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A Critical Snapshot of Adaptation Strategies in Response to Smart City Initiatives: The Case of Bucaramanga's Urban Planning Exclusion

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Acronyms

CCTs	Conditional Cash Transfers
DANE	Departamento Adminsitrativo Nacional de Estadistica
ICTs	Information and Communication Technologies
UN	United Nations
COVID-19	Coronavirus disease 2019
NGO	Non-Governmental Organisation

Acknowledgements

Abstract

The rise and focus of the urban city in the last century has been exponential and with it, brought many challenges to difficulties to residents. The changing face of urbanity has seen the growth of peripheralization and urban sprawl, which has been felt increasingly stronger in global southern countries. This has seen a growth in the peri-urban areas like the case of *veredas* in Colombia which are growing puzzles in how to effectively create policy in this vulnerable and excluded space. Through this panorama, the promise of smart city initiatives has grown in relevance in offering better efficiency in provisioning economic and political actions for better social development. This study addresses on how smart city initiatives that aim for better and more efficient inclusion can foster adverse effects. They could accentuate further exclusion of already marginalised areas like peri-urban zones like in the case of the *vereda* of Alsacia Malabar in Floridablanca Colombia. Specifically, it focuses on how the community exercises their agency and resilience in light of the growing exclusion and mismatched policy in their everyday lives with the use of personal information and communication technologies (ICTs). It tackles the topic by using a qualitative study and a content analysis of sampled policy documents to benchmark the nature of their exclusion, through positionality it takes a look at how their everyday lived experiences in managing the present and adverse difficulties of policy and the dynamics of the community to collectively organize themselves to resist these.

The research showcased three main findings. The first one was the mass difficulty in mobility in the area sprawling into their livelihoods, development, and futures. The stark difference in this area from the urban center under the smart city guide showcased gaps to cover their needs. Secondly, the spread of digital education as a legacy of the COVID-19 pandemic and digitalization campaigns are reinforcing present inequalities and exclusions in the community. This not only force the geographical divide but a dual digital and social mobility divide. Finally, the community have not been salient but has organized itself by harnessing the use of mobile technology to challenge their exclusions in light of the mismatch between the community and the municipality. Through a look at their social, the agency showcased was not always harmonious but competitive and even subversive emphasising present hierarchies and perpetuating new ones based on the technological prowess by members.

Relevance to Development Studies

This topic adds to the debate of development studies by taking a critical look at the agency of people in light of the adverse effects of mismatched smart city policy. So far the literature has been focused on when these programs fail but not so much on what the people of these communities do in light of these failures. Moreover, it enriches the limited literature on peri-urban spaces by highlighting the complex dynamic

Keywords

Urban city, Peri-urban, Smart City, ICTs, Inclusion, Exclusion, Mobility, Resilience, *Vereda*, Positionality.

1 Introduction: Peri-Urban Challenges in a Smart City Era

Like many developing nations, Colombia has seen the expansion and advancement of urban spaces. The United Nations (UN) estimates that 3 billion people will live in urban areas within the 21ˢᵗ century (Diaz-Chavez, 2005, p. 248). Through the demographic transition and mass growth in the population since the late 19ᵗʰ century a high concentration of where people live are now in cities. The rate and process of urbanisation are well documented, but something that has been growing in analytical focus has been the expansion and presence of peripheral sectors in the urban sphere.

Peri-urbanity and or peripheries refers to spaces that are in between the extremes of rural and urban city centre conditions. These areas bring several important challenges and issues within the growing importance of the urban space including but not limited to a "lack of employment, increased poverty, insecurity, improper land use, inadequate water supply, rising traffic congestion, increasing pollution, lack of green spaces, uncoordinated urban development, and increasing vulnerability to disaster" (Diaz-Chavez, 2005, p. 248). These are mainly due to the informality, lack of formal housing and distance from urban planning entities. In the global south, the rate of expansion of these new urban peripheries grew at 176% compared to 55% in more developed countries (Angel, 2022, p. 54). This high presence in developing nations like in Colombia is important to consider due to their vulnerabilities due to a generally lower and more fragile urban fabric, conditions, and infrastructure compared to the centre and previously built areas (Simon, McGregor and Thompson, 2005).

One example of these spaces are *veredas* and their relation to urban city planning development. One of these is the community of the *vereda* Alsacia Malabar is a community which is to one of the eight *veredas* of the municipality of the town of Floridablanca (Alcaldía de Floridablanca, 2015). These fall under the rural categorization by the municipality but also make up part of the greater metropolitan area of Bucaramanga and are linked in their urban and city planning projects (Alcaldía de Bucaramanga, 2023). The community itself is small, amounting to roughly 40 people, though the exact figure differs due to some migrating to the city for work and not living presently throughout the year (Alcaldía de Floridablanca, 2015, p. 6). It is the least populated *vereda* of the municipality only having 0.5% of the population for this sector (DANE, 2014 cited in Alcaldía de Floridablanca, 2015, p. 7). In the area, there are ecotourism activities, nearby natural waterfalls where people hike and small-scale agricultural farms, coffee growers and other small-scale animal husbandry activities (Alcadía de Floridablanca, 2015, pp. 11-12). The community and surrounding *veredas* have struggled on many fronts in particular due to their exclusion and limited infrastructure. A lot of attention has been placed on the poor state of the only road connecting the community and the city itself (Castro Ariza, 2016). Due to its poor condition when it rains, it becomes severely muddy and difficult to drive through, leaving residents stuck or at danger if traversing through it in their mode of transport (Castro Ariza, 2016). Moreo-

ver, with the COVID-19 pandemic, the only school in the community had to suspend its classes due to the lockdown in 2020 but still has not reopened (*Semana*, 2022). This is an issue very present in the community as over 30% of its inhabitants have not completed their basic primary education and the high school equivalent (*Semana*, 2022). This has developed a big concern for the parents and residents as now with limited educational opportunities and the limited employment opportunities in the *vereda* and with limited qualifications the youth find themselves frustrated. This has described a drain and narrowing of the future for residents pushing the youth to move out.

To tackle the growing challenge and needs of city planning there has been the rise of smart city solutions. The smart city focus brings several meanings and aspects, but at its core summarized by Hollands (2008, p. 307) as "the utilization of networked infrastructures to improve economic and political efficiency and enable social, cultural and urban development." It has spread to the provision of services and systems to improve the living conditions of residents. This applies to the fields of education and human capital, livelihoods, and social and community cohesion. Smart cities have been hailed by many local governments and stakeholders as the way forward in the provision and even involving these peri-urban areas. So, what is seen is how the provision of services beyond those often associated with technology is being targeted by smart logic. So not just free Wi-Fi accessibility for residents, but also the provision of water, waste management, and mobility in and out the urban areas (Praharaj, 2021).

The smart city planning comes with known difficulties. The technocratic focus is where local governments and authorities struggle to address and meet the needs of these peri-urban sectors. The private sector has increasingly stepped in with a solutionist mentality, assuming that the issues of unemployment, services or basic infrastructure can be solved through computation (Lee, Woods, and Kong, 2019, pp. 4-5). As the *vereda* is part metropolitan area of Bucaramanga it has launched several initiatives to be more smart, resilient, sustainable and efficient under the title of "Bucaramanga: A City of Opportunities" (Alcaldía de Bucaramanga, 2023). The prolonged length of the closing of the school can be traced by a focus on issues like making the route for the students more 'centralized' and 'efficient' with the use of buses. When looking at the already poor road conditions this makes it very detached from the community's reality.

This research will focus on how the residents of the *vereda* Alsacia Malabar cope with the aforementioned neglect in their daily lives. There is a focus to see how these plans of inclusion struggle by feeding into other exclusions but there is limited attention on what the people do is often overlooked. What are their views, how do they cope and what are their concerns in light of institutional distances is the focus here. What could be interesting to see ask what are the resilience strategies utilized by the *Alsacia Malabar* youth community in light of the neglect they face by urban planning?

Accordingly, this refers to how people organise or utilize present infrastructure or programs for needs or actions not conceptualized in original plans. In peri-urban case studies, there is a focus on how communities and youth survive or make ends meet even though it is not something originally focused

on by the local authorities. In highlighting their agency and resilience I aim to highlight these dynamics to take into account in more holistic urban and social planning.

This research is divided into six chapters. Chapter one gives a general introduction to the issue at hand, chapter two then dwells deeper at the background and context of the research problem of the focus of the research. Then chapter three provides an extensive literature review of inclusion, exclusion, urbanity, and agency. Chapter four will then outline the methodology and methods used for the research with its qualitative edge. Chapter five will showcase the results and dynamics identified in light of the benchmarking of inclusion proposed by urban planning relate and the activities that they use to cope related to the theory. Finally, chapter six presents the conclusion and implications of the research as a whole.

2 Contextualising the Research Problem

To answer the proposed research questions it is important to contextualise the area of where the research will be focused on. This chapter begins by providing a detailed background on Colombia's *veredas* and the situation and demographics of the *vereda* of Alsacia Malabar. This allows for a visualization and better understanding of the peri-urban context that is being examined and the initial contrast and difficulties experienced in terms of inclusion and exclusion in the smart city lens.

