Life on the Fringe:

A critical assessment of a green belt initiative on the urban periphery of Medellín

Part II Dissertation submitted to the Department of Geography, University of Cambridge

April 2019
Statement

I confirm that this dissertation is my own unaided work. Its length is no less than 8,000 words, and no more than 10,000 words. The word count excludes the following: title page, statement, abstract, contents, list of figures, tables, abbreviations and Spanish terms, figures, captions, bibliography and appendices. Over Part IB and Part II (2018-19), two hours and twenty minutes of one-to-one supervision was received from Dr Graham Denyer Willis, Dr Somaiyeh Falahat and Dr Charlotte Lemanski, in addition to two hours of group supervision with Professor Sarah Radcliffe. Brief technical support was also received from Dr Gabriel Amable.
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Abstract

This study presents the findings of research into the city of Medellín’s ‘circular garden’ initiative, which forms part of the green belt policy of the Metropolitan Area of the Aburrá Valley in Colombia. Through fieldwork in four neighbourhoods located in one peripheral area of the city (Comuna 8), the study investigates the effectiveness of this particular municipal green belt initiative in containing urban sprawl, improving public space and delivering local benefits. It is found that the intervention in this area has generated positive impacts through the creation of high-quality public space that has provided social, health, employment and educational benefits. While the project can be shown to have healed particular urban problems, including the city’s public space deficit and underemployment, its resettlement component has had adverse impacts on affected households. It is shown that the intervention has been less effective in curbing urban sprawl in this part of Medellín. Complex internal and external drivers of sprawl are identified, including local land speculation and ongoing settlement by internally displaced persons from Colombia’s countryside and foreign immigrants fleeing political upheaval in Venezuela. The study concludes that effective strategies for controlling sprawl require a holistic approach that combines actions by both urban and rural authorities at the local, regional and national scales in a joint strategy to combat harmful sprawl and manage beneficial urban growth.

Key words: urban sprawl, informal settlements, green belts, social urbanism, public space, resettlement, urban acupuncture
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<td>Jardín Circunvalar de Medellín</td>
<td>Circular Garden of Medellín</td>
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<td>CVM</td>
<td>Cinturón Verde Metropolitano</td>
<td>Metropolitan Green Belt</td>
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<td>QOL</td>
<td>Quality of Life</td>
<td>N/A</td>
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### List of Spanish terms

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<tr>
<td>Comuna</td>
<td>Commune (i.e. district, ward, borough).</td>
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<td>Barrio</td>
<td>Neighbourhood</td>
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<td>Camino de la Vida</td>
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1.0 Introduction

1.1 An urbanising world

It is projected that 68% of the global population will live in urban areas by 2050 (United Nations, 2018). A rapid increase in the pace of urban growth since the mid-twentieth century has created significant challenges for cities worldwide (ibid.; Zhang, 2016). Today, Latin America and the Caribbean is one of the most urbanised regions globally, with 81% of the population living in cities (Pacione, 2009; United Nations, 2018). The population of urban areas in Latin America increased by a factor of five between 1920 and 1960 (Rowley, 1976). Colombia is illustrative of the scale of urban growth: 46% of the national population lived in urban areas in 1960; this had grown to 80.5% in 2017 (World Bank, 2018). This rapid urban growth has led to the encroachment of natural environments, rising levels of urban poverty, and a reduction in public space, which has created major challenges for urban dwellers and city planners alike. This thesis assesses the effectiveness of a green belt initiative in tackling informal sprawl on the urban fringe of Medellín, Colombia.

1.2 Medellín, Colombia

Medellín, the second largest city in Colombia, is located in the Department of Antioquia within the Aburrá Valley, surrounded by steep topography (Garcia-Ferrari et al., 2018). In 2018, the city had a population of over 2.5 million (Restrepo et al., 2018).

1.2.1 Context

Medellín was once the most violent city in the world and the centre of the drug-trafficking business of Pablo Escobar (Sotomayor, 2017; Maclean, 2015). It has since undergone an urban transformation with major reductions in homicide rates recorded over the last two decades (McLaren and Agyeman, 2015). The implementation of ‘social urbanism’ initiatives in the poorest parts of Medellín have contributed towards what some commentators have termed the ‘Medellín miracle’ – a significant reduction in violence, a sense of greater inclusion, and social development among disadvantaged residents (Echeverri and Orsini, 2011; Maclean, 2015; McLaren and Agyeman, 2015; Montoya-Restrepo, 2014). Medellín has consequently received international acclaim and several accolades, including the Urban Land Institute’s award for Most Innovative City (Brand, 2013).
1.2.2 Urban growth

Medellín’s growth has been driven by rural-urban migration, primarily caused by two factors. The first is economic. Industrialisation, such as textile production, attracted people to the city, as did recessions in rural industries, like coffee production and mining between 1900-10 (Avendaño-Vásquez, 1998; Garcia-Ferrari et al., 2018). Medellín was perceived as a place of opportunity. Early planning of the city was influenced by private and economic interests (Avendaño-Vásquez, 1998). Over time, the urban poor were priced out of their homes in the city centre due to taxes and rising land valuations, displacing them to marginal parts of the metropolis (ibid.).

The second factor is violence, lawlessness and armed conflict in the countryside. The conflict of 1946-57 led to the forced displacement of 2 million people nationally, while a further 1.7 million were uprooted between 1984-99 (Garcia-Ferrari et al., 2018). Consequently, Colombia now has the largest number of Internally Displaced Persons (IDPs) in the world, totalling more than 5 million (Shultz et al., 2014). Many of these IDPs migrated to cities, including Medellín, with the population of the city tripling between 1951-73 (Gaviria et al., 2015). Notably, at the turn of the new millennium, around half of all residents in Medellín were IDPs (Garcia-Ferrari et al., 2018). Castro and Echeverri (2011) argue that Medellín was forced to grow in an uncontrolled, chaotic fashion due to the large and rapid influx of IDPs. Rapid urban growth in Medellín generated significant levels of inequality, poverty, social exclusion and violence (Doyle, 2016). Figure 1 illustrates the rapid growth of the city over the last century.

Uncontrolled urban growth, or ‘sprawl’, has manifested itself in Medellín in different ways (Naranjo-Giraldo, 2001). In southern areas, planned, affluent neighbourhoods developed. However, other parts have grown informally, with a limited presence of the state. A large proportion of migrants are poor farmers and peasants, unable to access the formal land market. Instead, they often settle on the hillsides where they auto-construct dwellings, sometimes alongside victims of intra-urban displacement (Torres-Tovar, 2009; Sánchez-Mojica, 2016; Florida and Schneider, 2018). Consequently, much of “the fringe of the city is... a belt of informal settlements” (Garcia-Ferrari et al., 2018:355).
Figure 1: The growth of Medellín between 1928-2012. The green outline in 2012 represents the urban perimeter, as defined by the Alcaldía de Medellín and EDU. Source: Gaviria et al. (2015).

The rapid development of informal settlements has created two particular challenges for metropolitan authorities in Medellín. First, unplanned growth helped generate a public space deficit (Torres-Tovar, 2009). Haphazard development of dwellings over time resulted in insufficient public space within the barrios, whilst green spaces and steep lands on the fringe have often been considered dangerous, unusable or high-risk for people living informally in geologically unstable zones (Zuluaga-Sánchez, 2008). Secondly, life for inhabitants in these peripheral areas has not been easy, as they experienced harsh conditions prior to the first slum upgrading programmes. Poor livelihoods, under and unemployment, and a risk to life resulting from inhabiting sub-standard shanties in landslide-prone locations have prevailed (Klimes and Rios-Escobar, 2010).

1.2.3 Policies and interventions

The Metropolitan Urban Development Plan of 1985 referred to the possibility of a green belt to combat urban sprawl around Medellín, which later received formal political backing by the city authorities in 2012 (Gaviria et al., 2015). Official endorsement of a metropolitan green belt (CVM) was reaffirmed in the city’s Land Use Plan of 2014 (Alcaldía de Medellín, 2014). The CVM (Figure 2) is a macro-scale, long-term planning strategy that intends to contain the urban area and conserve the natural habitats and ecosystem services offered by the surrounding mountains (Echeverry-Tamayo, 2019; Área Metropolitana del Valle de Aburrá, 2014).
The Jardín Circunvalar, or ‘Circular Garden’, of Medellín (JCM) is a related green belt planning policy, which was introduced in 2012 by the then city mayor, Anibal Gaviria. The JCM is the city’s approach to implementing the CVM. It is proposed to be a 46-mile-long park along Medellín’s upper slopes (Gaviria et al., 2015; McLaren and Agyeman, 2015) (Figure 3). The project has only completed its pilot phase. With a change in city administration in 2016, the JCM project was suspended with the current mayor, Federico Gutiérrez, opting to focus on different priorities.
1.3. Research questions

This dissertation uses a case study of Comuna 8 to try to assess the extent to which the JCM’s pilot phase has been effective in providing solutions to the aforementioned problems associated with unregulated urban expansion. To this end, three core questions shape the assessment:

1. Has the JCM controlled urban sprawl?
2. How have public spaces created under the project affected the local community?
3. What have been the impacts of the livelihood and housing components of the JCM on the lives of residents?
2.0 Urban Sprawl, Green Belts and Urbanisms: a review

This chapter critically reviews literature on urban sprawl and green belts alongside related topics of public space, urban acupuncture and urban planning in order to identify theories and approaches relevant to this study.

