry and Chakraborty, 2009, Heynen et al., 2006, Hastings, 2007, Park and Pellow, 2011, Dahmann et al., 2010). 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 present 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 meant to generate a more compact urban growth pattern, protect agricultural and natural areas, reduce overall greenhouse gas emissions, and providing permanent carbon sinks for existing emissions. Scholars in urban political ecology, urban geography, and urban planning, though, 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 focused 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 this circumstance, rather than protecting urban commons, sustainability planning and implementation reproduces a logic of private capital accumulation (Keil, 2007, Gibbs and Krueger, 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 as 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), p. 146). Greenbelts have been examined as sustainability fixes that encourage new infrastructure projects and threaten the livelihoods and ability to stay for certain groups of existing residents (Macdonald and Keil, 2012). As urban growth agendas become embedded in large-scale projects like these, green policy becomes necessarily contested as a vehicle for privileging economic competitiveness over social and environmental goals (Walker, 2016, While et al., 2004, Hof and Blázquez-Salom, 2015, Long, 2016). Importantly, sustainability fixes involve efforts to erase contestation and can have the effect of muting demands for social justice (Long, 2016). The 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, Macdonald and Keil, 2012, Keil, 2005, Temenos and McCann, 2012).

Medellín’s Greenbelt is also a resilience measure through growth control, ecological restoration, ravine protection and recuperation, and risk mitigation (EDU and Alcaldía de Medellín,

2013, Agudelo Patiño, 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, Anguelovski et al., 2014, Carmin et al., 2012). However, climate impacts and the actions to reduce these impacts are interwoven with local socio-economic and political contexts that constrain mitigation and adaptation planning (Bulkeley & Tuts, 2013; Friend & 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 (Anguelovski et al., 2016, Bautista et al., 2015). 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 (Matyas and Pelling, 2015, Fainstein, 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, Pelling et al., 2014, O'Brien, 2012).

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 case of Medellín represents an example 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 like the greenbelt are indicative of numerous urban interventions presented by policy and planning agencies in an apolitical manner that purports only benefits for all, but are subject to an increasing scrutiny over the extent to which these benefits are in fact targeted to the most well off (Checker, 2011). As such, the planning

and development of the Greenbelt provides important insights into the extent to which the theoretical critiques of the current smart-sustainable-resilient planning orthodoxy, which were mostly developed through analyses of cities in the global North, extend to global South cities that are embracing this orthodoxy like Medellín (Angotti and Irazábal 2017).

Methods

This paper 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 from an image of violent crime and drug trafficking to a welcoming and safe place (Franz, 2017; Sotomayor, 2017) in tune with its environment (Alcaldía de Medellín, 2015). Thanks to ‘social urbanism’ and ‘urban acupuncture’ projects targeting the urban poor and to the construction of new infrastructure, Medellín has received several international awards, including the accolade of “most innovative city of the world” (Urban Land Institute, 2013) 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.”¹ Announced in 2012, the Metropolitan Greenbelt (72 km long with a projected cost of US\$249 million) is part of this process of urban reinvention (Sotomayor 2017; Franz 2017).

We collected data for this paper during three phases of fieldwork in Medellín (2013, 2016 and 2017), which correspond to different stages for the Greenbelt – the design, planning, and the completion of a pilot phase of the project. Our data collection included interviews with urban planners from the Municipality of Medellín; staff members of the Urban Development Company (called EDU) – the public corporation in charge of implementing the Greenbelt; staff from the Public Utilities Agency; Colombian planners, engineers, and architects; university scholars who worked as expert

¹ For more information see: https://www.leekuaneyeworldcityprize.com.sg/laureate_Medellin.htm

consultants during the planning and implementation of the Greenbelt and also provided technical support to community groups concerned about the social impacts of the Greenbelt; and community members and leaders of low-income neighborhoods impacted 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 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 Irazabal, 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 has taken place during the greenbelt planning and where much of the greenbelt pilot phase was implemented. From the date the Greenbelt was announced, its members formulated and expressed numerous concerns about the social impacts of the project on the territory of the comuna. As part of our fieldwork, we also observed meetings between municipal planners and residents. Last, we analyzed press releases, newspaper articles, and media production about the Greenbelt, risk maps, and 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 Bio 2030 (developed in 2010-2011), the 2015 Territorial Organization Plan (POT), and Integral Urban Projects (PUIs). Overall, data was collected at different points in time and complemented by written exchanges with interviewees after the fieldwork periods, with the latest data collection 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.

The initial development of the Greenbelt in Medellín (2012-2017)

Climate change is having a disproportionate effect on tropical zones, where fragile ecosystems are largely unaccustomed to seasonal shifts in weather (Intergovernmental Panel on Climate Change,

2014). Risks of climate disasters in Medellín are derived from a higher prevalence of torrential downfalls because of a prolonged rainy season; an increase in the frequency of extreme rainfall events; extended dry periods exacerbating the instability of sloping soils; and increases in temperature affecting the Andean ecosystems that supply water for urban areas.

Throughout Medellín, about 180,000 households are located on hillsides and ravines 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 has led to inadequate structural foundations and poor building placement (local interviews with engineers, 2014). Up to 50% of the residents living in “high risk” zones in self-built communities in Medellín are poor rural-to-urban migrants, internally displaced people within Colombia from the decades of armed conflict plaguing rural areas with guerrillas, paramilitaries, and drug traffickers (Tovar-Restrepo and Irazábal, 2014). Yet, 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 building projects are constructed on highly unstable sandy land.

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 address several land use and ecological challenges, namely to restrain unregulated growth² and sprawl in the hillsides around the city; protect water basins and forests key to the region’s biodiversity; control climate change effects; and reduce risks of landslides during extreme weather events (Alcaldía de Medellín, 2015, Agudelo Patiño, 2013).³ As a pilot project within the greenbelt, the Jardín Circunvalar is meant to relieve the territory from formal and informal land pressure. In that sense, this green infrastructure project is ambitious and laudable with clear goals of growth control and protection of residents and infrastructure from landslides. Its commitment to key environmental concerns presumes benefits to be

² From 1955 to 2013, the population of Medellín expanded dramatically from 500,000 to 3 million residents, a growth driven by industrialization and rural-to-urban migration due to the armed conflict.