2.1 Background: Neglect of Peri-Urban Communities in Smart City Planning

Colombia has 30,000 *veredas*, which are referred to as an administrative label to dispersed rural areas (Mendoza Morales, 2011). Their population varies between 50-100 people and are mainly associated with livelihoods and economic activities of agriculture, and animal husbandry (Mendoza Morales, 2011). Most deal with issues regarding exclusion, frivolous infrastructure and difficulties in mobility. However, every *vereda* is different and varies in their proximity to urban areas. In the case of the *vereda* Alsacia Malabar, it has a population of 40 people, a wide amount are also associated with these economic activities, but due to their close proximity to the urban town of Floridablanca (as seen in Map 2.1) others find employment close there in construction or distributors of produce (Alcaldía de Floridablanca, 2015, pp. 11). The *vereda* is under the care and governance of the local municipality of Floridabalnca and included in its development plans (Alcaldía de Floridablanca, 2024). With the growing evolution of urban resilience, this has also expanded to smart initiatives or technological aspects. Reports by the local administration detail the necessity for the metropolitan area and "territory" to adopt a smart outlook and functions (Carlos Cardenas and Torres Bolívar, 2023, p. 1). The wide deployment of connectivity initiatives, the digitalization of procedures, the maximization of the provisioning of services and sectors like education, waste management and transport, and the added factor of security and surveillance are all present in the geographical area (Carlos Cardenas and Torres Bolívar, 2023, pp. 9-10).

Map 2.1

Map of the Metropolitan Area of Bucaramanga
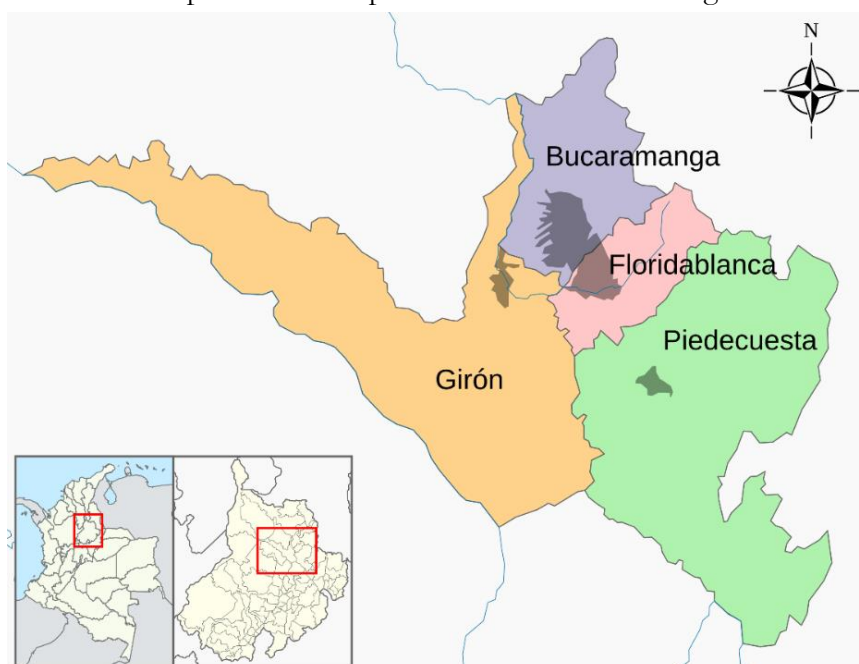
Source: Alcaldía de Bucaramanga

Map 2.2

Map of the veredas that make up the town of Floridablanca. Alsacia Malabar is the one in dark red
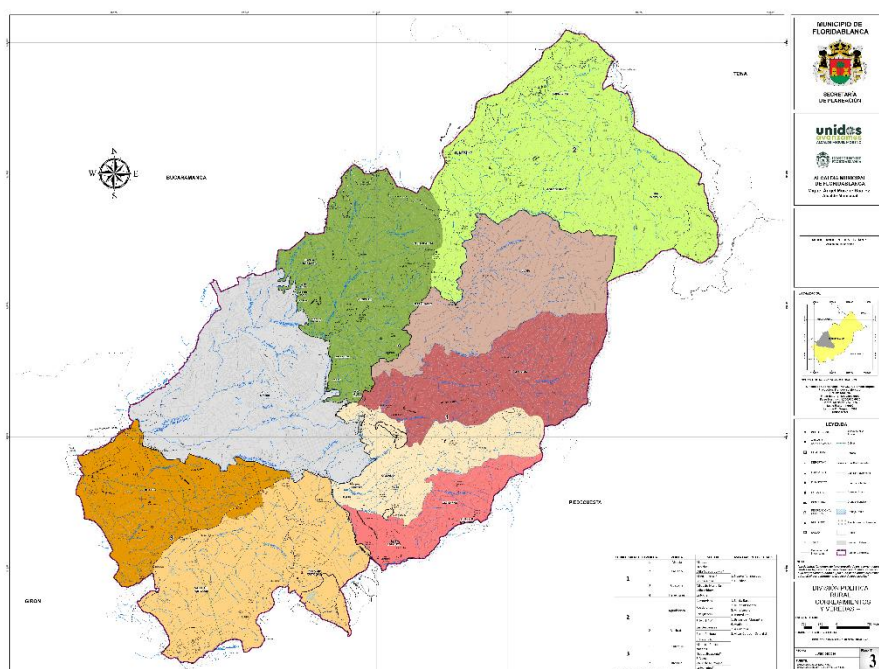
Source: Alcaldía de Floridablanca

On the other hand, the population showcases a low rate of adults and children finishing basic primary and secondary education, issues regarding general mobility due to the conditions of the only road, and difficulties in their daily livelihoods from these (Albis Pérez, 2022). The community has expressed frustrations and has communicated to the local town hall and the municipality to target these difficulties for at least 60 years now. The presence and difficulties of peripheral spaces are not a novel aspect in Colombia. The combination of bureaucracy, local government neglect, and the rise of technology as tools to target their vulnerability are dynamics that are growing in their analysis. However, there is not only an urban bias in how policy is devised and analysed but also an actor bias (Karshenas, 2004, pp. 171-172). There is a focus on the local government and private sector, but a limited look and focus on the actual communities, their opinions and how they relate to initiatives, and finally what they do in light of difficulties with these projects (Karshenas, 2004, p. 171).

These aspects have been exacerbated with two main flashpoints: the abandonment of the connection of the *vereda* and the closure of the only school in the *vereda*. In 2016 there was the announcement that through the main road of the *vereda* this would connect the development of a highway that would pass through the mountains (*Vanguardia*, 2024). The government announced that this would also come with revitalizing and fixing the road in the road in preparation for this. However, this was abandoned and not followed up in 2020 partly from the COVID-19 pandemic but to general discrepancies in the planning and development of the project (*Vanguardia*, 2024). The pandemic was something that was felt by all, but in these peripheral areas there was a higher intensity of solitude and dwindled state presence (Cortés Bernal, 2021). The challenge of remote work and school was an added facet to the dynamics of the residents (Angulo, 2021). Though the population was not affected too negatively with a limited number of infections, there was a focus on how it impacted their services and the legacy of these growing measures of connectivity and mobility after the pandemic. With the cancellation of the connecting road project but also the closure of the school, the residents are growing more restless from the felt exclusion from these factors. This shows an apparent exclusion or difference to the standards and plans of the plans and administrative initiatives from the urban context than this peri-urban area.

It is important to note that though the town hall classifies this area as rural the activities and proximity to the urban center call for it to be reconsidered as peri-urban. To sell produce there has to be a connection to the urban town, the access to healthcare can only be received in the urban as well (Field Notes, July 2024). Furthermore, residents face different challenges. Those closer down to the city have a better state of the road and some that are employed in the city to other activities that are not involved with agriculture benefit more from urban services for themselves and their families (Field Notes, July 2024). Those further up the *vereda* and with worsening road conditions seem to struggle more from these aspects but have dealt with these for a while now. Thus showing some difference and potential hierarchies over the access to resources, the difference in how much others benefit from this access and the subsequent effects in the long-term.

3 Theorising and Mapping Out Inclusion, The Urban and the Peri-Urban

Through this background exposition its is then key to do a theoretical overview in the literature there has been a wide exploration of inclusion and the different strategies used to aid it, one of them being that of smart cities. There is a critical lens in judging its effectiveness. Still, there is a lack in its application to the growing nature of settlements in particular peri-urban spheres but also the agency and actions undertaken by those residents that are affected by such policies. This chapter discusses inclusion, the growing face of urbanity in the peripheral sphere, what inclusion policies aim to adapt to these developments, and how residents act in light of these initial difficulties.

3.1 An Exploration and Critique of Inclusion and Exclusion

The use of inclusion came after previous failed initiatives and discourses like the one on poverty eradication in the field. It is mainly used to refer to poverty and how to decrease it in a more multidimensional manner. Njoki and Wabwoba (2015) present how in the literature regarding inclusivity, poverty was previously emphasized and had a limited view in analysing the multiple mechanisms that cause hardships in people's well-being. Geddes and Bennington (2001) detail the shift of looking at inclusivity as not just about resources to tackle poverty reduction, but as a multifaceted task that looks at different social categories and mechanisms that can lead people to be included or excluded. This builds on an emphasis on looking at exclusion as a 'multidimensional concept of exclusion' and highlights how the term increasingly distanced itself from material poverty (de Haan, 1998, p. 17). Authors like Fischer (2018), Kabeer (2000), Sen (2000) and Jackson (1999) also highlight the need to look at inclusion beyond just poverty. Jackson (1999) talks about how inclusion may not be just the antonym of exclusion but is much more complex than that. She argues that being integrated in some aspects can exacerbate other types of exclusion. Fischer (2018) and Kabeer (2000) highlight how inclusion is often seen as a solution but it can be problematic as well. This is mainly due to inclusion tactics that have been mainly undertaken through market solutions which can make marginalized communities to become more vulnerable to difficulties and exploitations that could come with it.