2.1 Differentiating and defining urban sprawl

The term ‘urban sprawl’ was coined by Whyte (1957). The literature acknowledges that it is a difficult concept to define (Dieleman, 2004; Inostroza et al, 2012; Gavrilidis, 2017). It is often described as low-density urban expansion on the edge of towns and cities (Hogan and Ojima, 2008; Couch et al., 2007). Daniels (2001) identifies three specific types of sprawl: suburban sprawl, commercial sprawl, and scattered residential sprawl. Much of the literature in this field shows that the negative impacts of sprawl include air pollution caused by longer commutes (Ewing et al., 2002) and the loss of green space and farmland on the urban fringe (Hall, 1973; Hogan and Ojima, 2008). Sprawl may also lead to the formation of so-called ‘Edge Cities’ associated with urban degeneration at the city core (Calthorpe and Fulton, 2001). Policies to curb sprawl in North America and Europe have included the promotion of inward growth through the ‘compact city’ model (Dieleman, 2004; Gavrilidas, 2017), ‘smart growth’ (Daniels, 2001) and green belts.

Unlike sprawl in the North that tends to be driven by locational preference and commercial development on the fringe, urban expansion in the South is commonly fuelled by migration to cities driven by rural poverty and economic displacement (Xavier Barros, 2004). Much urban expansion in Latin America is thus characterised by the outward growth of informal settlements, marked by ‘chaotic’ development, illegal land use, poverty, defective infrastructure, poor public services, and environmental damage (Lungo, 2001; Garcia-Ferrari et al., 2018; Benitez et al. 2012). Uncontrolled urban expansion in Mexico City and Xalapa, for example, has often resulted in natural habitat loss (Aguilar 2008; Benitez et al., 2012).

Sheppard (2010) terms this sort of urban expansion as ‘informal sprawl’. Xavier Barros (2004) refers to it as ‘peripherisation’, emphasising the rural characteristics of these settlements. Others describe it as ‘peri-urbanisation’ (Aguilar, 2008) or ‘peripheral urbanisation’ (Caldeira 2017). Daniels’ (2001)
typology fails to capture this particular sort of sprawl, which often features dense peripheral growth of informal settlements (Goveneur, 2015).

Informal settlements are often lacking in basic services and infrastructure, while residents typically suffer poor-quality housing (UN Habitat, 2015; Davis, 2005). Richards et al. (2007) conclude, in their study of South African cities, that residing in informal settlements can significantly worsen quality of life (QOL). Residents may also face a lack of secure employment, especially women (ibid.). At the same time, informal livelihoods can foster economic innovation as documented in cities in Africa, Asia and Latin America (Hart, 1973; Roy, 2015). Informal settlements can also be areas of real estate speculation and entrepreneurship (UN Habitat, 2015; Goveneur, 2015). As Caldeira (2017:8) argues, “residents bet on the possibility of legalisation and regularisation and most frequently… succeed in seeing it happen”.

Although metropolitan authorities have recently sought more collaboration with communities in informal settlements (see below), their policies sometimes still involve demolition and relocation schemes (Nassar and Elsayed, 2018; Smolka and Larangeira, 2008; Osorio-Alvarez, 2017). These frequently result in social and economic upheaval, generating emotional distress and disruption of social networks (Arabindoo, 2011; Gilbert, 2007; Osorio-Alvarez 2017).

### 2.2 Green belts and urban containment

Many planners around the world have attempted to combat urban sprawl by implementing a green belt, which is “an area of open, low-density land… around an existing city where further development is strictly controlled” (Pacione, 2009:12). Its origin can be traced back to Howard’s (1902) work on garden cities and ‘town-country magnets’. Green belts are designed to encircle a city, in order to prevent sprawl, protect rural landscapes and ecological sites, conserve farmland, improve air quality and provide space for public recreation (Hall, 1973; Abbasi et al., 2004; Gavrilidis et al., 2017; Carré and Fernández, 2013).

While statutory greenbelts find their origins in English town and country planning, their application has also become popular with urban planners around the world (Amanti, 2008; Allmendinger, 2009). Studies of green belts around Seoul and Hong Kong indicate that this land use policy has successfully provided public amenity space, ecosystem services and scenic beauty (Bengston et al., 2006; Tang et al., 2006). A number of Latin American urban authorities have likewise chosen to implement green belts since the mid-twentieth century. Llanos and Almandoz (2008) argue that a green belt has been
effective in helping combat sprawl around Caracas. Ramos-Ribeiro (2014) discusses the green belt bioreserve of São Paulo, which protects over 600,000 hectares of Atlantic Forest that has helped ensure food security, enable pollution control and contribute towards improving the QOL of urbanites (ibid.). In other cases, such as Santo Domingo, green belt policies have been less effective due to lack of law enforcement, weak tenure governance and land speculation (Diaz 2017; Davila, 2012).

Although Amanti (2008:15) sustains that “the green belt is still a relevant planning policy for the twenty first century”, others point out that it has become a reified concept in planning theory and practice (Lemes-de-Oliveira, 2017). Critics observe that the model has been exported around the world, with little attention to local contexts and disregard for the risks of perverse outcomes (Davila, 2012; Rowe, 2012). In short, green belts can lead to a rise in land speculation and increasing house prices, hence exacerbating inequality inside and adjacent to restricted green zones (Pacione, 2009; Sturzaker and Mell, 2016). Urban ‘leakage’ is also common, in which development simply leapfrogs protected land, thus undermining functional containment (Bengston et al 2006; Sturzaker and Mell, 2016; Pacione, 2009; Bang-Shin, 2018).

2.3 Urbanisms and public space

Green belt and associated green wedge strategies form part a diverse (and growing) set of ‘urbanisms’ that conceptualise and promote idealised forms of urban environments and lifestyles shaped by particular approaches to city design, architecture and urban governance (cf. Lefebvre, 2003 [1970]; Bang Shin, 2018). Alongside principles of low carbon living, ‘green urbanism’ and public space theory understand green spaces as important for the QOL of urban populations (Schneider, 2000; Chiesura 2004; Villanueva et al., 2015; Schneider, 2000; Mitchell and Popham, 2008; Koramaz et al., 2018). Ghel (1987) theorises that urban designs must encourage people to go outdoors, so that they undertake what he terms ‘optional activities’ such as walking. The greater the quality of space, the more likely beneficial ‘optional activities’ will occur within it (ibid). Shahzad et al. (2017) investigate the impact of Jilani Park in Lahore, finding that it has provided recreational, health and spiritual benefits. Useful public space also encourages greater interaction and social cohesion, something Ghel (1987) identifies as essential for a ‘lively city’.

2.4 Urban planning theory and practice in Latin America

Over the last fifty years, Latin American urban development has been partly shaped by metropolitan master plans, a method characteristic of the first planning paradigm as identified by Hall (2002) and
Taylor (1998). More recently, Latin American urban governance has adopted participatory approaches to planning, where residents’ associations, NGOs and citizens have become active players in formulating urban plans in collaboration with municipal authorities (Farnstein and DeFilippis, 2015; Cornwall, 2004). Participatory planning has been used in cities such as Rio de Janeiro, Asunción, Santiago and the Puebla metropolitan area in Mexico (Irazábal, 2004; Schumacher-González et al., 2018).

In Colombia, inclusive public planning has also become prominent over the last two decades, most notably in Bogotá, Cartagena and Medellín (Canel, 2010; Chalmers et al., 1997). In the latter, the acclaimed concept of social urbanism has informed urban planning and investment (Echeverri and Orsini, 2011; Navarro Sertich, 2010; Montoya-Restrepo, 2014). Social urbanism is grounded in a levelling logic in which urban governments allocate the largest proportion of their budget to provide public spaces and improve infrastructure in the poorest settlements, helping to reduce inequality (ibid.; Green, 2018).

European concepts have often been adapted for use by planners in Latin America. One example is urban ‘acupuncture’ theory, which originated in Barcelona (Hoogduyn, 2014). This has since been applied in cities such as Curitba (Lerner, 2003). This theory conceives cities as living organisms, in which hyper-localised interventions at specific pressure points can heal the urban space and even the wider city through ripple effects (De Sola Morales, 2008; Houghton et al., 2015; Hoogduyn, 2014; Petrova et al, 2016; Casagrande, 2015; Sternberg 2002; Acebillo, 2006). Casagrande (2015) argues that urban acupuncture has potential to create post-industrial ‘third generation’ cities, where interventions can turn the ‘urban compost’ to create new life (ibid.; Hoogduyn, 2014).

While planners in Central and South America have borrowed from northern and European concepts, creative ‘syncretic’ transformations in urban planning and development have emerged in Latin America (Irazábal, 2004). There is now a growing consensus that importing European planning models through “placeless generalisations” risks being ineffective in tackling urban problems in the Global South (Bhan et al., 2018:12; Watson, 2015). Bhan et al. (2018) envision urban research creating a future ‘pot of planning theories’ drawn from diverse and complex urbanisms around the world, with potential to generate new theory and solutions from the South (see also Escobar, 2017).