³ See also the official website for the project: <https://cinturonverde.wordpress.com/tag/cinturon-verde-metropolitano/>

universal, urgent, indispensable, and long-term. Original ideas for the Cinturón Verde also included urban and rural integration, the 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 Campeones⁴) and hiking trails (Camino de la Vida⁵), among other interventions. However, discussions around the mobility plan are ongoing.

The Greenbelt project is most embodied today in its pilot project, the Jardín Circunvalar (Encircling Garden), on the Pan de Azúcar mountain in the Northeastern part of the city in the self-built settlement Comuna 8, an area made of 34 smaller neighborhoods. 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, even though this number approaches the 40,000 households (to account for the non-censed households that tend not to report themselves when located in high-risk areas) (Urban Planning Studio and Irazabal, 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 some residents' homes. Residents also had community gardens at the foot of the mountain peak, a reflection of many of the residents' rural traditions and reliance on land for their livelihoods. Some of the Jardín Circunvalar construction workers included Comuna 8 residents. The piloting of the JC project in Comuna 8 made the community the most vocal comuna in Medellín resisting the way the project was top-down proposed and proposing bottom-up alternatives. Comuna 8 reached out to other comunas bound to be affected by the Greenbelt project, thus leading a larger city-wide mobilization effort.

Defined as an ecological park and natural reserve made of walking trails, recreational areas, and ecological education programs, the Greenbelt is also being implemented in coordination with existing and new local plans. Initially, the Plan Director Bio 2030 (written in 2010-2011) for Medellín

⁴ <https://cinturonverde.wordpress.com/tag/ruta-de-campeones/>

⁵ <https://cinturonverde.wordpress.com/tag/camino-de-la-vida/page/2/>

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 a strategic territory and proposed the creation of a network of protected areas, of which the Cinturón Verde, whose plan was developed in 2012-2013, is meant to be part. Later, the municipality of Medellín adopted a new Territorial Organization Plan (POT) in 2015 and included measures to harmonize the city's relationship with its natural environment, among those the Cinturón Verde. In this plan, Medellín is also planning to add Integral Urban Projects (PUI) and comprehensive development projects in ravine areas (in Santa Elena and La Iguaná) Overall, for the 72km of land it covers, the Greenbelt plan is expected to directly impact 230,000 residents who live in the designated territory of the belt and above the new urbanization limit of 1,800m of altitude, (Municipality of Medellín 2013; Agudelo Patiño 2012). The Greenbelt includes three zones (see figure 1):

- A Protection Zone that is 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 receive metropolitan parks, farming projects, education gardens, bike paths, and risk mitigation measures.
- A Consolidation Zone meant to “Re-conquer the Valley” with 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.

ADD FIGURE 1 HERE

The construction of such a project is possible thanks to Medellín's sophisticated and complex planning institutionality. In Medellín, different agencies (Area Metropolitana del Valle de Aburrá (metropolitan planning agency), the city planning department, EDU (Empresa de Desarrollo Urbano – Urban Development Agency), and EPM (Empresas Públicas de Medellín – Public Utilities Company) have different degrees of political and economic power and areas of planning foci, although with some overlap. This sometimes makes for difficult collaboration or outright competition and antagonism between them. In addition, they have different traditions and mandates for dealing with

the public, which makes for uneven participatory processes of decision-making. Although there has been significant continuation in the planning agendas of the last mayors of the city, there have also been some challenges with the passing of administrations. 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 costs of the project the previous administration advanced in Comuna 8 (including new streetcar and cable car lines and stations) and the larger JC plan, which he feels have compromised his administration. As a result, work in the JC has virtually halted and instead focus is being directed towards the revitalization of the Medellín River’s park project (Proyecto del Río).

Through the planning and construction of the Jardín Circunvalar, one of the most delicate interventions that the municipality is facing is the relocation of thousands of residents living on unstable terrain or on the site of greenbelt infrastructure. Relocation efforts are accompanied by programs to educate residents about the risks facing their homes and lives, and to suggest preventative measures that will increase safety. However, since its inception, the Greenbelt project has brought up what some community groups saw in the studio course as “a belt of questions” (Urban Planning Studio and Irazabal, 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? How will the city respond to marginalized residents’ concerns? And finally, who is the Greenbelt actually for? (Brum, 2013). We examine these questions in our next section.

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 space and infrastructure. On the one hand, the JC is bringing much needed accessibility (through new streetcar and cable car lines (Metrocable Línea H) servicing the Comuna, as well as pedestrian paths and public spaces along, around, and above the transit lines

and stations (Villa Sierra area), sturdier infrastructure to withstand heavy rains, new amenities and security (with the new transit infrastructure associated with public spaces and guards). Yet, on the other hand, our analysis reveals that a triple 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 over 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 1990s, the first POT (Territorial Ordering Plan) of Medellín called for inwards city growth and for 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 to enhance the quality, connectivity, and use of public transportation throughout the metropolitan area.

The Greenbelt project announced in 2012 follows logically from the 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 is not only meant to protect the high mountainous environment around the city – harmonizing the border between the rural and urban realms – but also serve as a strategy to contain and intensify urbanization and prevent its expansion into high-risk areas prone to disasters. This 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 breach between the formal and the informal city, and producing a more balanced urban fabric (interview local architect and top planner in the Planning Department, 2016). The Greenbelt and the Macro-project of the Broder are focused in different ways of building resilience in communities living in high-risk areas (Comuna 1, 8, 13, and Nuevo Occidente).

Yet, since the beginning of the Greenbelt planning process, community concerns have emerged over 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 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 was originally forecasting to relocate 6,600 households (but possibly up to 39,200 households) that were located in what were deemed as non-mitigable risk areas (Green Belt Plan, XXX, Urban Planning Studio and Irazábal, 2013), residents oppose eviction and relocation to areas considered as complicated, such as creek setbacks, where regulations are traditionally disregarded. Over 155,000 people live in Comuna 8, and 40% of this population has been displaced from rural areas by violent conflict, and 1-4 families continue to arrive every day according to a door-to-door survey done in 2010. Comuna 8 received 15,600 displaced people just in 2011 (Urban Planning Studio and Irazabal, 2013).