The literature then is also complex in dealing with what exclusion is. Exclusion came to be discussed earlier on chronologically than inclusion. The origins are traced back to France in the publication *Les Exclus* by Lenoir (1974). This explored and identified categories and characteristics of people who were not employable and faced difficulties because of this insecurity as they were not part of the social security system (Lenoir, 1974). This relates to the idea of deservingness and ways of states and actors in identifying those in the population who had difficulties in accessing welfare assistance in society in the market economy, identifying them as excluded (Kaseke 2011). This perspective in the

1970s showcases again the connection between exclusion and poverty at its origins, showing how those excluded based on different social categories were deprived of participating effectively in society to meet the needs for their well-being.

This followed a productivist narrative of looking at social welfare assistance from these early conceptions of social exclusion. Due to the nature of analysing poverty beyond just the access to resources, social exclusion identified how individuals experienced difficulties in meeting their needs due to processes beyond the material to participate effectively in society. Disabilities, gender norms, age, wide-ranging vulnerabilities and even institutional pressures limit workforce participation and productivity (Menezes Filho, 2013, pp. 162-165). Exclusion can also be seen from a social citizenship perspective as not just discrimination, but as systemic inequalities in systems that prevent the access and access to political rights, services and institutions for those excluded. This led to the three main pillars definition developed by de Haan (1998). In it, he characterizes social exclusion as: 1) the opposite of social integration, 2) as a multi-dimensional concept, and 3) it is seen as process and how institutions enable or constrain their participation (de Haan, 1998, pp. 12-13). There are also ways exclusion is experienced differently by people. For example, Sen (2000) differentiates between active and passive exclusions. This is where the former represents hard policies or laws that actively exclude particular people and the latter is more felt through everyday processes or norms that make depravations more evident to some in society (Sen, 2000, p. 14-18). This shows the vast nature of exclusion and how it can be conceptualized. Some argue that the ambiguity of the term exclusion is a weakness, but some authors like Steyn and Johanson (2011) highlight that the multifaceted nature and fluid nature leaves differing definitions from different backgrounds, theories, and experiences which can be useful for better ways to handle social issues beyond a cookie-cutter way.

This evolution has also come in specific fields like the one pertaining to mobility. Migration studies literature developed the concept of mobility into a framework which suggests there are factors in people's mobility that can exclude or include them in their surrounding society. The earlier notions referred to just transport or physical mobility, but the new mobilities paradigm analyses the 'politics of mobility' and its intersects with power and social exclusion (Cresswell, 2010). This wave of critical mobility studies highlights who and how gets to move can be influenced by their "ability to participate in economic, social, and political life is curtailed" (Cook and Butz, 2015, p. 2). Thus mobilities are intricately intertwined with the issues and sociological concept of social mobility. This perspective adds that spatial mobility accentuates and can give better participation in social life whilst immobility relates to more difficulties and decline (Faist, 2013, pp. 1639-1640). Those facing spatial and or social immobilities are faced with very complex dynamics where achieving spatial mobility does not equate to social mobility either (Faist, 2013). The work by Yeoh, Chee, and Baey (2013) shows how high expectations of migrants are challenged once they migrated somewhere are challenged as they face vast discrimination from bureaucratic and social paths.

Exclusions are also seen with the concept of the 'digital divide'. Popularized by van Dijk (1999; 2003; 2017; 2020) it details how the process of access,

use, and experiences of technologies are different to various groups of society. This can be seen as another front where the inclusions and exclusions can be visualized. The digital divide has developed in research into four hurdles or barriers: psychological access, material access, skills access and usage access (van Dijk and Hacker, 2003, p. 1). The main focus of most policies has been the second category of having basic physical access to technology to participate in the growing technological-dependent world. Issues of connectivity, and access to a computer or a mobile phone are the main concerns in this obstacle. The third and fourth aspects of the digital divide have also grown in relevance in regard how offline inequalities can be emphasized in their effects on usage. Van Deursen's work (2010; 2011; 2014; 2017) on the Dutch context shows how already existing inequalities and exclusions can be amplified through the access or difficulty of access to technology. Factors such as educational level, socioeconomic status, geographic location and membership in marginalized groups (ethnicity, gender, nationality) have been widely analyzed regarding the digital divide (Helsper, 2012). Helsper's (2012) corresponding fields model and van Deursen's research highlight that virtual benefits tend to favour those who are already in a privileged position in offline life, exacerbating existing social and economic divisions.

As the types of exclusion have widened it has been theorized extensively beyond a synonymity to poverty, it offers the necessary lenses to see the main difficulties in the peri-urban context. These evolutions could be seen as types of social, spatial, and digital exclusions, which are some of the most significant to consider in the peri-urban context. In the following section, the shifting socio-spatial organization of urban spaces, the emergence of peripheral urban areas, and the vulnerabilities and the spatial, social, and digital exclusions that they face.

3.2 The Origins and Changing Face of Urbanity into the Peri-Urban, The Inclusive Smart City

A field where inclusion and exclusion are commonly observed is in the analysis of cities and urbanity. The focus on urban studies rose in the second half of the 19th century with the rise of industrial urbanism. Whilst cities were present in ancient civilizations like Imperial Rome the effect and impact of industrialisation severely impacted urban society, structurally, economically and the quantity and reach of people (Evers, Katurić and Wouden, 2024, p. 1). The Industrial Revolution and the changing composition of society towards industrial manufacturing were the origin of the modern city (Kumar, 2024). The centralisation and concentration of production of people to be readily available to support these activities in these urban centres was what fuelled urbanization (Evers, Katurić and Wouden, 2024, p. 1). This is also a point of departure of literature both academic and fictional critique of the difficulties of residents. Works by Émile Zola (2004), Victor Hugo (2012), and Charles Dickens (1871; 1970; 2014) depict some of the most pressing social issues of exclusion and inequalities in the growing urban metropoles of industrialising nations like

France and England. The effects of living in the urban space with high pollution from factories, the change of the fabric of society surrounding production, the rise of urban poverty and illness the pressing issues of social class and the growing issue of workers' rights and social protection (Bendix, 1989). All these issues then questioned what or how best to guarantee some sort of protection to those living in the cities and the growing urbanised workforce.

From this, the urban space has changed and grown dramatically in the past 200 years. The city and the urban space have become the main concentration of human population compared to rural areas (Sridhar and Mavrotas, 2021, p. 1). The greatest and maybe the first example was in the United Kingdom. In 1801 a fifth of its population lived in urban concentrated areas with around 10,000 inhabitants and by 1901 over three-quarters of the population were classified as urban (Kumar, 2024). This phenomenon then spread to the rest of continental Europe with Germany and France but surely the majority of the region as well (Evers, Katurić and Wouden, 2024, pp. 2-3). Urbanization and its exponential growth were also felt in the colonies of these imperial powers and spread to developing nations (Bernstein, 1973). Globally the main signs of growth were seen in the urban areas, from 1900 to 1950 the population doubled but the urban population grew by 240% in that same time (Kumar, 2024). Currently, there is a prediction that 3 billion people will live in urban areas drawing in the focus and the relevance of these spaces for policy for the majority of the human population (Diaz-Chavez, 2005, p. 248).

Though urbanization has spread all over the world it was not uniform nor encompassing. In the global south, the rate of urbanization has been more explosive. Latin America has an 81% rate of urbanization, Asia has 51%, and Africa has 43% (United Nations, 2024). Cities like Mumbai, São Paulo, and Mexico City have grown dramatically to rival and beat cities in the West (Kumar, 2024). However, a trend in these areas has been the growing peripheries and fringe communities (Sridhar and Mavrotas, 2021, p. 5). In the global south, the rate of expansion of these new urban peripheries grew at 176% compared to 55% in more developed countries (Angel, 2022, p. 54). The majority of these areas come with many challenges due to the informal and unregulated fashion in which they tend to grow, and as cities do not seem to be slowing down in their expansion this will mean focusing on these peripheral areas as a focus for policy and management in developing nations (Angel, 2022, p. 13). The peri-urban areas are important to consider due to their vulnerabilities due to a generally lower and more fragile urban fabric, conditions, and infrastructure compared to the centre and previously built areas (Angel, 2022). This has been represented through different concepts and divisions with Brazilian favela or *suburbio*, the wider encompassing *barrio*, *comunas* and a mention of other intersecting grey terms of peri-urban spaces like *veredas* (Dávila, 2005, pp. 45-48). This is not only related to poorer economic areas but also with the segregation and fragmentation of the rich members of societies. The developments of gated communities located further away from the city centres resembling something that the literature refers to as 'urban archipelagos' (Dávila, 2005, p.48). Colombia is no exception to this peripheralization and increasing vulnerability of these peri-urban sectors showcasing a need to integrate effective urban planning and the provision of services.