This study aims to contribute to Bhan et al.’s ‘pot’ of case studies through research on one green belt initiative on the fringe of Medellín. While existing studies have already documented the JCM’s origins and key components (Rodríguez and Ramírez-Carmona 2013; Echeverry-Tamayo, 2019),
they have not explored the impacts of the JCM’s pilot phase. Drawing primarily on the perspectives of local residents, planners and scholars, this study is possibly one of the first independent critical evaluations of this particular project.

Chapter 3 summarises the methods used in the study and its scope and limitations.
3.0 Methodology

3.1 Study site

Fieldwork was carried out over a period of three weeks in Medellín in July 2018. Much of it was undertaken in Comuna 8, located on the central-eastern hillsides of the city (Figure 4). The population of Comuna 8 in 2018 was 139,025 people living within an area of 5.77 km² (Alcaldía de Medellín, 2015). The comuna is primarily made up of dense self-built housing, narrow streets, small plazas and pathways. Comuna 8 was selected as the study site for research as it is one of three comunas forming part of the pilot phase of the JCM and is the area where the most JMC interventions have been made to date, thereby offering the greatest potential insight into JCM impacts and outcomes so far. Four barrios were selected as sub-field sites for data collection: Llanaditas, Trece de Noviembre, Villatina and San Antonio (Figure 5). These barrios were chosen given their proximity to JCM works and the transition zone on the urban fringe (Figure 6).

Figure 4: Map of the Comunas of Medellín, Colombia. The study site, Comuna 8, is highlighted in orange. Source: author’s own, based on ‘Cartografía Base Medellín’ in the Catalogue of Maps, Alcaldía de Medellín: https://bit.ly/2GsQ6mW
Figure 5: Map of the Barrios of Comuna 8. The study sites, Llanaditas, Trece de Noviembre, Villatina and San Antonio, are highlighted in orange. Source: author’s own, based on ‘Comuna 8 - Villa Hermosa’ in the Catalogue of Maps, Alcaldía de Medellín: https://bit.ly/2UK8qkq

Figure 6: Map of the study sites, illustrating the key features of the JCM adjacent to them. Source: reproduced by the author from the JCM master plans (Appendix A and B).
3.2 Research methods

Qualitative approaches were chosen and used as the primary research method in order to obtain “in-depth information and… to understand the complexities of social life” and explore perspectives held by affected populations and other stakeholders (Stewart-Withers et al, 2014: 59). Following the advice of several scholars (e.g. Creswell and Creswell, 2018; Stewart Withers et al., 2014; Fife, 2005), a mixed-methods approach was adopted. The research also triangulated information from different sources in order to try and verify its findings (Creswell and Creswell, 2018).

3.2.1 Sampling

This study used purposive sampling (Longhurst, 2013). Snowball sampling was additionally employed to identify individuals to interview, whereby existing contacts put me in touch with others (Valentine, 1997). Snowballing occurred from over ten contacts, avoiding the risk of obtaining a narrow circle of participants (ibid.). A wide range of individuals were consequently involved in my study.

Several gatekeepers were used prior to and during fieldwork. These are individuals with the ability to grant or withhold access to certain people and places (Valentine, 1997). While the gatekeepers were vital for helping me identify interviewees, it is likely that they influenced the scope of sampling (Banks and Regina, 2014). My primary local guide and gatekeeper in Comuna 8 was female, and it is noteworthy that four fifths of all interviewees in the comuna were of this gender.

Questionnaires were printed and distributed within the barrios, following the completion of a pilot version. They were collected a fortnight later. A non-probability sampling method was used, that of a quota sample (Parfitt, 2005). As part of this, my gatekeeper helped me find respondents with various characteristics to ensure a representative sample (ibid.). However, given that the distribution of questionnaires was carried out by her alone, it is again possible that her selection of respondents may have been prone to bias (ibid.).

3.2.2 Semi-structured interviews

Thirty interviews were conducted in the field in Spanish. Interviewees included residents, professionals (such as urban planners), and academics based in Medellín (Appendix C, D, E). Open-ended questions were used to allow participants to construct their own accounts, helping to reveal
“rich, detailed and multi-layered” information, while retaining some degree of control over the line of questioning (Valentine, 1997:111; Fife, 2005). In Comuna 8, many interviews took place in homes or elsewhere in the neighbourhood. Professionals and academics were interviewed in their own offices, universities or local cafes. This enabled participants to feel at ease, which possibly played a part in ensuring detailed and thoughtful responses (Valentine, 1997).

3.2.3 Questionnaires

Forty questionnaires were distributed among residents (Appendix F, G). Questionnaire design included Likert scales and closed questions in order to be able directly compare responses (Parfitt, 2005). Several open questions were also included to complement the interview data. Half of the questionnaires were returned, confirming Parfitt’s warning that self-completed paper questionnaires tend to yield low response rates. This might also be partly explained by the length of the questionnaire itself. If the design had been more concise, perhaps more people would have been inclined to complete and return it.

3.2.4 Satellite imagery

In conjunction with primary data collection through fieldwork, historical and contemporary satellite imagery was obtained from Google Earth in order to examine whether the Comuna has continued to sprawl since the introduction of the JCM, ensuring the inclusion of objective evidence in the study.

3.3 Data analysis

All interviews were transcribed in Spanish, and later translated into English along with the questionnaire responses. While translation was done as accurately as possible, there is a chance that words or phrases may have been misinterpreted, risking a loss of meaning and affecting the overall findings (Twinn, 1997; Lopez et al, 2008). Data were coded using NVivo, to enable in-depth analysis of results (Basir, 2003; Cope, 2003). Codes and themes identified prior to and during the research were used to “organize and make sense” of the data (ibid.:152), facilitating analysis and evaluation of my research findings.
3.4 Positionality and ethics

It is important to reflect on positionality, as this can influence the type of information collected and/or the interpretation of it (Stewart-Withers et al, 2014; Flowerdew, 1997; Mullings, 1999). Fortunately, some potential issues were mitigated by the fact that I am part-Colombian, meaning that I share and am accustomed to certain ethnic and cultural traits. However, I would still have been considered an outsider, given that I do not have the distinct Antioquian accent. Sidaway (1992) has raised concerns about power relations that may arise from western researchers conducting fieldwork with non-European subjects. In Comuna 8, in particular, my perceived social standing as a British student may have generated unease and affected the responses of some participants during interviews. However, I did not feel this, and strived at all times to treat interviewees with respect and as equal subjects.

Research was conducted in an ethical manner. All participants remain confidential and anonymous, with informed consent having been obtained prior to all interviews (Kitchin and Tate, 2000; Leech, 2002). This followed an explanation of the purpose of the study, which is important to outline to those involved (Creswell and Creswell, 2018). Participants could stop providing data at any point, and were given the freedom to withdraw from the study at a later date. All data was securely stored on a password-protected device and was kept in accordance with the latest data protection laws.

3.5 Scope and limitations

My findings are informed by a small sample size. While different residents in Comuna 8 and a wide range of professionals and academics were interviewed, the sample inevitably left out many actors affected by or involved in the JCM. A larger sample size would likely have generated more diverse results offering different insights.

In terms of geographic scope, research was only conducted in one comuna, in just four of its nine peripheral barrios. Due to time constraints, this study did not involve collection of comparative information in adjoining neighbourhoods such as Comuna 3 and Comuna 6, which also formed part of the JCM pilot phase. A further shortcoming is that people encroaching on green belt land above Comuna 8 were not interviewed due to reported risks to personal safety, meaning that the study relies on second-hand rather than first-hand reports on the nature of land invasions.

The study therefore serves as a snapshot, drawing conclusions from the perspectives of a limited sample of local residents, professionals and academics.
4.0 Containing the Fringe

A central aim of the JCM is to discourage further auto-construction of dwellings on the upland slopes of the urban periphery. This chapter assesses the extent to which urban sprawl is being prevented in Comuna 8. Views on the effectiveness of the JCM are examined alongside satellite imagery, before discussing possible explanations for continued settlement expansion.

4.1 Impacts on the urban boundary

The consensus among the residents interviewed is that the JCM has not entirely succeeded in preventing urban expansion. As one resident notes, “people continue to invade the sectors in the hills” (R4). Another observes that “people will always find a new place to build a house” no matter what physical obstacles are in their way (R86). Referring to land above Altos de la Torre (Llanaditas), another local argued that:

“There was nothing behind the boundary when they completed the construction, and I can tell you that they are building again… The JCM initially put a brake on it. But the people have now gone beyond it.” (R1) - see Figure 7.

Scholars interviewed for this study concur with residents. One noted that the JCM has “not stopped expansion” (A1). Another goes further to say that it should “not [be considered] a strategy of containment” (A2). Several interviewees question the utility of a hard border to contain growth.