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 preservation of 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 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 (Territorial Ordering Plan) 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).

Further, the 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 Irazabal, 2013). This discrepancy demonstrates how data are constructed and selectively used 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 associated with 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 risk areas to justify housing clearance, green belt infrastructure, and selective housing construction. Many residents of the poorest comunas fear that, as construction plans get further implemented, they might be forced to live in one-size-fits-all multifamily housing towers in other parts of the Comuna or city rather than being relocated directly where they live or benefiting from risk mitigation measures in situ (Urban Planning Studio and Irazabal, 2013), interviews, 2016). Many of those towers are located away from jobs, sources of income, and social networks, and resident relocation seems to only include a minimal compensation of US\$3,000 per unit. Residents also denounce new apartments that might only be a fraction of their current unit sizes. They claim that the municipality is manipulating words such as "Sustainable Neighborhoods" (Barrio Sostenible is an EDU program) as a pretext to expropriate residents living in the Greenbelt's Transition Zone without considering how to achieve a more comprehensive improvement of the poorest neighborhoods living in the borders of the city.

According to resident testimonies collected in 2017, an indeterminate number of resident displacements have happened in Comuna 8 for the new constructions associated not only to the JC but also to 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 getting access to a new housing resolution on their own. A few of these people have selected to remain in the comuna nonetheless, overcrowded in the houses of relatives. Complementary, according to a 2017 field visit's observations and city planner's interview, new housing has been built near the comuna to relocate some of the people displaced due to topographic- and soil-related un-mitigatable risk, space allocation for new infrastructure, and poor material conditions and overcrowded housing. However, the process of relocation is going painfully slow for multiple reasons, including resistance of residents, some of who have even challenged the orders in court. Further, often, relocating some of these households does not simply imply the creation of a replacement unit (more generally an apartment) elsewhere, but rather two or three new housing units to eliminate overcrowding.

Adding greater complexity and cost to these operations, when large households are split in 2 or 3 new units, they need to be state-subsidized to be able to cover housing, utilities, and tax expenses, since they are now legalized, and cannot pool resources as they used to in a single household. This state subsidization is enlarged both in terms of money and time by the fact that household relocation usually implies ascension of social stratification, an official zoning mechanism in Colombia that distinguishes 1 (lowest-income) to 6 (highest-income) strata associated with equivalent cost of utilities. Thus, a 1 or 2 stratum household in Comuna 8 relocated to a higher stratum would sign a contract with the municipality by which the cost of utilities associated to its previous lower stratum would be honored for several more years. While this strategy intends to give the relocated households time to improve their socio-economic conditions and afford their new service rates, it is expensive.

In contrast, not only are higher-income communities granted the right to stay despite the Greenbelt project, but also 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 (e.g., Vía de las Las Palmas) have been built beyond the city's height border. Gated communities like Alto de Escobero, next 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 providing 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 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 city limits, close to residents' homes, whose presence is not being questioned by the municipality despite the fact that it is against the law to have it there (POT Regulation, Section 209 prohibits military bases within municipal boundaries). This military presence is particularly painful 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 so in a context in which its land could be used for the construction of new housing for residents living in near-by non-recoverable risk areas:

The military [base] is surrounded by victims of the conflict. There is a large military base within city limits (which is illegal) and, within Comuna 8, the community advocates that the base is moved out of 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 (Community leader, interview 2016).

Residents and experts alike perceive EDU's approach as one that neglects territorial planning in favor of what several community residents and former municipal planners see as "territorial ordering." A concern was regularly expressed that EDU failed to consider the socio-spatial organization and socio-economic dynamics and needs of certain areas within the Greenbelt's territory. EDU is perceived as having privileged the urban-rural border on the periphery, imposing large flagship projects on this border (e.g., the multi-purpose UVA community centers, the green infrastructure of

the Cinturón Verde, or transport infrastructure), rather than more comprehensively and integratively developing the territory. Its approach has been heavily managerial and engineering-driven, with the approval of projects primarily benefitting Medellín large construction companies, as several community and expert respondents remarked. In contrast, incremental and community-driven projects to improve communication, transportation, housing, or social development for the lower-income residents of the comunas have been pushed aside.

In many cases, the large and visible infrastructure projects drive growth rather than decrease it, and they 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 put a monorail. [Instead,] [s]trengthen the slopes-valley connections” (2016). As planners and experts from different public and private agencies argued, in a valley, especially that of Aburrá, the transition between the urban and the rural realms and the connection with other parts of the country are not simple to address and needs to be address via integrated local plans. This transition is not linear, and a border by itself like the Cinturón Verde would not solve it. The border is not homogeneous, there are different conditions needed to be considered and integrated in a comprehensive management plan for the territory – including those of rural neighborhoods outside the boundary in terms of livelihoods, connectivity, and land management. In this systemic view, the Cinturón Verde cannot be the only strategy of growth management.

Furthermore, the Greenbelt planning reveals a form of institutional mismatch. First, the relocation of poor residents and 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 will be lower than the number of units being lost. Second, they 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 through time in the Comunas. While the Greenbelt is meant to be expanded to the metropolitan valley, the surrounding municipalities’ Territorial

Organization Plans (POTs) have not yet incorporated the Greenbelt (and its impacts) into their land use plans.

Last, the planning of the Medellín Greenbelt illustrates a rupture with the tradition of social urbanism, through which the municipality had recently privileged and encouraged residents' participation, input, and street knowledge to address urban development challenges in the city. According to comuna residents, former municipal staff, and technical experts, EDU has worked strategically on its own to develop the Cinturón Verde while marginalizing local university and community-based experts. In their views, 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. One of the Medellín's former Chief Planner explains:

The problem is that the Greenbelt project has been poorly managed since it was announced. The manager of the 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 which felt especially misdirected in a city like Medellín coming from a tradition of social urbanism and progressive planning. Some of them also blame Gaviria for bringing in managers of municipal agencies, like EDU, through cronyism, without the technical capacity to lead urban projects and without the commitment and managerial skills to build relationship with the municipal planning office and community groups (2016 and 2017).