There is still more to be written about this as an emerging concept and ever-growing dynamics from the sheer growth. The literature has a grasp on the changing face of urbanity particularly its historical change since the Industrial Revolution. However, there is a gap in those that detail peri-urbanity, which is understandable due to the rapid growth of peripheralization in the last decade and its projected continued rise in the future. There is a lot of focus on peripheries and exclusion based on demographic and hierarchal systematic dynamics like race, socio-economic status, migrant status and conflict but there seems to be a research gap in not to just see the effects of these exclusions but also what their activities consist of. This research gap on how the urban sphere and the evolution of inclusion policies with a smart lens are also impacting them needs to be further studied.

3.3 Urban Inclusion: Evolving Frameworks, Governance and The Rise of the Smart Cities

The challenges that urban sites and cities pose have come with many efforts to adapt inclusion in urban areas and cities. The literature surrounding urban inclusion and targeting issues through social policy is vast and evolving. A common concept of departure is the one of who and what is involved in providing welfare services in society. Many authors then refer to the 'welfare or care diamond' to do so. Razavi (2007) showcases how with this simple visualization, the four main actors involved in social provisioning in any system can be mapped out with varying degrees of influence: the state, market, family, and community. This evokes another important concept and notion which is the one of responsibility (Wood and Gough, 2006). Though inclusion does not equate to welfare provisioning they share similarities in their activities and structures. The care diamond offers a good foundation at the relevant actors involved in accessing and receiving basic welfare provisioning. Throughout time based on different configurations and the classic question of who is responsible for the provisioning of these systems, regimes of social assistance and inclusion have varied in the degree of influence and use of these actors (Morel, Palme and Palier, 2012). There was the Keynesian conceptualization that the state should intervene in the market and provide of these services to the population (Morel, Palme and Palier, 2012, p. 28). Then there was the neoliberal tide and its discourse of limiting state interventions in favour of self-regulated markets and trickle-down dynamics (Reininger and Castro-Serrano, 2021, pp. 3-5). The resurgence of the welfare state and Nordic models with its focus on state provisioning, income redistribution and maximising employment (Wood and Gough, 2006, p. 1706). In the literature focused on developing nations or global south countries there has been a bigger focus on informal conceptualizations particularly demonstrated by non-state actors and relying on communities or affluent community members with patronage and clientelist ties (Wood and Gough, 2006, pp. 1698-1699). These all showcase the wide diversity that inclusion and welfare programs can be, and which actors could have a bigger or more present role in the process and their elaboration.

The literature is massive and very detailed on these different configurations which mentions different ways to provide or develop social inclusion programs in the urban context. Undheim and Blakemore (2007, pp. 1-4) discuss two paths of the main sort of policy of inclusion seen in governance in urban and technology-prone policies. Governance 'to the people' and governance 'with the people'. The former refers to the state or local government entities bringing in and divulging resources and policies to meet the needs of the citizens, whilst the latter takes a more collective action of the actors of the state, market, community, and households to create and develop programs and initiatives (Undheim and Blakemore, 2007, pp. 1-4). The first type of policy is the most known or recognized which includes well-known targeting strategies like conditional cash transfers (CCTs), conditional subsidies, and affirmative action initiatives (Mkandawire, 2005). This closely relates to the anti-poverty perspectives and actions in the inclusion field. The previous critiques of how just isolated poverty reduction reduces the long-term impact of these programs (Mkandawire 2005, Kabeer 2000, Ferguson 2015). There can be caveats in the policy that are not being considered regarding their social identity and contexts that are framed as a reductionist poverty issue.

This history of differing programs later developed into ideas and projects trying to harness the growing influence of technology for social inclusion, and develop resident autonomy with the rise of smart city discourse. There is a clear tension between smart cities and the possibility for them to foster inclusion in urban and cityscapes. Many authors focus on the possible benefits and opportunities of smart city initiatives as a way to be a bridge of social inclusion (de Falco, Angelidou, and Addie, 2019; Alvarez, and Todorovic, 2022; Lee, Woods and Kong, 2019). The literature focuses on how inclusion can be reached by allowing more participatory governance for residents with more available technology and connectivity; better mobility that could foster better job opportunities and social mobility for residents in urban areas; better delivery of public services like water, health, education, waste management and electricity; and even as a way to foster better democracy with the power of information and participation (Malek, Lim, and Yigitcanlar, 2020; Dougall Roberts, 2022). These are some of the benchmarks related to smart city discourse to target and bridge social inclusion.

However, sometimes these goals or ideals are not what is achieved when applied in practice. The issues regarding peri-urban spaces, and their inclusion/exclusion in urban planning in the smart city discourse are not independent or isolated around the world. For example, this can be seen with cases like Philadelphia where there was a reported disconnect between the proposed promises of intelligent, transformative change and the actual reality of not being able to address urban inequalities (Wiig, 2016). In Romania, Dragan, Crețan, and Bulzan (2024) also showcase a paradoxical effect of when local governments specifically over-target peri-urban areas due to the urban sprawl, but it does not make them more effective. It could emphasise and heighten inequalities present in peripheralization but also within demographic markers like age and employability (Dragan, Crețan, and Bulzan, 2024).

Moreover, how the youth cope with this lack of inclusion or opportunities is also seen in several cases. In Bangalore, Kamath (2018) presents how there was an aspiration that digital technologies, particularly cell phones, would

bridge the gap between castes, but it has had little effect and intensified differences. Kamath (2018) details how the youth are not sold about the emancipatory nature of these technologies in breaking social inequalities. Masucci, Pearsall and Wiig (2020) also showcase this similar sentiment among the youth in Philadelphia by highlighting how "these consumer goods were largely designed to make life more efficient and more convenient for certain individuals while failing to address broader and arguably more pressing needs" (Masucci, Persall, and Wiig, 2020, p. 480).

Though there is literature showcasing the friction between smart city initiatives and how in their implementation there can be a mismatch there is not much focusing on peri-urban zones. There is a focus on how it affects residents but this is focused more on the core city area in studies particularly focused in Global North areas like North America, Europe, and Australia. Considering the extent of the transformation of urban spaces with the peripheries this cannot be overlooked any longer. There is also a need to look further beyond just communities where inclusion initiatives express discontent when the policies do not match their needs. There must be a look at how the (post)implementation stage affects their daily lives and the actions they take to go around these difficulties. In light of the context and these caveats the first sub research question would be

"How does urban planning for smart cities contribute to the dissonance between policy goals and lived experiences in peri-urban area?"

3.4 Planning and Inclusion of the Peri-Urban: Historic Neglect

It is then evident that there is planning and implementing different models and initiatives that target exclusion through inclusion. What is another part that is important to analyse is how the planning and conceptualisation of these policies take into account the peripheries or the peri-urban as they grow in size and relevance. The previous section discussed how in the actual implementation of policies there can be clashes and difficulties in addressing the needs of citizens for where policies were intended. Yet there is another angle to look at is how holistic is the planning to begin with. Are peripheral communities included in these policies, how inclusive are these scopes and what are the factors that push or pull their inclusion in the organisation of these initiatives?

As discussed before the literature is vast on the inclusion projects and the turn of smart city initiatives. Research done by de Falco, Angelidou, and Addie (2019) showcases a focus on critically analysing the published material, documents and policy briefs of six smart city initiatives in Europe and whether they include or interact with the peri-urban space. Through its analysis, a clear bias was found with an intensive focus on smart city initiatives on "smart urban cores" (de Falco, Angelidou, and Addie, 2019, p. 218). This then questions what policymakers are focusing on when they define and focus on the city. As previously discussed the urban space is constantly evolving and currently, the peripheries are some of the most concentrated areas of inhabitants that are growing in all cities globally. This is what de Falco, Angelidou, and Addie's

(2019) team identified as the difference between smart urban cities and 'smart metropolises' (de Falco, Angelidou, and Addie, 2019). The former has its focus on urban centre needs, plans, implementations and follow-ups but the latter has a wider outreach to the extensive nature and spread of urban spaces within the metropolis. Portnov and Pearlmutter (1999) highlight the discursive tendency of viewing the periphery as dependent on urbanization initiatives and programs driven and conceptualized for the city centre core. In a more focused Latin American viewpoint peripheralization or the peri-urban described by Caldeira (2017) resemble wrinkles and operate at the margins of official planning and logistics entirely. The peri-urban is both spatially, economically, politically, and socially constructed apart and not included in urban city core planning.

This historic and apparent pattern of thinking of the peri-urban is different to the urban core and separate from policy aimed at city initiatives. Yet there is also a lack of policy aimed at these zones as well. There is a gap in formal policy that actively plans for this sphere considering the changing face of cities that also include peripheries, particularly in the global south. Some argue that the informality and dynamism of peri-urban zones make it difficult for policymakers to include them in process and formalisation initiatives (Caldeira, 2017). There are also a lot of misunderstandings and assumptions of these areas causing distance and a lack of political will to address or target these zones. For example, Lo *et al.* (2015) highlight how peripheralization can lead to further gentrification and the racialization of certain neighbourhoods. This in itself can be pervasive and feeds to the image that peri-urban zones though they may contain vulnerable communities there is an overwhelming assumption that they are in perpetual precarity, poverty and alienation limiting policymakers in curating policy as they are not seen as productive. In the context of smart cities, Hatuka and Zur (2020, p. 10) identify how in the planning process of smart city initiatives there are decision-making processes from the beginning that alienate the complexity of other urban zones. The involvement of the private sector and a focus on the city centre or financial districts are used as the main beta sites for such projects (Hatuka and Zur, 2020, p.10). They describe what is closely related to the idea of smart metropolises to have smart social urbanisms that take into account multilayer contexts of the composition of cities.