Given ongoing auto-construction on the ground, residents are sceptical that the JCM can ever fully stop urban growth, with two thirds of questionnaire respondents indicating that they doubt the project will put an end to urban expansion. Overall, there is a general agreement across different groups of respondents that urban sprawl is not something that can be fully stopped, but rather a process which should be managed (A1). Employees of the Mayor’s Office express similar views:

“Among the most important conclusions within the JCM process is that the city cannot be stopped. We need to understand the city and try to guide the growth… urban growth cannot be halted” (P5)

This view aligns with the arguments of Inostroza et al. (2012) and Bergvall and Dahl (2015), who claim the problem is not whether cities expand, but how they do so. This suggests that the JCM has perhaps adopted the wrong approach.
Local perceptions and observations about continued urban growth adjoining Comuna 8 are confirmed by satellite imagery. Figure 8 shows imagery from September 2011 and Figure 9 presents an image from September 2018. Figure 9 reveals new constructions on the upper slopes and along the top of the hill (Points 1, 2, 3, 4). New dwellings can also be seen along the lower course of the Camino de la Cuesta (Points 5, 7). Denser clusters of housing have also formed in some places (Points 6, 9, 10). Satellite evidence therefore indicates that the JCM has failed to halt informal development on the periphery of Comuna 8. As witnessed with other green belts around the world, urban development has ‘leapfrogged’ the designated boundary (Sturzaker and Mell, 2016; Bengston et al 2006).

In contrast, Figure 9 also shows that self-builds have not expanded much along the borders of Trece de Noviembre, Villatina and San Antonio. This suggests that the JCM policy has perhaps been more effective in preventing growth in some parts of the Comuna than in others. The lack of building adjacent to these barrios might also be explained by local topography, as lands below the summit of Pan de Azúcar are steeper than the incline further north alongside Llanaditas.
Figure 8: Study area in September 2011, before the construction of the JCM in this Comuna.

Figure 9: Study area in September 2018, three years after the completion of JCM in Comuna 8.
4.2 Drivers of settlement expansion on the urban fringe

4.2.1 JCM as a magnet?

Several research subjects consider that the JCM, and its associated improvements, has possibly had the perverse outcome of attracting people to the Comuna, rather than preventing further settlement. As one scholar interviewed for this study insisted, “you can’t stop development with development” (A1).

Local people report that the provision of legal water supplies and electricity has become an incentive to build more dwellings. In Llanaditas, residents argue that the addition of potable water tanks higher in the mountain and the rehabilitation of the Camino de la Cuesta attracted people to settle there (P4; P8; P9). According to an employee of EDU2, the settlement grew as community members encouraged family and friends to move closer to them to construct their homes nearby (P4). By auto-constructing a dwelling illegally, some residents anticipate that they will eventually be granted land title as part of a tenure formalisation process, or that they will be evicted and provided with adequate housing by the city authorities (Betancur, 2007; P8; P9). As one interviewee put it:

“The municipality don’t want to see you there, so you say ‘fine, give me a house’. And then I go. Thanks to invading, I end up with a house somewhere else.” (P2)

Land invasions are seen as inevitable by some residents. They point out that people are motivated by economic gain or personal betterment whether as a seller, buyer or informal developer of peri-urban land (R3).

Concerns have also arisen regarding the extension of metro-cables3 into the comuna (Claghorn et al., 2016). While connecting the periphery of the city to the mass transit system has delivered important social benefits for residents, it has perhaps also made their upland communities more attractive for settlement and investment. One architect interviewed for this study considers that the metro-cable will likely encourage more people to settle in the comuna:

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2 EDU is Medellín’s publicly owned urban development company.

3 Metro-cables are a gondola lift system forming part of Medellín’s mass transit network (Brand, 2013).
“In the medium to long term, methods of transport expand the urban stain… It’s a contradiction because you have to generate solutions and accessibility, but by doing that you are driving low quality urban expansion.” (P3)

In fact, the proposal to construct a monorail running along the upper eastern slopes of Medellín was particularly controversial (P7). This was later discarded following warnings that it would encourage people to move to the area, thus putting ‘pressure’ on the border and perpetuating urban expansion (Claghorn et al, 2016; Echeverry-Tamayo, 2019).

Local people also report that the establishment of new settlements above Llanaditas is to some degree organised and driven by urban businessmen and criminal gangs originating “further down in the town” (P2). Parcels of land are identified for possible settlement and poorer residents or recent migrants to Medellín are encouraged by speculators to settle and build on green belt land in return for later payment by the persons involved (R1). Some residents consider that the JCM may have exacerbated this type of land speculation in the transition zone (R6; P2; P4).

4.2.2 Continued influx

External factors remain important drivers of urban expansion. Conflict and hardship continue elsewhere in Colombia and neighbouring countries. In recent years, there has been a large influx in Comuna 8 of IDPs from Urabá and other parts of Antioquia, as well as Venezuelan refugees (R6). Media reports confirm that Medellín is the second most preferred destination for Venezuelans fleeing poverty, hunger, insecurity and oppression in their country (El Tiempo, 2018). The ongoing influx of internal and transnational refugees could explain why land invasions and self-builts have continued within and adjacent to Comuna 8 (R6; R1).

4.2.3 Urban governance constraints

Residents argue that one of the reasons for persistent urban sprawl is the current lack of effective governance structures and an insufficient political will to fully control it. As local people observe:

“The presence of the state has been lost. They’re not insisting so much anymore. So people have carried on building. Who knows if they’ll knock them down in the future. Before the change in administration, they knocked them down. I don’t know why they don’t anymore.” (R11)
“It’s assumed that there can’t be any more houses from this path [Camino de la Vida] upwards. And the state was inept in the sense that it neglected the territories. It did not carry on monitoring the territories, and as a result today we have more invasions than at the beginning of the project.” (R2)

An employee of the Parque Arví Corporation offered similar insights:

“This was a flagship project of the last [metropolitan] administration. When it changed, they dropped the focus on territorial control. We report invasions on time so something can be done… that’s all we can do. But nothing happens… they don’t take action. People take advantage of the fact that there is no presence of the state.” (P8)

This highlights the political nature of urban planning, and the desire of each mayoral administration to focus on its own priorities rather than build on the legacy of the last. A former employee of EDU, who spearheaded the project during the previous administration, expressed disappointment, stressing that the JCM should not be seen as directly responsible for failing to control expansion:

“It’s not the project’s responsibility to control urban expansion. It’s the responsibility of the governability… If the project has its institutionality and continuity withdrawn, how are you going to say to me that it’s the fault of the project?” (P7)

A different perspective was provided by other interviewees. Staff in the Mayor’s Office, and others, affirmed that monitoring of illegal settlements continues to take place (P9; P10). Strategies include frequent vigilance and the demolition of homes (P10; P2). However, the scale and speed of constructions was cited as major barrier to achieving full control:

“While we are here talking there are people building houses… It takes the Government Secretariat months to come and verify, and procedures and regulations are much slower than community actions. A neighbourhood can be built in a month and once it’s there the administration cannot control it.” (P4)

Other employees emphasised the importance of educating the residents to understand that green spaces should not be invaded and note that “it’s impossible for one single administration to control it” (P10), highlighting that the community itself must take some responsibility and work alongside them (P10). This notion of community self-management and a need to understand, respect and defend

4 The Parque Arví Corporation have a contract with the Mayor’s Office to manage and maintain the JCM.
the border was reiterated by other participants (A4; P7). Residents are not entirely convinced, with one saying “we, the communities, can only do little” (R2).

4.3 Discussion

The findings above show that the objectives of the JCM to control urban sprawl in Comuna 8 have not been achieved as new settlements continue to be established inside the green belt. This mirrors the experience of green belts in other Latin American cities such as Santo Domingo (Diaz, 2017), demonstrating the difficulties in achieving functional containment. This chapter emphasises that the drivers of informal settlement growth are often complex and involve different actors. Internally, some auto-constructions appear to be driven by local land and real-estate speculation, as in other informal settlements in the Global South (Caldiera, 2017; Goveneur, 2015).

There are also indications that some locals aspire to enjoy lower density housing on the fringe, while others hope to obtain economic benefits through legalising property rights and opening up their options for future property sales. This suggests that some informal sprawl on the margin of Comuna 8 might be partly driven by locational preferences, somewhat similar to the causes of urban expansion in the Global North (Xavier-Barros 2004; Hernandez-Palacio 2012). Meanwhile, this chapter also indicates that the JCM’s improvements may have created a magnetic effect, encouraging people from within and outside the city to move to Comuna 8.

Externally, push factors include displacement and ongoing violence in the countryside, which continue despite the adoption of Colombia’s peace accords in 2016 (Colprensa, 2019). Additional migration to Medellín is being driven by the economic and political crisis in Venezuela (El Tiempo, 2018). It is notable that these external drivers are not addressed by the JCM. As discussed above, other reasons for the ineffectiveness of the JCM initiative to curb urban growth are contested among different stakeholders. Residents consider that the city government is failing to adequately enforce regulations against new builds – actions argued by Echeverry-Tamayo (2019) as essential for such a project to succeed. For their part, city authorities consider that the local communities could do much more to prevent land invasions. Some scholars, such as Hernandez-Palacio (2012), stress that there needs to be greater coordination among urban and rural authorities in the Aburrá Valley to ensure better management of urban growth. I would go further to argue that there is a need for broader policy coordination at the local, regional and national scales, to foster better connections between rural and urban policy in order to manage sprawl.
The following chapter examines how the public spaces created under the JCM have affected the community.
5.0 Upgrading Public Space on the Urban Periphery

Another core goal of the JCM has been to improve public space in the consolidation and transition zones of the CVM. By 2014, the JCM had created 206,305 m² of new public space through a range of construction and landscaping interventions (Table 1; Figure 6). This chapter will explore some of the impacts of the JCM’s public space on residents, identifying positive and negative effects. This study finds, on balance, that the JCM’s public space component has improved the lives of most residents in Comuna 8.