In response to both procedural and substantive concerns over the planning of the Greenbelt, residents in 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”: (a) the social and ecological function of property; (b) the direct participation of citizens in decision-making; and (c) the equitable distribution of costs and benefits of urbanization. Many residents have also demanded the creation of a Dialogue Table (*Mesa de Concertación* in Spanish) with representatives from the EDU company. Their plan includes comprehensive neighborhood upgrading projects, food security and urban agriculture, risk management with the construction of proper sewage systems and retention walls, and housing permanence and transportation improvements. Our planning studio and others that followed, further developed and elaborated those proposals.⁶ However, to date, results of a more meaningful dialogue between residents and the municipal planning company EDU have not been tangible, and residents have expressed concerns over a dismissal of their land use and planning experience and of proposals which they have 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, who and how is deemed subject to permanence vs. relocation and displacement, and a lack of community engagement and inclusion of bottom-up planning from residents of Medellín’s *comunas*. Through these processes, many of those residents have been exposed to a double trauma: First, 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) against which their asymmetry of power did not let them much choice but to surrender their rural land and possessions and flee to the cities

⁶ 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 recognized as representative of the community. They meet monthly, as well as organize public hearings and workshops around neighborhood development and changes happening in Comuna 8. The Council is organized into several subcommittees (*mesas*) addressing the different needs of the community, such as assistance for displaced people and women and youth subcommittees. They critically engage the various city programs and interventions, and work to shape them to better fit the needs of the comuna. They have also strategically built coalitions to work collaboratively with other comuna councils on issues of mutual interest.

(McDougall, 2009, Gleditsch, 2007, Waldmann, 2007); Second, processes of accumulation by dispossession or displacement either through direct threats of eviction from their communal territories or individual plots of land through new, forced, 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 often victimize many members of self-built, urban communities in Medellín.

- **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 Greenbelt pilot project, the Jardín Circunvalar, reflects a municipal attempt to control, transform, and discipline the land traditionally occupied by low-income residents. At its root, the difference between the municipal government's desired outcomes for the JC and those of the area residents is premised on a conflict over competing visions of nature. The JC uses grey infrastructure and concrete-based construction 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 JC as a "built-up" and "produced" space that does not integrate well existing community relations with nature and low-impact trails for nature walks. In the view of several community leaders, the JC is an effort to attract a "siliconed" or "made-up tourism." They perceive that EDU chose not to respect existing nature trails defined and used by residents over the years and instead privileged walls with 10m deep foundations throughout the entire JC. They see these walls as ways of occupying, delineating, and claiming territory rather than as interventions to preserve nature, especially a more indigenous-centered conception of nature – a socio-cultural 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. (Community leader, 2016)

In response to this conception, Comuna 8 members have articulated a vision for Pan de Azúcar mountain managed by the community itself through reforestation projects and “urban paths” meant to strengthen and visibilize residents’ traditional uses of the territory. Their proposals are a contestation against cultural and social forms of dispossession and displacement. The residents resist what they see as a regrettable choice to use plants that are neither native nor based on ecological principles of nature conservation. In the contrasting view of the 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 natives. Furthermore, several expert interviews (2016) revealed that the construction contracts of the JC went to development companies with close ties to elected officials and narco-traffic leaders, which furthers 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 JC. Such interventions seemed to be about more than preservation of 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 mostly designed to be attractive for middle- and upper- class visitors and tourists rather than locals (See Figure 2 below). This is especially the case of the cycling paths. Observations of community meetings (2013) and interviews (2016) reveal that the Greenbelt will likely bring tourists and wealthier residents to the area surrounding low-income, self-built neighborhoods, 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:

For [the municipality], the Jardín Circunvalar is the “redemption of Medellín” and it is created for skilled and prepared residents – residents able to professionally compete – and for tourists who consume in the new spaces. The JC 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. (2016)

This approach of disciplining nature is now offering new landscapes of pleasure and recreation for creative-class visitors coming to beautified and orderly comunas for leisure and recreation.⁷ This phenomenon is amplified by the relatively new phenomenon of ‘slum tourism’ (Frenzel & Koens 2012), now facilitated in Comuna 8 by the greatest accessibility permitted by the new cable car and the securitization around it by the presence of police and transit officials. In those new landscapes, long-term residents are being socially and/or physically displaced from newly re-made and re-branded green space. Questions of interactional justice (the recognition of different uses, practices, preferences, and needs in green infrastructure planning) are at stake (Kabisch and Haase, 2014) as Medellín rebrands itself nationally and internationally as a green and livable city. For residents of the comunas, their urban territories have been grabbed for nature conservation, as in many rural communities around the world whose land becomes transformed into natural reserves (Robbins, 2011).

INSERT FIGURE 2 HERE

Our field work reveals that the official social use of the Jardín Circunvalar has primarily been conceived by EDU planners from an urban perspective – for inner-city residents who lack easy access to public green spaces and parks and who can 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 just by Medellín middle or upper income residents.

⁷ Not yet for living, although some of this has happened in some favelas in Rio de Janeiro, which are also subjected to violence as in Medellín.

In other words, in Medellín biophysical resources are being subordinated to a neoliberal logic and practice of negotiated political compromise, green space privatization, and common resource enclosure at the expense of local communities. This process occurs by the commodification of natural resources (Castree, 2008).

Coupled with this perception that the EDU is making and branding the JC as a project for more socially privileged residents, there is increasing fear among long-time residents that real estate prices next to the Jardín Circunvalar and next to cable car stations (Metrocables) will surge and only benefit a few residents located close to them. Municipal councilors and planning experts concur with community concerns, and further argue that the Greenbelt may raise land and utilities prices, lead to local residential or property tax increases, encourage new real estate projects permitted through a ‘state of exception’ (Vainer, 2011), and eventually change the social composition of hillside communities. In other neighborhoods, the Cinturón Verde has already attracted new real estate investment, including two projects by Macca Inmobiliaria and Inmobiliaria Pyma in Sector Las Palmas in El Poblado at 2,180m above the altitude limit set for new construction by the Cinturón Verde.⁸ Such projects pave the way to new real estate developments on the hill permitted through 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. In their views, 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 armed conflict and the diverse types of violence in the country. As an active community leader expressed:

⁸ http://www.maccainmobiliaria.com.co/Ficha_Proyecto.asp?xId=436340 and <http://www.inmobiliariapyma.com.co/properties/lote-en-parcelacion-en-cinturon-verde/>

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 (2016)

Residents aim at using green space 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 the land invasion and development (e.g., in Via Las Palmas) by local construction companies and real estate groups whose activities (such as “parcelization,” i.e., 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 embodied in 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 grow food for community sale and benefits, as our field observations revealed. These farms and gardens were deemed illegal, but also 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 traditions supply part of their food nutrients and nurture a sense of community and place, they also help ease their transition and adjustment to urban living demands (Irazábal and Punja, 2009).