There is a disconnect between planning and of peri-urban zones, but there is a lack of literature that explores this in the context of smart cities and in particular looking at developing countries. There is either a focus on looking at the peri-urban zone as an informal space which makes it difficult to make policies to integrate it, or there is limited will from policymakers to address or plan initiatives based on the limited stakeholders and actors that are involved in decision-making usually not drafting policy for these zones. Moreover, the literature is scarce in analysing how smart cities or smart metropolises initiatives are planned in the context of developing and or global southern countries in the peri-urban zone. Thus a second sub-research question would be:

"In what ways are peri-urban zones included in the planning of smart city initiatives and are these urban city core-centered or metropolis conceptualized?"

3.5 The Role of Resilience and Agency in Light of Exclusion

The literature has identified and theorised widely about inclusion and exclusion and now how smart cities could be harnessed in these spheres. The gaps identified over the focus of the urban core in these initiatives have now also spread in the peri-urban zones, which questions how effective these initiatives can be if they only target a selected few. However, the literature highlights the discontent and mismatch from this lack of inclusion in planning and then in the process of implementation but lacks an in-depth view of how these communities cope or showcase their resilience with the limitations they face. The way they exercise their agency is lacking in representation and it could be interesting to analyse as they still survive in light of difficulties and mismatches. For this, it is necessary to understand what agency and resilience are and how they could be applied in the research.

To begin with, there are mentions of how human beings exhibit and perform actions that go against socially imposed rationalities and logic. The concept of agency has been widely theorised but one crucial voice is Giddens' (1984) structuration theory. People are both constrained or influenced by the social structure that they are part of and within this, they can create new meanings and act on them with agency. Giddens mentions how this can be deliberate and seek change; some do not have this goal in mind. This then evokes how agency can lead to resistance. Laclau and Mouffe (1985) discuss how even the most totalising enforcements of power to people, people can produce micro resistances whether frictional or intentional. Foucault (1978) also views how although discourses facilitate how knowledge and power are spread, resistance is encountered constantly. Discourse can be homogenising and regulatory but can also subvert and challenge current notions (Foucault, 1978, pp. 100-101).

The examples of when groups exercise their agency to challenge their dissatisfaction are plentiful, but also the factors that have been theorised that push people to exert their agency. So far there have been four main types of action that push agency in people: utility-orientated, norm-orientated, emotionally-orientated, or dramaturgically-orientated (Schwinn, 2007, p. 20). The first refers to material or economic motives that drive, in how a human "orients [their] action choice according to utility and acts so as to maximize [it] at the least possible cost" (Schwinn, 2007, p. 6). The second refers to value-orientated decision-making, with social norms pushing action and or resistance. The third refers to emotions or the *human factor*, which is not explained by raw rationality or ideology but by emotions like joy, sadness or envy (Flam, 1990). Lastly, the fourth developed by Goffman (1959) argues how expressing or demonstrating one's identity can push agency and action. These are not mutually exclusive and can influence each other. These factors offer a great guide to see what pushes beings into agency and action.

This can also take a different form through the term of resilience. The term resilience has its origins in the physical sciences referring to how elements and materials can endure interactions with other substances (de Falco, Angelidou, and Addie, 2019, pp. 209-210). Resilience was then used to describe systems highlighting the evolution of systems according to a) their potential, b)

their connection and c) their resilience (Gunderson and Holling, 2001). This has extended into the social sciences and identified by Folke et *al.* (2010) resilience usually takes three main features to the subject it relates to: persistence, adaptability and transformability. Persistence refers to the ability to remain and continue in the situation they are in; adaptability refers to the possibility of learning through experiences and adjust responses to the environment accordingly; and transformability portrays the possibility of deep social change into the current experiences of people (Folke et *al.*, 2010, pp. 4-6). According to Walker et *al.* (2004), transformational change can have a deep shift in the context in creating new variables, relationships and meanings which could be deliberate or forced. This can be seen through Kinder's (2016) work where they represent the innovative nature and potential of peri-urban zones in light of exclusion and limited possibilities. In it, they showcase how the peripheral areas of Detroit which are often thought to be full of precarity and racialised poverty exhibit novel and imaginative development through art, technology and community activities (Kinder, 2016).

Resilience can then be related to the idea of collective agency. Davies (1991) points out that this is a humanistic view of agency view individuals who act their agency as foreign towards the collective of society. Davies then calls for a postructuralist view which calls to think of the individual and collective as not opposites, but how the individual is "constituted through the discourses of a number of collectives as is the collective itself" (Davies, 1991, p.43). How individual actions can aggregate to form the collective and even new systems. This can be seen as related to Giddens' structuration theory, but what the feminist post-structuralist perspective adds is a critical view of the change of the subject can situate itself in different discourses and can counteract, modify or refuse these by their experience or choosing to speak about them. This feminist view is further elaborated by Alcoff (2006) who looks at the historical othering and problematization of women's actions in a white-male-dominated society forcing women to navigate their position to understand themselves and what sort of agency they can utilize. What is crucial is speaking these words, awareness, experiences and subjectivities which can then be taken up by a collective and showcase resilience (Davies, 1991, pp. 46-47).

In regards of the modern time collective agency and resilience has been seen with the democratising factor of technology. This has been one of the foundations of why smart cities and the diffusion of connectivity and technology have such high expectations. The most visual case of this is the #MeToo movement. It showcased a wide collective change of women speaking their subjectivities in patriarchal contexts in the entertainment industry that resonated widely to create a collective seeking to empower and cause radical change (Evans, 2018). This phenomenon showed international promise to how marginalized communities could transcend barriers enact their agency and possibly overcome this. Though limited in the literature itself there are mentions and a necessity to mention how communities in these peripheral and neglected spaces enact their agency with smart city initiatives that do not conceptualize their needs. Kim (2022) mentions the case of Seoul in South Korea in how communities in urban poor areas would organise themselves beyond what was provided for them by smart city initiatives. They utilised internet connectivity to further build communication networks that allows for certain autonomies beyond the private sector's influence and interest (Kim, 2022). In other contexts, the

literature tends to focus on how smart city initiatives fail or do not meet their objectives due to not taking into account certain contextual factors, but not what communities do to counteract or after the failed project finishes (Hollands, 2008; Wiig, 2016; Masucci, Pearsall and Wiig, 2020). In peri-urban case studies, there is a focus on how communities and youth survive or make ends meet even though it is not something originally focused on by the local authorities, like the case of Anse La Raye in St. Lucia using heritage tourism even with a lack of support by policy (Mycoo, 2005, pp. 142-146).

However, there have been wide studies that show that these expectations or intention can have adverse effects and even develop subversive agency limiting the effect of collective agency. There is the issue of digital divide and how skills and limits to access to technology can create division in communities (van Deursen and van Dijk, 2011). Their study of Dutch rural residents showed how the education and access to maximize the use of mobile phones and technology can rise to the top, but those less technologically savvy individuals from already difficult contexts suffer more to access these opportunities reinforcing existing exclusions. Wallis (2011), for example, explored how the diffusion of mobile phones was seen as a potential to challenge the power and patriarchal relationships of migrant women in Beijing. Mobile phones could be seen as a tool to access better economic livelihoods yet they also reinforced other hierarchies and showcased other competitive agencies. Depending on social positions based on social, occupational and financial categories the use of their phones was not emancipatory but a tool of surveillance, and harassment and re-subordinated them from already existing subjectivities (Wallis, 2011, p. 11). Chib *et al.* (2022) argue further how although a marginalized collective can utilize digital spaces to potentially seek social change, it can be undermined and distrust each other in a world of oppression through surveillance in digital spaces. The case of transgender sex workers through the digital sphere engaging in competitive online marketplaces for profit pushes those more disadvantaged by age or lack of digital skills to be further excluded (Chib *et al.*, 2022, p. 471).

This discussion regarding agency and resilience in the peri-urban but also with the use of technology leaves us with some takeaways. As agency and resilience literature is extensive, it is limited to the context of peri-urban communities. The areas being analysed as sites of poverty and informality overshadow or limit the look at the possibility for everyday innovation and creativity through resilience and how the people exercise their agency in light of difficulties. Moreover, when looking at the role of technology as a vehicle to harness agency it can be both empowering to marginalized communities but also subversive. From these themes, motifs and gaps the final sub research question would be:

"How does the peri-urban community of Alsacia-Malabar exercise resilience and agency, and how does the use of technology impact both their empowerment and subjugation?"

3.5 Key Takeaways, Gaps, and Where to Go

This chapter showcased how the literature on inclusion, exclusion and urbanity is vast yet there are caveats that are worth explaining. The growing rise of pe-

ripheralization and peri-urbanity has shown a gap in more research in particular to their complex relationship and link to urban governance. The rise of smart city governance also shows a wide number of academic interest and publications, but there are limited examples of its role and effects in peri-urban areas. There is a focus on highlighting the great expectations that these initiatives could have in society or showcasing the criticisms for failed projects. However, there is not much focus on what communities do in light of these pitfalls. Agency literature is also vast and how groups can exercise their collective agency in a mobile technological fashion, but usually it is focused on identity whether it is gender, race or even migrant status. There seems to be a gap in how these strategies or counterhegemonic processes could be analysed in this growing spatial area, particularly in the global south. These gaps but also growing relevance in the subject manner can be crucial in answering the proposed research questions.