Table 1: Public space created under the JCM

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camino de la Vida</td>
<td>Path for walkers following the upper eastern length of the comuna.</td>
</tr>
<tr>
<td>Ruta de Campeones</td>
<td>Cycle route following the length of the comuna.</td>
</tr>
<tr>
<td>Ecoparques</td>
<td>Parks with natural, ecological and touristic values. Intended for landscape restoration and passive recreation. Some parks feature sports fields and gym equipment.</td>
</tr>
<tr>
<td>Parques Barriales</td>
<td>Squares and (eco-)gardens designed as leisure spaces. Some feature gym equipment.</td>
</tr>
<tr>
<td>Parques Infantiles</td>
<td>Play areas for children, mostly within ecoparques and parques barriales.</td>
</tr>
<tr>
<td>Viewpoints &amp; centralities</td>
<td>Meeting points to admire the landscape, and/or spaces to congregate and interact.</td>
</tr>
<tr>
<td>Archaeological paths</td>
<td>Restoration of the paths of pre-Hispanic indigenous communities who resided in the area e.g. Camino de la Cuesta.</td>
</tr>
</tbody>
</table>

Source: Gaviria et al. (2015).

5.1 Positive Impacts on People and the Environment

5.1.1 Recreation and community relations

Six residents interviewed said that they use the spaces of the JCM on a weekly basis, while others do so often, but less regularly. Common activities include exercise, ranging from sport (basketball, football) to short walks, and more passive undertakings such as picnicking and reading (R6). Children regularly play in the parques infantiles (R14). The gardens surrounding the constructed spaces were
frequently described as “very beautiful” (R6, R9, R81; R85; R88) and a way to closely interact with and appreciate nature (R6). The creation of high-quality public space has thus encouraged residents to undertake ‘optional activities’ – a key indicator of success, according to Ghel (1987).

Certain ecoparques and parques barriales have provided spaces for music, art and community gatherings (R1), promoting interaction, and creating lively neighbourhoods as a result (Ghel, 1987). These new spaces are reported to have improved social integration, generating a greater sense of inclusion (Gaviria et al., 2015). As one employee of the Mayor’s Office observes:

“The ecoparque has had a positive impact in Trece de Noviembre. During the evenings… there are people playing, people sitting in the stands talking… It became the public square of the barrio, the gathering place.” (P6).

Many interviewees and questionnaire respondents also emphasised that, in addition, the JCM has improved existing community relations. New public spaces have enabled families to spend more time together and grow closer as a result (Figure 10). As one resident put it:

“In the past it was a green zone people couldn’t properly access. But they made the paths so people could enjoy it… all these activities improve the relationships within families. People are more unified overall. It’s something incredible, I never thought it was going to happen… it’s just amazing.” (R11)

Figure 10: Residents enjoying passive recreation along the Camino de la Vida. Photo: EDU.
5.1.2 Health and wellbeing

Public space is said to have an effect on the health and wellbeing of residents (Villanueva et al., 2015). As pointed out by a professional who has previously worked within Comuna 8 (P1) and one resident (R13), green space can help lower stress levels. This positive environment-stress correlation is supported by scientific studies (Beyer et al, 2014; Mitchell and Popham, 2008). There are now pleasant spaces to relax, which has had a positive effect on mental health (R13). The new spaces also enable residents to maintain a good standard of physical health. A community leader in Trece de Noviembre told the story of how the JCM has contributed towards this:

“It’s a space that allows me to go and exercise and because of my illness, my obesity, being able to do this has had a direct effect on my life.” (R4)

5.1.3 Quality of Life (QOL) benefits

The majority of residents interviewed indicated that the JCM has benefitted their QOL in some way. Over three quarters of questionnaire respondents said that it has improved, with none stating that it has gotten any worse. Many indicated that the reason for this was the creation of public space. As one resident put it:

“It has improved QOL. You can share with other people. You can go on walks. You can use the environment we live in.” (R9)

Those at the Mayor’s Office are equally certain that the new public space has played a role in improving the QOL of communities:

“Have these projects changed the QOL of the residents? Yes, totally, without a doubt. It has improved. There are people that go there to ride their bikes, people exercising in the gyms, walking.... All this helps to reinforce a better life quality.” (P5)

5.2 Perceived negative impacts and shortcomings

While the JCM is found to have delivered positive impacts through the creation of public space, perceived negative consequences and defects in the project are also reported by residents.

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5 With over one hundred definitions in the literature, there is no universally accepted definition of QOL. See, for example, El Din et al. (2013) for a useful discussion of different QOL concepts.
5.2.1 Drug abuse

High rates of drug consumption and addiction fed by complex systems of *microtráfico* occur within Comuna 8, and across much of Medellín (Bijlsma et al., 2016). Some residents feel that this problem may have increased as a consequence of the JCM development, which they consider has provided agreeable spaces for recreational drug taking (R6). One resident observed:

“The only negative consequence [of the JCM] is the higher drug consumption. People have moved from consuming on the streets to consuming in the green zones. Simply having public spaces gives them somewhere to go and ‘relax’. ” (R4)

Drug and alcohol abuse are a common occurrence in Comuna 8. Several people interviewed for this study reported having close family and friends who consume. Consequently, they do not feel especially threatened as they know the drug users (R4). On several occasions during my fieldwork groups of individuals (teenagers and young adults) were observed consuming drugs along the Camino de la Vida.

5.2.2 Defects in the participatory planning process

Several research participants consider that the participatory design and management of JCM’s public space has not fully met their aspirations and priorities. Residents were invited to participate in ‘imaginary workshops’ prior to the construction of the JCM project. These were ‘invited spaces’ created by urban planners to enable residents and community organisations to make suggestions to help shape the master plan (Cornwall, 2006). When residents discovered that they would not be able to light fires for cooking near the archaeological path, as they had been long-acustomed to, many proposed the installation of stoves so that the fires could be lit safely. This suggestion was disregarded by planners and city authorities (R4). A climbing wall was also suggested by the community, but this was not included in the final JCM plans. The vast majority of residents interviewed expressed their disappointment that a public swimming pool was not built (R6; R4). Consequently, 57% of residents in Comuna 8 surveyed for this study considered that the participation process could have been more effective.

5.2.3 Contested priorities
Some interviewees report that the provision of new public space was not a matter of urgency for residents and other problems should have been addressed by the project (P8; P9). When asked if the JCM’s provision of public space early on in the project met with local priorities, one resident answered:

“No. Never. Look, this is a barrio with a single route of access. And there are still some homes without drinking water, without sewers, without services that give QOL to the inhabitants. So, this caught the attention of us leaders. They invested millions in improving public space, but they didn’t correct the things that were most necessary for the residents.” (R4)

Hence, for residents living in more precarious and marginal conditions, the creation of public space has not affected the main, more serious challenges of urban living that they continue to face.

5.3 Discussion

This chapter shows how targeted JCM investments in public space using a social urbanism approach have provided local benefits for residents. As well as creating new places for public recreation, the JCM has reportedly fostered greater social interaction among residents, demonstrating that shared public space can help create a greater sense of community (Francias et al. 2012). The developments have brought perceived health benefits to local people, lending weight to claims made by scholars that positive links exist between well-designed public space and QOL (Koramaz et al., 2018; Shahzad et al., 2017; Beck, 2009; Lloyd and Auld, 2003). The fact that the JCM has encouraged residents to undertake ‘optional’ recreational and sports activities is a key indicator of this improvement (Ghel 1987).

Taken together, the impacts of these interventions can thus be understood as a form of urban acupuncture, whereby the creation of high-quality public spaces has healed the city’s public space deficit in Comuna 8 and reinvigorated the social and urban environment (Torres-Tovar, 2009; De Sola Morales, 2008; Lerner, 2003; Casagrande, 2015; Houghton et al. 2015).

However, some people in Comuna 8 feel that the early stages of this initiative did not ensure fully effective public participation in project design, as requests for certain public space facilities were not included in the final plans. Residents living in some of the poorest households in Comuna 8 also criticise the JCM for investing large sums in public spaces without also paying equal attention to
other urgent priorities, as identified by residents, including the need for better sanitation and potable water.

Chapter 6 examines some of the economic and housing impacts of the JCM, which can be considered ‘ripple effects’ of its physical public space interventions.
6.0 JCM Livelihood and Housing Impacts

This chapter aims to evaluate some of the ripple effects resulting from the JCM, including support for training and employment. It also looks at initiative’s resettlement component, which involved relocating households situated in high-risk zones with the aim of providing them with improved housing. In Comuna 8, these interventions have resulted in positive and negative impacts on residents as discussed below.