During the construction of the Jardín Circunvalar, EDU created a new urban agriculture program and eliminated 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 Poblado market in the South of the city. Observation of farmers’ markets reveal that agricultural products are marketed for 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 (for “organic” and “healthy” food) of high-income urban shoppers, seen as the ones with acceptable eating habits and progressive environmental behaviors, and to the vision of what is aesthetically acceptable as “green” in a city in search of a marketable sustainable image (While et al. 2004). An architect working in 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 in 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, 2005, Castree 2008) for the legitimation of elected officials’ urban vision and for 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. Further, it did not recognize the social construction of the habitat by long term residents, especially the way in which they used local land to perpetuate 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 food landscape 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 seemed also to only accept what they see as professional farmers

in the Jardín Circunvalar, facilitating the monitoring and controlling of their practices – and thereby the territory where UA is being officially practiced and sponsored.

To confront their loss of communal practices, livelihoods and identity, community members have 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 who engaged for years with the municipality and with residents 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 as assisted residents. People are self-organized, they have done a lot of self-construction (Interview 2016)

Over time, comuna residents have 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 the planning company EDU. This betrays forms of bottom up planning and neighborhood regeneration proposals articulated by community organizations, local universities and experts, and residents during the “golden” era of Medellín’s “social urbanism.” The voice and capacities of residents are being muted in this process of top-down, urban agriculture promotion.

Now modestly settled in Medellín, rural-to-urban migrants are confronted by a new wave of capitalism crisis, whereby a process of renewed accumulation by nuanced green dispossession and displacement renders some of them disposable again, an inconvenience for the capture of the 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 can enlarge its attractiveness for higher-income classes, tourists, and investors, adds a new wave of dispossession and displacement (from their traditional access to and use of nature) to already precarious lives.

Compromising a just and green city

In this paper, 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 so 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, producing new forms of socio-spatial control and creating environmental, distributional, and procedural inequalities.

The case of Medellín's Greenbelt 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 and even grow in place — despite risks — and benefit from new green spaces, while poor informal communities are displaced or relocated. In Medellín, greening, sustainability, and resilience discourses and interventions collectively produce some social and physical isolation; cultural, economic, and physical displacement; and distress for vulnerable urban residents. These discourses and interventions also produce newly re-designed and re-created “natural” landscapes of pleasure and recreation for specific groups, while overlooking the importance of social cohesion, political recognition, and livelihood protection for the long-term wellbeing of low-income communities. In that sense, the creation of ecological enclaves through green infrastructure projects of that scope can jeopardize long-term municipal efforts to create a more just city. Despite being ambitious and having clear state ecological goals, this environmental framing functions to avoid 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 more effectively addressing the needs of socially vulnerable residents.

We see here a triple combined form of displacement and dispossession by green accumulation: the forced physical displacement or difficult relocation of families living in the area of influence of the Greenbelt (versus the accumulated privilege 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 of them 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 (1) building the Greenbelt heavily relying on hard infrastructure against community-sponsored green projects; and by (2) imagining and transforming nature with a manicured aesthetic for green infrastructure as an endogenous amenity (seeming to appeal, in reality, to more socially privileged visitors) and exogenous productive asset (commodified agriculture) vs. the more endogenous, communal spaces and agriculture traditionally practiced by the community. In that vision, community-based agriculture has no space. Even when EDU staff attempt to support urban agriculture gardens, they do so with a vision of disciplining undesirable nature and integrating it in the local capital economy. Public authorities control gardeners by ordering, re-creating, and sustaining a structured nature according to official municipal top-down visions. In contrast, many comuna residents 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 (Tememos and Mccann 2012; Mac Donald and Keil, 2012), but also competing visions for nature and for accepted social and environmental practices and aesthetics.

Furthermore, this essay illustrates the perils of lacking both explicit planning for equity in municipal neighborhood sustainability projects and strong political leadership to address distributional

and representational equity – even in cases (such as in Medellín) where equity planning has had a relatively well-established and respected tradition. It highlights one key unresolved challenge for land use planning and sustainability planning: How to address the conflicts and controversies that emerge as part 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 often are much too romanticized and simplified, when they might actually reify the inequities of old urban renewal schemes in city development. Although the metropolitan government of Medellín, the Area 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 the commitment to a green, smart, resilience, and livable city can come at the expense of the needs and identities of lower-income residents for a so-called “common good.”