4 Methodology: Benchmarking, Qualitative Analysis and the Role of Social Position

The gaps identified in the literature review of the lack of research on the peri-urban areas in particular members react to exclusion based on urban and technological policies offers a research opportunity to evaluate these in the context of the *verda* of Alsacia Malabar. To do so there will be three main methods: benchmarking the current smart city policies through secondary data analysis, then qualitative interviews and analysis of the experiences of community members and related stakeholders and finally the use of positionality to analyse these experiences further to highlight the extent of the differences of the experiences.

4.1 Mixed Methods: Content Analysis and Qualitative Strategy

The methodology consisted of three parts to successfully analyse both the exclusion and the strategies and realities of the residents of the *vereda* of Alsacia Malabar. The first part consisted of conducting a content analysis on secondary sources like policy proposals, projects, and reports to map out the scale and to benchmark what is included in the urban smart city inclusion planning context of Bucaramanga concerning the context. This was done by analysing 10 reports from the last decade and coding them accordingly using ATLAS.ti.[1] This resembled a conceptual content analysis sampling a total of ten local policy briefs, town hall development plans, university recommendations, and general metropolitan area reports of the metropolitan area of Bucaramanga. Following Holman's (2017) guide in *The SAGE Encyclopedia of Communication Research Methods* the content analysis followed the following three steps: a decision on the data and sample size, a breakdown of the unit of coding and a list of the codes used on the data, and finally an analytical relational analysis in regards to the research question.

For the sake of the second research question being: "In what ways are peri-urban zones included in the planning of smart city initiatives and are these city core-centred or metropolis conceptualized?" there is a need for the sample to be concerned about planning projects and or proposals (Holman, 2017, pp. 2-3). With some research, the main type of content that was available was textual reports produced/published by current town hall administrations for the mayor's term, the local industrial university's proposals, and some private-sector groups regarding what the smart city potential and implementation in the metropolitan area should be like. It was then decided to take into account ten of these reports representing these three main actors in decision-making in

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[1] For a detailed list of the sample of documents used in the content analysis please refer to appendix 4

the area and through a time frame of the last decade because of the more discursive push smart cities have had recently in Colombia.

With this sample, the decision was made to code them in syntactical units (Holman, 2017, pp. 3-4). This meant that in the documents words, concepts, and phrases regarding the inclusion or exclusion of peri-urban areas in smart city planning. For this, in the documents chosen for the analysis, the presence or the number of times concepts referring to the peri-urban were looked for, but also a look at the vocabulary used for the target population of such policies if it referred to the city core, specific areas of the urban city, the grand metropolitan area, or peripheries. For this process, a coding scheme was developed with the five categories that were mainly developed deductively regarding the research question and aims.

Figure 4.1 Table of the Code Book Used in Content Analysis

Code Book
1= Peri-urbanity, peripheries, non-city centre areas
2= Named urban area, the city name, metropolitan area
3= target population, areas benefiting programs, particular neighborhoods
4= What is the smart outlook what technology in programs, services,
5= Main actors involved, government, private sector, educational institutions, community-led

Source: Made by Author

After benchmarking, these findings were used to build an overarching map of the main pillars of what consists of inclusion in the chosen context. These were: mobility and transport, security, social development (health and education), culture and recreation, and risk management. These are built on previous frameworks by Short 2021; Lee, Woods, and Kong (2022); Malek, Lim and Yigitcanlar (2020), but have been adapted for the local context of Bucaramanga's metropolitan area.

Figure 4.2

Figure visualizing the benchmarking indicators of inclusion in the metropolitan area of Bucaramanga
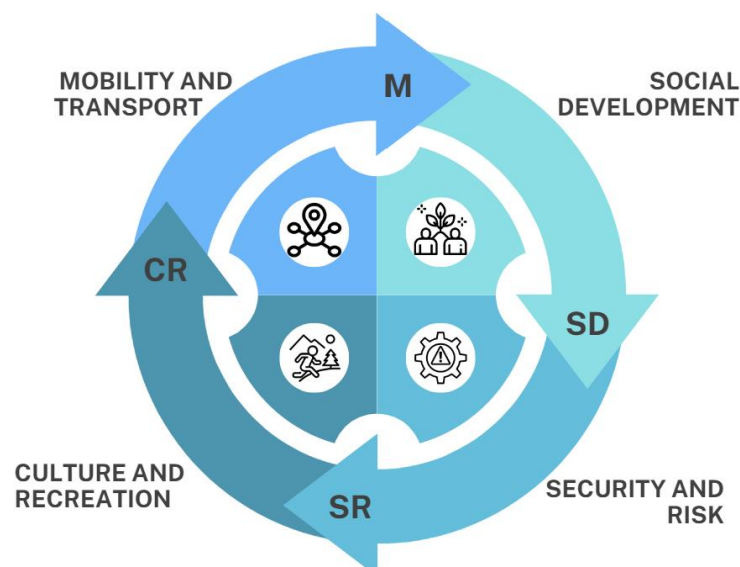
With this crafted framework in mind then the qualitative aspect of the research was also followed. Fifteen semi-structured interviews were carried out targeting different members of both the residents of the community and third parties involved with the community. Different interview guides were created for the different types of participants: community members, community youth, and relevant stakeholders. These were constructed after going through the previous literature and theories regarding inclusion, smart city utban planning, and peri-urbanity into four main sections. The interviews were obtained with the use of a gatekeeper who has been closely involved with the community for the last decade as a part owner of one of the *haciendas* and through the involvement of a local non-governmental organisation (NGO), *Fundacion Me Interesas*, that targets youth from scarce resources. This resembles a direct sampling technique due to the nature and focus of the research to residents in the *vereda*. Members of the community were all contacted beforehand through the gatekeeper and then I introduced myself in person for a couple of days before interviewing them by staying at the *vereda* itself. Information and consent forms were created so the participants would know of the nature of the study. Their consent was asked before and during the interviews and the minors who participated and their legal guardians were asked to consent on their behalf before interviewing them. The members of the community were interviewed within the *vereda* itself at their homes. These interviews were audio recorded and then anonymized for later analysis and coding. This followed a strategy of both deductive and inductive coding, with then group coding after going through the transcripts with ATLAS.ti.

There were also tools of ethnography used with casual conversations, observations and field notes that were taken during the overall two months of being in the area. Some people were not interviewed but shared their experiences and opinions in an informal setting and were helpful in the later analysis of the research. These conversations were not recorded but I made notes of them in my notebook. This information aided in fleshing out the context and history of the residents in the area. There was a bazaar event that I attended on the 11th of August. There were a lot of the members of the community, municipality, the cultural house, musicians and dancers. Here observations and casual conversations were had as there was live music and dancing so there was no place to conduct interviews. Also, some conversations when walking and driving to areas of the *vereda* with people

In the end, fifteen people were interviewed: eleven from the community and four from relevant stakeholders and experts. Nine women and six men were interviewed. The consent of the six children interviewed was asked to their parents/guardians before commencing. These were also done in two focus groups of three participants each so they would feel more comfortable talking in groups with their parents nearby. Eleven interviews were gathered in July and the rest in the first two weeks of August. There were five informal conversations that were also gathered by interacting with other members of the community on different occasions. The community member interviews and conversations mainly took place at their homes apart from an informal conversation when walking alongside the road with one participant. Three out of the four expert interviews took place at their homes apart from the chamber of

commerce representative as it took place at the chamber of commerce of Bu-
caramanga. [2]

4.2 Positionality Statement and the Role of Social Position

For the analysis of my findings, it is also crucial to utilize the framework of po-
sitionality or social position analysis to compare and contrast the difference
between inclusion and exclusion in the community compared to the urban city.
Inspired by Linda Alcoff's (2006) framework of how women's position in a
complex network of relations whether economic, political, social, cultural and
political can affect her understanding of herself and her ability to act or show-
case agency. This can be applied to the context of other marginalized groups
and their potential to effectively enact or showcase their agency. This draws
heavily on the framework of intersectionality proposed by Crenshaw (1989)
which called to look at how different social categories can affect and influence
the experiences of people. Crenshaw's work first applied to critical race studies
and how African American women had harsher difficulties than middle-class
Caucasian women in the overall feminist movement. In this research, social
position alongside intersectionality can be used as a tool to see how technology
or policies that want to harness it can have different experiences and outcomes
on people depending on their complex networks of relations and identity. Wal-
lis' use of this analysis is an inspiration in looking at how technology can be
analysed to identify "constitutive of specific social worlds, conditions, and con-
straints" (Wallis, 2011, p. 474). This framework with this understanding would
then be applied to the findings to offer a better insight to the nature of exclu-
sion in light of apparent inclusion in the community. Moreover, it will give a
more nuanced analysis of the data as compared to simple contrasts to percent-
ages and policies but their overall constitutions.