6.1 Training and employment opportunities

The scheme employed residents in Comuna 8 in landscaping and public space works in an effort to provide vocational training and create jobs for local people suffering unemployment or underemployment. Residents were given paid work on key JCM projects, including in the construction of the Camino de La Vida and Ruta de Campeones (Figure 11). In practice, most of the JCM workforce in Comuna 8 consisted of local inhabitants, benefitting a total of 3,500 people (Gaviria et al., 2015). Urban planners stress that because residents “built the works with their own hands… [this] gave them a greater sense of ownership of the project” (P5). Local people report that work with the JCM helped reduce unemployment within the barrios (R2). Vocational training supplied via what some professionals term the JCM’s ‘pedagogical urbanism’ sought to build employment skills and transform citizens’ life opportunities (Berney, 2011):

“People were trained in various areas, so that they were able to help with different parts of the implementation of the project. We trained people as builders, gardeners and tree planters… The training process allowed us to generate more capacity in the community.” (P5; P6)

Residents are grateful that the project provided them with the opportunity to be trained:

“The projects have allowed me to progress. I have learnt a lot, I now have a lot of options and opportunities, I have grown as a person. I have new skills.” (R11)

Approximately 22% of the workforce involved in JCM construction and landscaping projects were female (P5; P6; P7; A1). JCM employment was reportedly highly beneficial for these women. Many in Comuna 8 are household heads, and so the opportunity to secure paid work was welcomed. Some had never had formal paid work before. Others were drawn away from prostitution (P7). JCM
working hours were often flexible, meaning that they could continue to look after their children and household (A1).

Training was not only provided for the short-term purpose of constructing the JCM. Acquiring new skills also meant people could obtain further employment offered elsewhere in the city with the same contractors:

“If you worked properly you gave yourself a chance of being employed again. In other words, not only were they given temporary employment, but some people stay linked with definitive employment, as long as they do things well.” (P10)

Figure 11: Trained residents constructing a wall adjacent to the Ruta de Campeones cycle path in 2013. Photo: EDU.
Once the initial landscaping and building works were completed, further employment opportunities were generated by the JCM for land management and maintenance activities (P8; P9). The JCM has employed tour guides for visitors and hired gardeners to maintain green spaces (Figure 12). These residents are adamant that their QOL has improved as a result:

“My QOL has improved because this project has offered me the opportunity to study, train, and have decent employment. I have been able to show my children that things can be achieved.” (R5)

The JCM is reported to have created 5,347 jobs for residents and to have trained a total of 5,393 people living in Comuna 8 (Gaviria et al., 2015). While some of these jobs have been provided over the long-term, other JCM jobs ended when works were completed. People were also laid off in recent years. Two residents surveyed expressed disappointment about the lack of job continuity under the project, which community members have been told is due to reduced JCM funding by the Mayor’s Office (R7). The Parque Arví Corporation was only able to take a small number of employees on. (R1; R2).
6.2 Housing and resettlement programme

The ‘sustainable neighbourhoods’ component of the JCM involved plans to relocate families who auto-constructed their homes in high-risk zones to newly built apartment blocks elsewhere in the same barrio. These zones were identified by geologists and urban planners in places susceptible to landslides or local flooding (Klimes and Rios-Escobar, 2010; Barrows et al., 2013). This study finds that this involuntary resettlement has been the most controversial and least successful element of the project.

In most cases, residents were evicted from their homes before the construction of the new housing, which was just beginning in 2018 – more than five years after those involved in the scheme were first told to leave (P5; P6) (Figures 13 & 14). Many affected families are still housed in temporary rented accommodation. It is worth recounting the painful story of one affected resident (R8):

“My experience is negative… my mum’s dream, our dream as a family was to be together in the same house… I presented myself to the project with some of my building already done… they knocked it down… I go there and I feel sick. I started renting, but in August they removed me from this temporary rent… now I am living with my brother, in Manrique [Comuna 3]… They told me I do not have any rights. So, to begin with they said I did and after that they said I didn’t because I never actually lived there… one can own something but no, I was told I had no right to that site. I received 1,200,000 pesos. How many months of rent can I pay with that? Where am I going to live with that? I feel that my rights have been totally violated.” (R8)

This particular instance of flawed resettlement is just one of at least 12 similar cases (R7). Evidence collected for this study indicates that the scheme has caused significant emotional distress and trauma for some individuals and families, which is characteristic of urban resettlement projects (Osorio-Alvarez, 2017). Relocation can disconnect people from their community, which creates further distress (Serje, 2011; Arabindoo, 2011). As the same resident adds:

“I feel displaced by the project. If that project had never arrived, I would have already built my house… and our QOL would have changed completely for the better… I would be happy. At this moment… I don’t belong.” (R8)

---

*Circa £300 pounds sterling.*
Another concern raised by the community is that the apartments being built for relocated persons will not be suitable. Many residents in Comuna 8 are from the countryside, long-accustomed to having large spaces and their own plot of land. Moving to an apartment will deny them this. As one community leader put it:

“They demolished lots of big houses to put the people in an apartment. Large families, with six, seven, eight people in one apartment where in reality two people would fit. They are like match boxes.” (R4)

It should, however, be noted that EDU has supported larger families to find more suitable housing within the same territory, while others were offered the chance to improve their existing homes (P7).

While some affected residents are critical of the resettlement scheme, others who are not directly affected see some justification for the policy. One respondent to the questionnaire (R811) observes, for example, that: “these measures are necessary” given the landslide risk. Another resident, who is yet to leave her existing home, was also optimistic that resettlement will be beneficial in the long-run:
“It’s a way of improving. They have given us the opportunity to have more adequate homes… With the apartments we will have a space that is ours, and that is legal… We won’t fear that they’re going to kick us out.” (R5)

Some staff at EDU and the Mayor’s Office acknowledge that the JCM housing component has not been entirely successful, given the delays in completing it. Some admitted that the complexity of the issue was greatly underestimated (P5; P6); and that there was simply not enough time to construct the apartments within a four-year administration (P5; P6). As one put it, “the objectives that were expected have not been achieved” (P4). One resident, R7, blamed these JCM shortcomings on the lack of political continuity and reductions in public funding. He was particularly worried that the fund, Ciudad para la Vida, is running out, as this helps the families who are yet to have housing obtain money for rent.

Figure 14: Construction site of one of the new apartment buildings in Trece de Noviembre. Photo: author’s own.
6.3 Discussion

This chapter shows that the JMC is perceived to have resulted in a number of benefits for local livelihoods. Seen through the lens of urban acupuncture, the positive ripple effects of the JCM have helped cure certain socioeconomic ailments, including under and unemployment, especially among women (Petrova et al., 2016). Thus, the JCM appears to meet Roy’s (2004) test, as the initiative has bettered the livelihoods of some residents rather than simply upgrading the built environment without any direct impact on the local community.

Meanwhile, the JCM has also caused hardship for some residents affected by its resettlement scheme. Several affected families remain in temporary accommodation in 2018, years after being evicted and seeing their auto-constructed homes demolished. It is found that some affected families feel their lives have changed for the worse as a result of this component of the JCM. Indeed, some uprooted residents reported feeling emotionally distressed and without a sense of belonging thanks to the project, in line with many other resettlement programmes in cities around the world (Dina, 2017; Smolka and Larangeira, 2008). Their experience raises doubts about the effectiveness of these programmes in Medellín and beyond in protecting the human rights of urban dwellers (Osorio-Alvarez, 2017).

The final chapter of this thesis draws together some key findings of this research and attempts to draw some general and specific conclusions.
Following decades of rapid urban growth and peripheral urbanisation, the Municipality of Medellín saw the JCM as a solution to a seemingly uncontrollable problem. They also considered it a way to transform informal barrios by providing new public space and opportunities to improve the lives of residents. This study has gone some way to providing answers to each of the three research questions set out in Chapter 1. Although its scope is limited to one comuna, it addresses broader challenges encountered by cities in Latin America and worldwide, and intends to contribute to the fields of urban geography and planning. Overall, it is hoped that this study has responded to calls of scholars for more case studies of cities in the Global South to enrich urban planning theory and the understanding of diverse urbanisms (Watson, 2015; Bhan et al., 2018). The findings of this research and its assessment of the impacts of the pilot phase of the JCM generate several key conclusions.

An important finding of the study is that the JCM has delivered genuine benefits to residents living in Comuna 8. Its new, high-quality public space has created opportunities for recreation and social interaction, leading to greater social cohesion. Other positive impacts include provision of training and employment. It is concluded that these targeted interventions have acted as a form of urban acupuncture, which has helped heal public space deficits and generated positive ripple effects within the community.

In contrast, the resettlement component of the JCM has been less effective. Some affected households have had negative experiences, with inadequate compensation and no new housing years after eviction.