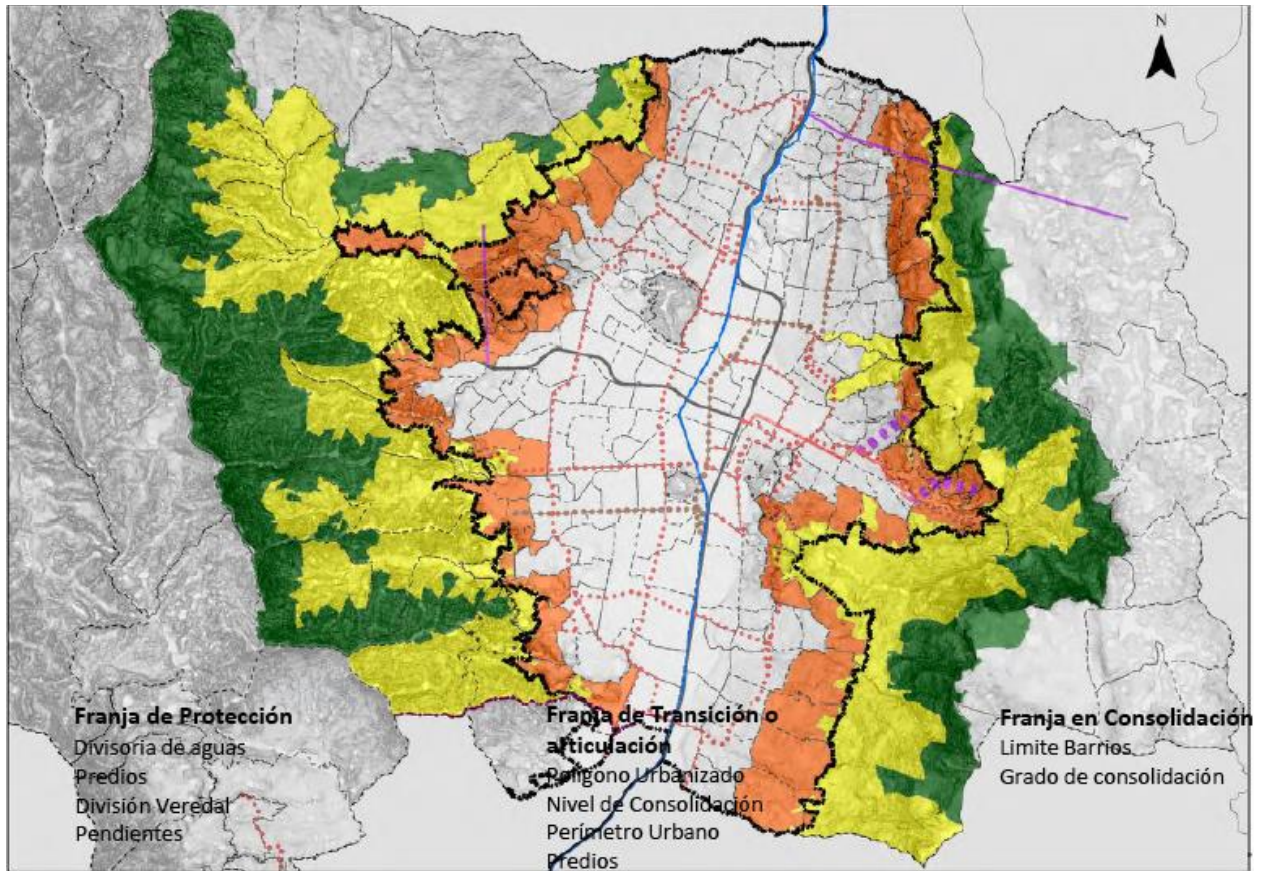
Compounding the disenfranchisement caused by green gentrification to low-income and non-white peoples in cities of the Global North (e.g., Brooklyn in NYC, Gould and Lewis 2017), green gentrification in the context of the Global South, as exemplified by Comuna 8 in Medellín, further displaces the displaced to the point in which the compounded, negative effects of accumulated dispossessions become more severe. The rural-to-urban migrants that usually compose large percentages of the population in urban informal settlements (in the case of Comuna 8 at least 40% of its residents) had originally little option but to migrate to cities from their rural places of origin (mostly because of the civil war-related violence in the case of Colombia, aggravated by other factors such as disinvestment in rural areas, mechanization of agriculture that displaces labor, lack of livelihoods, and a combination thereof, both in Colombia and elsewhere in the developing world). Now, 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 Greenbelt in Medellín, has no clear place to go. Returning to their original rural communities would mean

confronting multiple risks, from total destitution (as lands have been grabbed) to chronic or fatal violence. Displacement within the city, however, would force the low-income urban settler of Comuna 8 (and similar settlements in other contexts) to move further away from this new frontier of capital accumulation that the city is vested in capturing (i.e., the territory of Comuna 8), forcing them to urban, peri-urban, or ex-urban territories where carving a livelihood may be even more challenging than what is now. In these contexts, processes of green gentrification and urban growth management render low-income residents disposable, collateral damage to the “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 most socially vulnerable groups living 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 (Parks and Roberts, 2006, Irazabal, 2010) – bearing the brunt of climate impacts while having least contributed to carbon emissions, and they also seem to often be least benefiting from adaptation projects such as greenbelts. The accumulation by dispossession performed by green gentrification in the context of the global South may be one of the last stripping that the subaltern subject can endure. In this context, the question is no longer, can the subaltern speak (Spivak, 1988) but rather, where can the subaltern *go* in next wave of displacement and dispossession? Where can the subaltern *live*? *Can the subaltern live?*

List of Figures

Figure 1: The three zones of the Greenbelt: Protection, transition, and consolidation.



Source: Empresa de Desarrollo Urbano (EDU), Municipio de Medellín.



Source: Empresa de Desarrollo Urbano (EDU), Municipio de Medellín.

Figure 2: Renderings of the Greenbelt.





Source (2 images): Empresa de Desarrollo Urbano (EDU), Municipio de Medellín.

References

- AGUDELO PATIÑO, L. C. 2013. *Formulación del Cinturón Verde Metropolitano del Valle de Aburrá (Proposa for the Metropolitan Greenbelt for the Aburrá Valley)*. Medellín: Área Metropolitana del Valle de Aburrá and Universidad Nacional, Medellín.
- AGYEMAN, J. 2013. *Introducing Just Sustainabilities*, London, Zed Books.
- ALCALDÍA DE MEDELLIN 2015. *Presentación Cinturón Verde Metropolitano (Presentation Metropolitan Greenbelt)*. Medellín: Alcaldía de Medellín.
- ANDERSON, M. G. & HOLCOMBE, E. 2013. Managing Risk In Small Steps: Achieving Landslide Risk Reduction By Strategic Incrementalism In The Eastern Caribbean. *Journal of International Development*, 25, 147-159.
- ANGOTTI, T. & IRAZÁBAL, C. 2017. *Planning Latin American Cities: Dependencies and “Best Practices”*. SAGE Publications Sage CA: Los Angeles, CA.
- ANGUELOVSKI, I. 2016. Healthy Food Stores, Greenlining and Food Gentrification: Contesting New Forms of Privilege, Displacement and Locally Unwanted Land Uses in Racially Mixed Neighborhoods. *International Journal of Urban and Regional Research*, 39, 1209-1230.
- ANGUELOVSKI, I. & CARMIN, J. 2011. Something borrowed, everything new: innovation and institutionalization in urban climate governance. *Current Opinion in Environmental Sustainability*, 3, 169-175.
- ANGUELOVSKI, I., CHU, E. & CARMIN, J. 2014. Variations in approaches to urban climate adaptation: Experiences and experimentation from the global South. *Global Environmental Change*, 27, 156-167.
- ANGUELOVSKI, I., SHI, L., CHU, E., GALLAGHER, D., GOH, K., LAMB, Z., REEVE, K. & TEICHER, H. 2016. Equity Impacts of Urban Land Use Planning for Climate Adaptation: Critical Perspectives from the Global North and South. *Journal of Planning Education and Research*.