It is also important to discuss how the research is influenced by the re-
searcher's positionality to not only see its effects but also the inspiration of the
research in the first place. Firstly, being from the city of Bucaramanga and half
of my family also growing up there, there is an extensive history and attach-
ment to the region. My views and personal experiences of being a local have
both given me the insight to see the growing and changing dynamics of the
area. The gradual transformation of the metropolitan area to welcome the po-
tential benefits and opportunities of smart city networks has been felt ever
more present since the mid-2010s. Moreover, there is a historical and personal
connection to this community as my family has tried to assist them for three
generations now, starting with my maternal grandfather (Darwin Holmes,
2020, pp. 5-7). This is also seen with the gatekeeper as it is my aunt who is the
most involved with aiding the community and knows who and what all the
members are and mainly need (Hennink, Hutter, and Bailey, 2020, p. 98). I am
not a local or an insider of the community, but from the urban environment,
and having interacted with the community and surrounding areas for the last

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[2] For a more detailed view of the participant demographics refer to Appendix 2

15 years of my life the visual, social and infrastructural differences from both spheres. There is a possibility that these links could affect how I approach, understand and analyse the data, yet these origins also allowed me to shine a light on the various signs of neglect and exclusion in this zone.

Evidently, there were expectations that were developed about the issues and difficulties the community of the *vereda* faced and I came with an open mind to allow them to tell their side of the story to see if these matched or not. The results and data found complimented to my initial thoughts and expectations. There was a worry that my connection to my family and their interactions in the past would have affected the results, but it actually had a beneficial effect. There seemed to be a sense of trust in those that I spoke with and less hesitation in sharing their thoughts and experiences. It was not always smooth nor harmonious as it was evident I am not a community member and do not share their history and values, but that did not stop them from opening up and relating their opinions and expectations to me. I also found that I got some really interesting responses from the women particularly the mothers, maybe through a mutual understanding of femininity and gender roles as being a woman myself. Having also spent part of my childhood in the *vereda* in the weekends I also managed to relate to the youth of the community talking about common leisure activities in the area, talking about well-known members of the community and general local knowledge.

5 Navigating Spatial, Social and Digital Exclusions with Technological Adaptations

Through the theoretical background and the applied methodology, this chapter will present some preliminary findings to answer the research questions and objectives. The results uncovered three types of exclusion that the community of Alsacia Malabar faced: spatial, social and digital. The poor quality of the main road in the community not only marginalizes them geographically but seeps into their social needs as well. Mobility sought to be targeted in the smart city planning falls short in this area drastically. Socially the effects of mobility also affects educational needs to those living in the *vereda*. This with the added push of digital education post the COVID-19 pandemic has shown a digital divide were children struggle to complete such work that affects their grades. These are all further compounded by how analysing the policy documents there is a lack of intention and presence to meet the needs and issues of the peri urban zones. Finally, the community showed their resilience by both persisting and adapting with the possibility of transformative change in the exclusions. They utilized communications technology in their work, in aiding mobility themselves historically, and for community action. The availability of mobile phones to communicate and organize amongst themselves is evident showcasing their agency and adjust to difficulties from these exclusions. Figure 5.1 summarizes how these five categories intersect in a matrix which will be explored throughout this chapter.

Figure 5.1

Matrix of Exclusions and Types of Resilience

	Persistence	Adaptability	Transformability
Spatial	• Maneuvering Road Conditions	• Temporary fixes and communal investing	?
Social	• Children still studying with Closure of School • Community coping with limited health centers and job opportunities	• Digital Education • NGO dual learning	?
Digital	• Doing homework with shared mobile phones with limited resources	• Use of everyday technology and personal communication devices for organization	?

Source: Created by author in Canva

5.1 Disparities in Smart City Implementation: Gaps in Mobility and Education

This section focused on answering the first sub-research question "How does urban planning for smart cities contribute to the dissonance between policy goals and lived experiences in peri-urban areas?" Through the qualitative process, several issues regarding the dissonance and gaps in the implementation of these policies. The clash between local authorities and the needs of the communities, the technocratic focus of certain actors and the focus of what the community members have done themselves to deal with this difficulty over the last forty years. These were summarised in three main issues coming from mobility, education, and livelihoods.

Figure 5.2

A photograph of the road of the open road vereda further up north

Source: Fieldwork

To begin with, in my time with the residents of the community of Alsacia Malabar it was noticed how many of the topics lead to the difficulties posed by the state of the road. Just getting to the community one encounters this road that starts with some cement covering it near the bottom of the hill, but quickly deteriorates into an open dirt road full of potholes, ridges and signs of debris and damage from previous landslides on the sides as seen by Figure 5.2. The community is around twenty-five minutes away from the urban centre of the city of Floridablanca, yet depending on the type of vehicle and conditions of the day this varied wildly from twenty-five minutes to almost an hour and a half. The conditions also vastly worsen once reaching the last couple of houses at the top of the *vereda* where some of the most isolated members of the community reside. The experience of driving on the road was also a tumultuous one with constant shaking, swerving, and being cautious to the proximity of dropping down the mountain. The reality for the members of the community is that they have to traverse this road every day to meet basic needs for their livelihoods (Field notes July 2024).

The contrast from this road to the one only twenty-five minutes further down in the city was stark. Though the roads in the urban centre are not pot-hole free the asphalt or cement facilitate the mobility of those that are transiting (Fieldnotes, July 2024). Moreover, there is the centralised mobility and traffic management network developed by the secretary of transport and facilitated by local police. There is management and frequent maintenance guided in centralised information centres. There is also the presence of public transportation and some vehicles that offer free Wi-Fi and connectivity (Field Notes, July 2024). Though this road is classified as a rural road, and the infrastructure and conditions force it not to be of the same type as an urban road, the evidence shows an extensive poor quality for basic mobility. This highlights the extent of the spatial exclusion and the way that it is so entrenched in daily life and even seeping into social concerns.

There were plans in the past to improve the road and even connect it to the neighbouring *vereda* of Casiano Alto in 2018, yet that fell through with limited explanations to the community.

> *"They were going to make a connection here. That C-1, that connection, they were going to keep [the road in the vereda] as a tertiary road, fixed. They were going to keep the critical points fixed and unfortunately, that project did not work. So yes, that is where the consequences are being seen, because the road is in certain conditions… where the access is more difficult"* (Participant 2 July 2024).

Apart from this previous plan and mentions in documents over the state of the road in development plans there was really not much action from the municipality in targeting this issue so much so that residents called it an everyday normality and life.

> *"I tell you that the road here, since we live here [for over 30 years] it's always been like this."* Participant 3 July 2024.

Mobility refers not only to the ability of people being able to transport themselves from point A to point B but also to the social implications. Mobility is not just about the spatial aspect argued vastly in literature (Cresswell 2009; Sheller and Urry 2006, Faist 2013). Their access to the urban centre where they sell their produce, access to healthcare and just having a route to be able to move in case of an emergency like a landslide. What is seen is a clear divide in the quality and access of transport in this area compared to the proposed and mapped mobility goals and agendas proposed by the municipalities (Caldeira, 2017). This has even culminated with investment in surrounding small buses in the urban area but are not opt to drive in the road to transport residents in this *vereda*. The focus on the metropolitan area bus system of Metrolinea has been a major focus for the municipality but one that is not efficient and does not take into account the 60% of the territory which are the peri-urban *vereda*s.

*"Look what happened to transportation in the municipality of Mala-
gabita? They hired a bus to take the kids and bring them to town for
school. The bus did not have any up-to-date documentation, up-to-date
mechanical checks. Nothing. They simply handed it over there. A guy
drove it away irresponsibly, fell, and killed the children"* (Participant 2
July 2024).

The issue of mobility posed by the road is the most unanimous issue felt
by the community socially, but it also highlights the difficulties and strategies
the community has dealt with when it comes to education. In light of the lega-
cy of the COVID-19 pandemic, the growing technologization of education,
and the difficulty of guaranteeing mobility in the area affect a certain number
of minors in the community (Hollands, 2008). A certain mismatch of policies
and campaigns of technologization and centralizing school management has
affected the access and quality of education in the peri-urban area leaving some
vulnerable and at higher risk of a rate of unschooling.

The closure of the school has come with greater difficulties for some of
the children in the *vereda* having to make a longer and difficult journey to the
other nearest school in the neighbouring *vereda*. However, some parents opt to
send their children to schools in the city as they can afford it and feel they can
prepare them better (Field notes based on informal conversation July 2024).
There is a sentiment that both public and private schools in the city are better
in the formation of children due to lower drop-out rates, higher scores in the
national high school exams, bigger staff and more resources regarding technol-
ogy (Caldeira, 2017).