The research also finds that the JCM’s primary objective of controlling urban sprawl has not been met in the study site. Landscaping to create a hard border for the city, and other associated improvements, have perversely served as a magnet, driving land speculation and further illegal settlement. Meanwhile, conflict, displacement, insecurity and poverty in rural areas of Colombia continue to propel rural-urban migration to Medellín’s peripheral neighbourhoods. Therefore, it can be concluded that the JCM has sought to treat the symptoms of sprawl rather than tackling its root causes. Developing and adopting a coordinated local, regional and national approach to reducing migration to Medellín would likely improve efforts to combat informal sprawl. In short, these findings again raise questions over the efficacy of green belts and their capacity to contain urban growth.
This study indicates that the effectiveness of the JCM has also been undermined by the shifting priorities of Medellín’s municipal administration. Residents perceive a lack of political will to control land invasions as a significant barrier to the achievement of the JCM’s urban containment objectives. Its budget has been reduced, and there are concerns that the fund paying the temporary rent of resettled residents is running out. Like any long-term urban plan, the JCM requires policy continuity and political commitment in order to be successful.

Further research to build on the findings of this study could include a detailed census of recent settlers in Comuna 8 to analyse their origins and motivations for moving to this part of Medellín. A critical evaluation of Medellín’s urban resettlement schemes could help highlight lessons learned and steps required to ensure better social outcomes. In addition, studies of the JCM and related topics in Comunas 3 and 6 could also provide more far-reaching insights. Research in higher-income areas of the city suffering ‘formal’ sprawl could likewise reveal important similarities and differences with potential to inform future interventions and strategies to contain damaging urban expansion. More generally, research could assess current rural and urban policies at the national and sub-national level to identify gaps and opportunities to tackle the drivers of rural-urban migration.

Word count: 9,854
Appendix A: JCM Master Plan for Llanaditas

Appendix B: JCM Master Plan for Pan De Azúcar

Appendix C: Summary Table of Interviewees

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<thead>
<tr>
<th>Code</th>
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<th>Occupation/Description</th>
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</thead>
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<tr>
<td>Residents</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>C8_R1</td>
<td>Female</td>
<td>1 hr 10 mins</td>
<td>Unemployed – formally worked on a project at Corporacion Futuro Para La Niñez</td>
</tr>
<tr>
<td>C8_R2</td>
<td>Female</td>
<td>18 mins</td>
<td>Community leader and works in the ecological garden and sector El Faro y el Pacifico (barrio Llanaditas)</td>
</tr>
<tr>
<td>C8_R3</td>
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<td>36 mins</td>
<td>Shop owner</td>
</tr>
<tr>
<td>C8_R4</td>
<td>Female</td>
<td>1 hr 7 mins</td>
<td>President of the Junta del Action Communal and a student of psychology</td>
</tr>
<tr>
<td>C8_R5</td>
<td>Female</td>
<td>27 mins</td>
<td>Promotional worker for JCM</td>
</tr>
<tr>
<td>C8_R6</td>
<td>Male</td>
<td>1 hr</td>
<td>Guide, JCM</td>
</tr>
<tr>
<td>C8_R7</td>
<td>Male</td>
<td>45 mins</td>
<td>Community leader, formerly Trece de Noviembre, now all of Comuna 8</td>
</tr>
<tr>
<td>C8_R8</td>
<td>Female</td>
<td>15 mins</td>
<td>Ordinary resident (undisclosed)</td>
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<td>C8_R9</td>
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<td>12 mins</td>
<td>Ordinary resident (undisclosed)</td>
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<tr>
<td>C8_10</td>
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<td>8 mins</td>
<td>Ordinary resident (undisclosed)</td>
</tr>
<tr>
<td>C8_11</td>
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<td>14 mins</td>
<td>Promotional worker for JCM</td>
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<tr>
<td>C8_12</td>
<td>Female</td>
<td>10 mins</td>
<td>Owner of a small eatery</td>
</tr>
<tr>
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<td>13 mins</td>
<td>Ordinary resident (undisclosed)</td>
</tr>
<tr>
<td>C8_14</td>
<td>Female</td>
<td>15 mins</td>
<td>Former community leader</td>
</tr>
<tr>
<td>C8_15</td>
<td>Female</td>
<td>14 mins</td>
<td>Hairdresser</td>
</tr>
<tr>
<td>C14_R1</td>
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<td>30 mins</td>
<td>Retired</td>
</tr>
<tr>
<td>C14_R2</td>
<td>Female</td>
<td>45 mins</td>
<td>Lawyer</td>
</tr>
<tr>
<td>C14_R3</td>
<td>Male</td>
<td>53 mins</td>
<td>Biologist</td>
</tr>
<tr>
<td>C14_R4</td>
<td>Male</td>
<td>1 hr 14 mins</td>
<td>Retired doctor</td>
</tr>
<tr>
<td>C14_R5</td>
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<td>Works at Centro Integral Para La Familia</td>
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<tr>
<td>ID</td>
<td>Name</td>
<td>Gender</td>
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<td>--------</td>
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<td>P2</td>
<td>Male</td>
<td>1 hr</td>
<td>Executive Director, Corporacion Futuro Para La Niñez</td>
</tr>
<tr>
<td>P3</td>
<td>Male</td>
<td>32 mins</td>
<td>Director, OPUS</td>
</tr>
<tr>
<td>P4</td>
<td>Male</td>
<td>1 hr 17 mins</td>
<td>EDU: Ingeniero Forestal, Profesional Ambiental</td>
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<tr>
<td>P5</td>
<td>Female</td>
<td>1 hr 9 mins</td>
<td>Secretaria de Infraestructuras, Alcaldia de Medellin</td>
</tr>
<tr>
<td>P6</td>
<td>Male</td>
<td>1 hr 9 mins</td>
<td>EDU: Profesional lider, Subgerencia de Estructuracion de Proyectos</td>
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<tr>
<td>P7</td>
<td>Male</td>
<td>1 hr 14 mins</td>
<td>EDU (2012-15): Ingeniero Civil, Subgerente de Proyecto Especiales</td>
</tr>
<tr>
<td>P8</td>
<td>Female</td>
<td>1 hr 32 mins</td>
<td>Comunicadora, Profesional Social, Parque Arvi</td>
</tr>
<tr>
<td>P9</td>
<td>Male</td>
<td>1 hr</td>
<td>Architect, Parque Arvi – looks after operations, conservation, sustaining paths, planting</td>
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**Academics**

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<td>Academic/architect</td>
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</tr>
<tr>
<td>A4</td>
<td>Male</td>
<td>59 mins</td>
<td>URBAM, Universidad EAFIT</td>
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</table>
Appendix D: Interview Outline (Version A, Residents)

Translated into English from the Spanish original.

BACKGROUND

Ethical protocol:

Background of the study and its purpose
Do you want a copy of the final study? Yes/No
Do you give permission for this interview to be recorded? Yes/No
Do you give permission to be quoted within the text of the final study? Yes/No

Information about the Interviewee:

What is your name?
What is your occupation?
What is your year and place of birth?
Where were your parents born?
Have you ever lived outside of this barrio? If so, where? When?
What were your reasons/your family’s reasons for coming here? (if relevant)
How many years have you lived in this barrio?

QUESTIONS (use as a guide)

1] Have you heard of the CVM and JCM?
   1.1] When did you find out about these projects, and how?
   1.2] According to your knowledge, where, when and why did these initiatives arise?
   1.3] Do you know if there is a difference between the CVM and JCM?

2] Do you know what the main goal and specific objectives of each initiative is?
   2.1] Do you know if these projects are still being executed today?
   2.2] Are you aware of the CVM/JCM master plans formed by the Mayor’s Office and EDU for your comuna?
   2.3] Do you agree with these projects and their land use plans? If so, why? If not, why not?

3] According to your experience and perspectives, what do you think about the plan and interventions of the CVM and JCM?

4] Did the urban/metropolitan authorities consult you and others in your comuna about these projects prior to their execution?
   4.1] Did you know about these initiatives and how they could affect your comuna?
   4.2] How much have you participated in shaping the design and direction of these projects?
   4.3] Do you think that the initial consultation, your participation and the participation of different groups in the comuna were adequate? Why?

5] Did you and other residents participate or work on the works that form part of these projects (for example, paths, parks, ecological restoration)?
   5.1] If yes, in what way did you participate?

6] As a resident of Medellin, how would you define ‘wellbeing’ and ‘quality of life’ for you and your family?
7] From your point of view/experience, have these projects brought any changes?
   7.1] Have they affected your wellbeing or quality of life in some way? How?
   7.2] Do you consider that your quality of life is the same, a bit better, a lot better, worse or a lot worse due to the presence of these projects? Why?

8] According to your observations, have you noted a difference in the pace of growth of the urban area following the commencement and completion of these projects?
   8.1] Do you think the JCM and CVM have the potential to stop urban growth?

9] Do you know if there are plans for resettlement associated with the JCM? If yes, what do you think about this?

10] In your opinion, do you think these projects have possible advantages for the residents of your comuna?

11] In your opinion, do disadvantages/undesirable impacts exist for you/other residents as part of these project?

12] What future possibilities does the JCM have to achieve sustainable results and benefit residents and the environment?

13] Looking ahead, do you think the interventions should change in some way?
   13.1] If yes, how should they change? Why?
Appendix E: Interview Outline (Version B, Professionals and Academics)

Translated from Spanish. The reader should bear in mind that the questions pre-date the slight revision of research questions.