- ARANGO, S. 2013. Radiografía al Cinturón Verde Metropolitano (Scanning of the Metropolitan Greenbelt). *La Ciudad Verde*.
- BAUTISTA, E., HANHARDT, E., OSORIO, J. C. & DWYER, N. 2015. New York City Environmental Justice Alliance Waterfront Justice Project. *Local Environment*, 20, 664-682.
- BICKERSTAFF, K., BULKELEY, H. & PAINTER, J. O. E. 2009. Justice, Nature and the City. *International Journal of Urban and Regional Research*, 33, 591-600.
- BROWN, K. 2014. Global environmental change I: A social turn for resilience? *Progress in Human Geography*, 38, 107-117.
- BRUM, L. 2013. 'GREENTRIFICATION': How sustainable can an urban greening project be? *Perspectives on the project of a green belt for Medellín*. Universitat Internacional de Catalunya.
- BULKELEY, H., CARMIN, J., CASTÁN BROTO, V., EDWARDS, G. A. & FULLER, S. 2013. Climate justice and global cities: mapping the emerging discourses. *Global Environmental Change*, 23, 914-925.
- BUNCE, S. 2009. Developing sustainability: sustainability policy and gentrification on Toronto's waterfront. *Local Environment*, 14, 651-667.
- CARMIN, J., ANGUELOVSKI, I. & ROBERTS, D. 2012. Urban Climate Adaptation in the Global South: Planning in an Emerging Policy Domain. *Journal of Planning Education and Research*, 38, 12-32.
- CASTREE, N. 2008. Neoliberalising nature: the logics of deregulation and reregulation. *Environment and planning A*, 40, 131-152.
- CHECKER, M. 2011. Wiped Out by the "Greenwave": Environmental Gentrification and the Paradoxical Politics of Urban Sustainability. *City & Society*, 23, 210-229.
- CHU, E., ANGUELOVSKI, I. & CARMIN, J. 2015. Inclusive approaches to urban climate adaptation planning and implementation in the Global South. *Climate Policy*, 1-21.
- CONNOLLY, J. 2018. "From systems thinking to systemic action: Social vulnerability and the institutional challenge of urban resilience. *City and community*, 17.
- DAHMAN, N., WOLCH, J., JOASSART-MARCELLI, P., REYNOLDS, K. & JERRETT, M. 2010. The active city? Disparities in provision of urban public recreation resources. *Health & place*, 16, 431-445.
- DOOLING, S. 2009. Ecological Gentrification: A Research Agenda Exploring Justice in the City. *International Journal of Urban and Regional Research*, 33, 621-639.
- EDU & ALCALDÍA DE MEDELLIN 2013. Presentación del Cinturón Verde Metropolitano.
- FAINSTEIN, S. 2015. Resilience and Justice. *International Journal of Urban and Regional Research*, 39, 157-167.
- FRANZ, T. 2017. Urban Governance and Economic Development in Medellín: An "Urban Miracle"? *Latin American Perspectives*, 44, 52-70.
- GIBBS, D. C. & KRUEGER, R. 2007. Containing the contradictions of rapid development? New economic spaces and sustainable urban development. In: KRUEGER, R. & GIBBS, D. C. (eds.) *The Sustainable Development Paradox: Urban Political Economy in the United States and Europe*. London: Guilford Press.
- GLEDITSCH, K. S. 2007. Transnational dimensions of civil war. *Journal of Peace Research*, 44, 293-309.
- GODSCHALK, D. R. 2004. Land use planning challenges: Coping with conflicts in visions of sustainable development and livable communities. *Journal of the American Planning Association*, 70, 5-13.
- GODSCHALK, D. R., BRODY, S. & BURBY, R. 2003. Public participation in natural hazard mitigation policy formation: challenges for comprehensive planning. *Journal of environmental planning and management*, 46, 733-754.
- GOULD, K. A. & LEWIS, T. L. 2017. *Green Gentrification: Urban Sustainability and the Struggle for Environmental Justice*, Routledge.