BACKGROUND

Ethical protocol:

Background of the study and its purpose
Do you want a copy of the final study? Yes/No
Do you give permission for this interview to be recorded? Yes/No
Do you give permission to be quoted within the text of the final study? Yes/No

Information about the Interviewee:

What is your name?
What is your profession?
What is your current job title?
Which institution/organization/entity do you work at?

QUESTIONS (use as a guide)

1] According to your knowledge, where, when and why did the initiatives of the CVM and JCM originate?
   1.1] Is there a difference between the CVM and JCM?

2] What is the main aim and what are the specific objectives of each initiative?

3] Are the projects still being executed today, in July 2018?
   3.1] If yes, where are they active (comunas, barrios) and what is being executed?

4] Has your institution/entity been involved in some way in these initiatives?
   4.1] If yes, since when, how and why has it been involved?

5] Which stakeholders and entities were involved in the conception, design and execution of the CVM and JCM?
   5.1] How do you define and measure disorderly/illegal urban growth within the CVM and JCM?
   5.2] What are the mechanisms and who are the actors that monitor, control and attempt to stop this growth?
   5.3] How did they delimit and who decided the geographical limits and zones of intervention, and the areas and families to be relocated?
   5.4] How do you define and measure ‘wellbeing’ and ‘quality of life’ in each initiative.

6] Have the residents participated in the design and execution of the projects?
   6.1] If yes, in what ways have they participated?
   6.2] Were civil associations and organisations involved/consulted?

7] In your opinion, what has been the quality of the participation (if any) of the directly affected residents?
   7.1] How is the effectiveness of participation measured and evaluated?
7.2] Have people outside of the affected area (i.e. across the city) participated? If so, how?

8] Are there economic, social and environmental impacts of the JCM and CVM up to the present day which are verifiable and proven to be results of the intervention?
   8.1] In your opinion, what are the positive impacts (if any) and/or negative impacts (if any)?

9] According to your experience and analysis, to what extent has the JCM and CVM achieved their objectives?
   9.1] Have they achieved their social objectives, including in the component of resettlement?
   9.2] Is it possible to verify if it is stopping informal urban growth?

10] According to your analysis and professional perspective, are there challenges/obstacles/ opportunities not foreseen in the execution of the projects?

11] Are there emerging lessons for the planning entities, metropolitan authorities and civil society?

12] In your opinion, what does the future hold for the CVM and JCM? What possibilities (if any) do they have to achieve sustainable results in the long-term?
   12.1] Looking ahead, do you think the interventions should change in some way? How? Why are they necessary?
### Appendix F: Summary of Questionnaire Participants

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<th>Code</th>
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<th>Reasons of the individual or their family for coming to/living in Medellin</th>
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<td>Better financial situation</td>
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<td>R82</td>
<td>Ordinary Resident</td>
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<td>Displacement due to violence</td>
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<td>Community board member</td>
<td>Medellin</td>
<td>Economic opportunities</td>
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<tr>
<td>R84</td>
<td>Community board member</td>
<td>Medellin</td>
<td>Displacement due to violence</td>
</tr>
<tr>
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<tr>
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<td>Community board member</td>
<td>Medellin</td>
<td>For pleasure</td>
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<td>Rural area in Colombia</td>
<td>Seeking employment</td>
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<td>Rural area in Antioquia</td>
<td>Displaced due to violence</td>
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<td>Tourist Guide</td>
<td>Rural area in Antioquia</td>
<td>Displaced due to violence</td>
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<td>R811</td>
<td>Tourist Guide</td>
<td>Medellin</td>
<td>Forced displacement</td>
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<td>Seeking employment</td>
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<td>Seeking employment</td>
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Appendix G: Questionnaire

Translated from Spanish. The reader should bear in mind that the questions pre-date the slight revision of research questions.

ANTECEDENTS AND INFORMATION ABOUT THE STUDY:

My name is … I am a Geography student at the University of Cambridge, United Kingdom. For my undergraduate thesis, I am investigating the initiatives of the CVM and JCM, focusing on the diverse perspectives of different groups in the city, including residents in Comuna 8, professionals and academics. The questionnaire below forms part of my primary data collection. The responses will complement findings from other research methods, such as interviews.

Each questionnaire is anonymous – please do not write your name or any other information which might reveal your identity on any of these pages. All responses will be strictly confidential and will only be used for the purposes of this investigation. The responses you give on this questionnaire will be destroyed once I have handed in my thesis. You can contact me at any time to withdraw your data, in which case all records of the responses will be destroyed with immediate effect.

Many thanks in advance for completing my questionnaire. If you have any questions, please do not hesitate to contact me at [email].

A. BASIC INFORMATION

A.1 What role do you play in your comuna? Please circle one or more of the options below.

Resident Community Board Member Tourist Guide

Other: ……………………………………………………..

A.2 Where are you originally from? Please circle one or more of the options below.

Medellín Rural area of Antioquia A rural area elsewhere in Colombia

Other (please name the place/municipality/department): ……………………………………………………..

A.3 How many years have you lived in Medellin?

……… years

A.4 If you or your family moved to Medellín from another place, why did you come here?

…………………………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………
B. KNOWLEDGE AND PARTICIPATION

B.1 Are you aware or do you know that the authorities of the metropolitan area of Medellín want to implement a green belt around the city?
Yes  No  I’m not sure

B.2 Do you know where this greenbelt project originated from?
Yes  No  I’m not sure

B.3 Do you know what the green belt initiative is about and what its objectives are?
Yes  No  I’m not sure
If the answer is yes, please briefly indicate what you know about the green belt and its objectives:
……………………………………………………………………………………………………………………………

B.4 Are you aware that a ‘circumvalar garden’ forms part of this Project?
Yes  No  I’m not sure

B.5 Do you know what the circumvalar garden is about and what its objectives are?
Yes  No  I’m not sure
If the answer is yes, please briefly indicate what you know about the circumvalar garden and what it aims to achieve:
……………………………………………………………………………………………………………………………

B.6 Do you know what the difference is between the green belt and circumvalar garden?
Yes  No  I’m not sure
If the answer is yes, what do you think the difference is between these projects?
……………………………………………………………………………………………………………………………

B.7 Do you know if these projects have plans for resettling families?
Yes  No  I’m not sure

B.8 Did the authorities consult you and other residents about these projects prior to their execution?
Yes  No  I’m not sure
If the answer is yes, how did they consult you and how many times?
……………………………………………………………………………………………………………………………
B.9 How much have you and other residents in your comuna participated in influencing the shape and direction of these projects? Please circle one option below.

A lot  A little  Almost nothing  Nothing  I’m not sure

B.10 How much have you and your neighbours participated in the works that form part of these projects (for example, paths, parks and housing)? Please circle one option below.

A lot  A little  Almost nothing  Nothing  I’m not sure

B.11 Could the participation of residents as part of these projects be more effective?

Yes  No  I’m not sure

If the answer is yes, in what ways should the participation process be changed?

C. CHANGES AND QUALITY OF LIFE

C.1 If one or two of the projects have been executed in your comuna, have they brought changes for you and other residents? If the answer is yes, how have they affected you and the community?

C.2 For you, what do the terms ‘wellbeing’ and ‘quality of life’ mean?

C.3 Do you think that these projects have affected your quality of life in some way?

Yes  No  I’m not sure

If the answer is yes, how?
C4. In your opinion, has the quality of life of yourself, your family and other residents in your comuna remained the same, improved, or gotten worse since the commencement of these projects? Please circle one option below.

A lot better  A bit better  The same/no change  A bit worse  A lot worse

Why?

C.5 Do you think that the green belt and circumvalar garden have or can bring advantages for the residents in your comuna?

Yes  No  I’m not sure

Why?

C.6 Do you think that the green belt and circumvalar garden have or could bring disadvantages for the residents of your comuna?

Yes  No  I’m not sure

Why?

C.7 Have you noted a difference in the pace of growth of the urban area following the commencement and completion of these projects?

Yes  No  I’m not sure

Please elaborate on your answer:

……………………………………………………………………………………………………………………………

……………………………………………………………………………………………………………………………

……………………………………………………………………………………………………………………………
C.8 If you want to, please rate the effectiveness of the projects on a scale of one to ten: one is terrible/very negative and ten is fantastic/very positive.

1  2  3  4  5  6  7  8  9  10

D. LOOKING TOWARDS THE FUTURE

D.1 As far as you know, will these projects will continue in future?

Yes  No  I’m not sure

D.2 Do you think that the green belt and circumvalar garden have the posibility to stop urban growth?

Yes  No  I’m not sure

Why?

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D.3 If these projects continue, do you think they could bring benefits for you and other residents in the long term?

Yes  No  I’m not sure

If the answer is yes, in what ways?

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D.4 Do you think these projects could be more effective?

Yes  No  I’m not sure

If the answer is yes, how/in what ways should they change?

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ANYTHING ELSE?

If you want to share other comments or observations about the green belt or circumvalar garden, please include them here:

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.........................................................................................................................................................

Thank you for completing my questionnaire.
8.0 Bibliography


Klimes, A and Rios Escobar, V. (2010). A landslide susceptibility assessment in urban areas based on existing data: an example from the Iguaná Valley, Medellín City, Colombia, Natural Hazards and Earth System Sciences, 10, pp. 2067–2079.