- HARVEY, D. 2007. Neoliberalism as creative destruction. *The annals of the American academy of political and social science*, 610, 21-44.
- HASTINGS, A. 2007. Territorial justice and neighbourhood environmental services: a comparison of provision to deprived and better-off neighbourhoods in the UK. *Environment and Planning C*, 896-917.
- HEYNEN, N., PERKINS, H. & ROY, P. 2006. The Political Ecology of Uneven Urban Green Space. *Urban Affairs Review*, 42, 3-25.
- HOBERMAN, G. 2012. Political calculus in the engagement with a disaster risk reduction agenda: the case of the post-2010 earthquake and tsunami in Chile.
- HODSON, M. & MARVIN, S. 2010. Urbanism in the anthropocene: Ecological urbanism or premium ecological enclaves? *City*, 14, 298-313.
- HOF, A. & BLÁZQUEZ-SALOM, M. 2015. Changing tourism patterns, capital accumulation, and urban water consumption in Mallorca, Spain: a sustainability fix? *Journal of Sustainable Tourism*, 23, 770-796.
- INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 2014. *Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Geneva, IPCC.
- IRAZÁBAL, C. 2010. Retos Urbano Ambientales: Disturbio Climático en América Latina y el Caribe.
- IRAZÁBAL, C. 2016. Public, Private, People Partnerships (PPPPs): Reflections from Latin American Cases. *Private Communities and Urban Governance*. Springer.
- IRAZÁBAL, C., MENDOZA-ARROYO, C., ARCINIEGAS, C. O., SÁNCHEZ, R. O. & MAYA, J. 2015. Enabling community-higher education partnerships: common challenges, multiple perspectives. *Current Opinion in Environmental Sustainability*, 17, 22-29.
- IRAZÁBAL, C. & PUNJA, A. 2009. Cultivating just planning and legal institutions: a critical assessment of the South Central Farm struggle in Los Angeles. *Journal of Urban Affairs*, 31, 1-23.
- JANOSCHKA, M., SEQUERA, J. & SALINAS, L. 2014. Gentrification in Spain and Latin America—A critical dialogue. *International Journal of Urban and Regional Research*, 38, 1234-1265.
- KABISCH, N. & HAASE, D. 2014. Green justice or just green? Provision of urban green spaces in Berlin, Germany. *Landscape and Urban Planning*, 122, 129-139.
- KEENAN, J. 2018. Climate gentrification: From theory to empiricism in Miami-Dade County, Florida. Cambridge: Harvard University.
- KEIL, R. 2005. Progress report—urban political ecology. *Urban Geography*, 26, 640-651.
- KEIL, R. 2007. Sustaining modernity, modernizing nature: The environmental crisis and the survival of capitalism. In: KRUEGER, R. & GIBBS, D. (eds.) *The Sustainable Development Paradox: Urban Political Economy in the United States and Europe*. London: Guilford Press.
- LANDRY, S. & CHAKRABORTY, J. 2009. Street trees and equity: evaluating the spatial distribution of an urban amenity. *Environment and Planning A*, 41, 2651-2670.
- LEICHENKO, R. 2011. Climate change and urban resilience. *Current Opinion in Environmental Sustainability*, 3, 164-168.
- LETÉLIER, F. & IRAZÁBAL, C. 2017. Contesting TINA: Community Planning Alternatives for Disaster Reconstruction in Chile. *Journal of Planning Education and Research*, 0739456X16683514.
- LONG, J. 2016. Constructing the narrative of the sustainability fix: Sustainability, social justice and representation in Austin, TX. *Urban Studies*, 53, 149-172.
- MACDONALD, S. & KEIL, R. 2012. The Ontario greenbelt: shifting the scales of the sustainability fix? *The Professional Geographer*, 64, 125-145.
- MARCUSE, P. 1985. Gentrification, abandonment, and displacement: Connections, causes, and policy responses in New York City. *Wash. UJ Urb. & Contemp. L.*, 28, 195.

- MARCUSE, P. 2009. *Searching for the just city : debates in urban theory and practice*, London ; New York, Routledge.
- MATYAS, D. & PELLING, M. 2015. Positioning resilience for 2015: the role of resistance, incremental adjustment and transformation in disaster risk management policy. *Disasters*, 39, s1-s18.
- MCDOUGALL, A. 2009. State power and its implications for civil war Colombia. *Studies in Conflict & Terrorism*, 32, 322-345.
- O'BRIEN, K. 2012. Global environmental change II From adaptation to deliberate transformation. *Progress in Human Geography*, 36, 667-676.
- PARK, L. S.-H. & PELLOW, D. 2011. *The slums of Aspen: Immigrants vs. The Environment in America's Eden*, New York, New York University Press.
- PARKS, B. & ROBERTS, T. 2006. Globalization, vulnerability to climate change, and perceived injustice in the South. *Society and Natural Resources*, 19, 337-355.
- PELLING, M. 2011. *Adaptation to Climate Change: From Resilience to Transformation*, London, Routledge.
- PELLING, M. & DILL, K. 2010. Disaster politics: tipping points for change in the adaptation of sociopolitical regimes. *Progress in Human Geography*, 34, 21-37.
- PELLING, M. & MANUEL-NAVARRETE, D. 2011. From Resilience to Transformation: The Adaptive Cycle in Two Mexican Urban Centers. *Ecology and Society*, 16.
- PELLING, M., O'BRIEN, K. & MATYAS, D. 2014. Adaptation and transformation. *Climatic Change*, 1-15.
- QUASTEL, N. 2009. Political Ecologies of Gentrification. *Urban Geography*, 30, 694-725.
- ROBBINS, P. 2011. *Political ecology: A critical introduction*, Wiley.
- SAFRANSKY, S. 2014. Greening the urban frontier: Race, property, and resettlement in Detroit. *Geoforum*, 56, 237-248.
- SHATKIN, G. 2004. Planning to forget: Informal settlements as 'Forgotten Places' in globalising Metro Manila. *Urban Studies*, 41, 2469-2484.
- SOTOMAYOR, L. 2017. Dealing with dangerous spaces: The construction of urban policy in Medellín. *Latin American Perspectives*, 44, 71-90.
- SPIVAK, G. C. 1988. Can the subaltern speak? *Can the subaltern speak? Reflections on the history of an idea*, 21-78.
- TEMENOS, C. & MCCANN, E. 2012. The local politics of policy mobility: learning, persuasion, and the production of a municipal sustainability fix. *Environment and Planning-Part A*, 44, 1389.
- TOVAR-RESTREPO, M. & IRAZÁBAL, C. 2014. Indigenous Women and Violence in Colombia Agency, Autonomy, and Territoriality. *Latin American Perspectives*, 41, 39-58.
- TRETTER, E. M. 2013. Contesting Sustainability: 'SMART Growth' and the Redevelopment of Austin's Eastside. *International Journal of Urban and Regional Research*, 37, 297-310.
- URBAN PLANNING STUDIO & IRAZABAL, C. 2013. *Growth Management in Medellín, Colombia*. New York City: Columbia University.
- WALDMANN, P. 2007. Is there a Culture of Violence in Colombia? *Terrorism and Political Violence*, 19, 593-609.
- WALKER, S. 2016. Urban agriculture and the sustainability fix in Vancouver and Detroit. *Urban Geography*, 37, 163-182.
- WHILE, A., JONAS, A. E. & GIBBS, D. 2004. The environment and the entrepreneurial city: searching for the urban 'sustainability; fix' in Manchester and Leeds. *International Journal of Urban and Regional Research*, 28, 549-569.
- WILKINSON, C. 2012. Urban resilience—what does it mean in planning practice? *Planning Theory & Practice*, 13, 319-324.