Figure 5.3

Venn Diagram showcasing the interaction between spatial and social exclusions

Spatial

**Sub par mobility
infrastructure**

**The poor state of
the road is having a
negative spillover
in access to
education,
ivelihoods and
other social needs**

Social

**development (health
and education)**
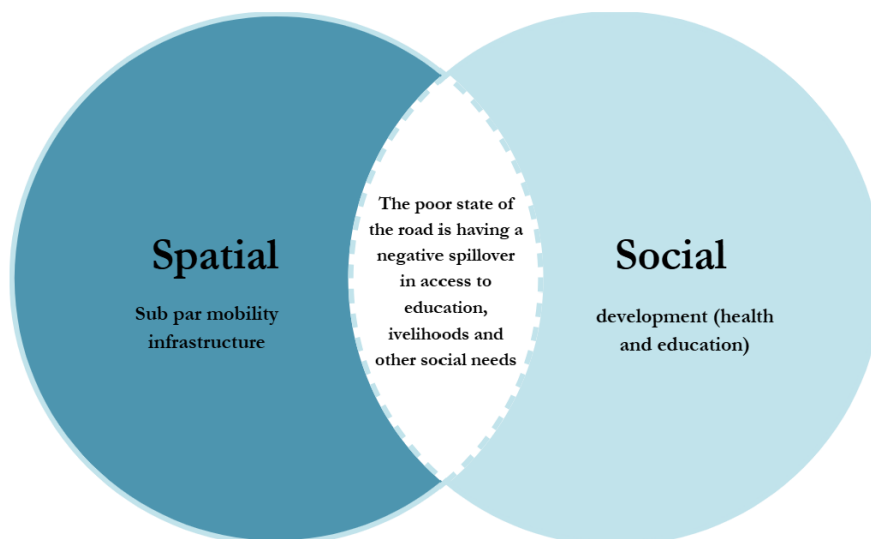
Source: Created by Author in Canva

Figure 5.4

A photograph of the closed-down school building

Source: Fieldwork 2024

However, there is a divide from the difference between these schooling systems and the students themselves. The quality of the road makes it difficult for the children to go to school in the neighbouring *vereda*, which can affect their attendance. The lack of school transportation also forces parents to accompany their children to a part of the journey which affects their work and even safety. This is a social exclusion or difficulty augmented by the spatial difficulties seen in Figure 5.3 and felt as a growing pressure by the parents and children.

> *"The youngest one who is seven years old says 'Mommy, I'm tired, I don't want to go anymore.' And I tell him: 'No my love, you have to make an effort and go because that is something that is a duty, that you must do. It is not that you have to, it is that you must do it"* *(Participant 1 July 2024).*

The children also struggle with assignments and projects, not because of intelligence but also through the digital mediums that work and teaching are based on. The pandemic and the rise of smart cities have pushed for a greater use of ICTs in the classroom and the use of Microsoft Office for basic primary assignments is present here. The children with limited access to computers with Office struggle to complete such work that affects their grades. This shows an exclusion based on digital divide of access and use of technologies (van Dijk, 1999). This evidence of the digital divide is particular because these households are not disconnected, they have mobile phones that have access to the Internet and mobile networks, but they share these devices with the rest of

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the family members too which poses a challenge in how education is being targeted nowadays (Wallis, 2011).

"The homework, or worksheets that they sent them to complete, were completely detached from their reality… In one of those worksheets, there was a hyperlink to a YouTube video. A really long and complicated hyperlink that was printed. It asked them to go to the hyperlink, watch the video, and based on that video make a PowerPoint presentation… It was impossible for them, a lot of them work, or have to work. They do not have access to computers to complete these tasks…. They find it difficult to continue with their formal studies" (Participant 15 August 2024).

"Interviewer: How was that? And what was it like studying with the computer? Was it different?

Participant 5: I didn't like it.

Interviewer: You didn't like it?

Participant 5: Because sometimes they called my dad. And he was there close by. I had to leave class and bring him something." (Participant 5 July 2024).

A combination of this tendency in education, a long distance to the access school and the prospect of prioritising the work of the land have seen a number of children of the *vereda* to become unschooled. This means that the student has failed the same year twice and cannot continue to study at the same institution. This shows how their social position of having limited access to technological resources can augment and increase the already pre-exisiting inequalities of limited education and mobility (Helsper and van Deursen, 2012). This is where the statistics show that over 30% of the residents have not finished their basic primary or high school diplomas in the area (*Semana*, 2022). There seems to be a mismatch and a lack of targeted technological resources for those living in the *vereda* that is affecting their education. If one looks at the state of public schools in the city are there at least are computer labs within the premises to demonstrate and teach how these software and programmes work (Field Notes, July 2024). There is a growing push for the adoption of computers and programming classes in ICT classes and training teaching staff to include these even in the youngest parts of primary schools (Informal Chat with Participant 13, August 2024).

All these show disparities, detachment and inequalities between expectations and the real-life experiences of the community members of Alsacia Malabar. What was seen on these three fronts mobility, education and livelihoods seem to exhibit this technocratic focus and not have much of an effect on the actual experiences of people particularly those in marginalised or peri-urban zones. Relating to Wigg (2016), these initiatives may offer ways to target inclusion struggle to actually achieve this and highlight or even perpetuate the already present exclusions in these zones. What this then pushes us to question is where this disconnect comes from. It may not manifest itself purely in the

implementation portion, but also from the genesis of these policies making it important to analyse the drafting and planning of these policies and whether they come with these nuances or not. The next section will explore the content analysis performed on the planning documents, briefs and proposals for the smart city initiatives to delve into the difference from the real-life experiences can be seen in a limited sight of planning.

5.2 Urban City Core Bias in Looking at the Contents of Official Planning Documents

In regards to the second sub-question of "In what ways are peri-urban zones included in the planning of smart city initiatives and are these urban city core-centred or metropolis conceptualized?" This section uncovered that the urban planning is centered in an urban city core focus. Utilizing the content analysis showcased a systematic exclusion and conceptualization of the peri-urban in the drafting of policy. It was shown that though this area is a metropole, it is targeted through a smart urban core that reflects the interests and social positions of the government and private sector- those mainly responsible for drafting policy. This focus further isolates the peri-urban areas.

From the get-go, there is one aspect that had the most resounding effect, which was zero mentions of peri-urban or periphery zones in all the documents. The closest sort of term/category that was found were references to "vulnerable" communities with still a low frequency of just 3% of mentions in the sample. Moreover, even when referring to vulnerable communities there is never a true description of who and what these communities were. This could be the biggest indicator of why there is a dissonance in the implementation because it is not that there is a gap between the aim and the results in real-life experiences because there is not even a consideration of these zones in the planning. This is both imposing but not necessarily surprising. As mentioned before with Dávila (2005) the peri-urban and the periphery are not new phenomena, but are sidelined and not focused on in terms of policy or directly included into the drawing board. This is also reflected in this first part of the content analysis with zero visibility in the sample that was analysed. The work of Karshenas (2004) also helps to understand this as they highlight how policy tends to fall into multiple biases. There is the well-known urban bias against rural areas but it can be seen that even in the urban sphere there are biases as well. The aforementioned technocratic focus also explores this reflection, as the limited number of actors and their particular interests are reflected in the focus of what the policies tend to reflect (Wiig, 2020). It is not simple enough to look at who the policy mentions, but also who the actors are that draft these policies. This can help reflect certain dynamics and define who is important to target.

The main actors responsible for planning these proposals and policies are the mayor (74% frequency being mentioned), the central government (70% frequency being mentioned), ministries of technology and education (25% frequency being mentioned), businesses and the private sector (12% frequency being mentioned). Community and citizens were mentioned in around 8% but in all these mentions they were not part of the planning or drafting but

were subjects of the potential benefits of these policies. What this reveals is a strong focus on both the executive and political authorities in planning these policies. What is also interesting is it is attached to personal development projects by the different mayors or even governors of the department where Bucaramanga is the capital. This makes sense as most policies especially that of development initiatives are mainly spearheaded by these entities, but it helps to visualize the normal trends of who they make policy for. According to Alcoff (2006) a person's positionality and the complex networks of their social, economic, cultural and political construction influence how they enact and interact. The last four mayors (spanning a period from 2012-2024) of Bucaramanga do not come from the peri-urban or the peripheries. They were all men from white mestizo backgrounds, from upper-middle to high socioeconomic classes and who have been very well educated in higher education in universities. Interestingly enough all have been involved in the private sector working in medium to large enterprises in the construction industry, whilst the newly elected mayor comes from a professional background as a social communicator and a councillor to previous mayoral cabinets. These similarities and configurations can help in inferring who they make policy for: the same sector of people that benefit from local private sector initiatives and those close to the political centre urbanely.

After looking at the lack of mentions of peri-urban areas and analysing who and which actors are part of the planning process it is important to see what sort of policies are planned for the type of smart city they aim for. There is a strong emphasis on digital alternatives with them being mentioned over 60% of the sample, in particular connectivity and access to the internet (45% of mentions throughout the sample). There is also an emphasis on harnessing digital methods to centralize and control the delivery of services better. This is seen with the need to focus and expand on infrastructure (45% of frequency mentions throughout the sample). These refer to systems to facilitate road mobility, security, water and waste organization and delivery. Finally, there is a strong push for education to also harness the potential of digital means and ICTs (56% of mentions across the sample size). These help visualize the sectors where the smart city initiatives want to be focused in the area but it further showcases the space from the policy and the actual reality to the peri-urban zones.. A reason explaining why relates to de Falco, Angelidou, and Addie's (2019) look at differentiating between smart cities to smart metropoles. Even with a wide collection of peripheries the planning and policy have not caught up to this conversion yet. Bucaramanga is classified as a metropolitan area and when policy is projected it usually refers to this wide space including both the urban and rural sections of the four surrounding cities too (Floridablanca, Piedecuesta and San Gil). Yet after looking at the proposals for these policies Bucaramanga showcase more of an urban city core focus rather than the greater surrounding areas and even less with the peripheries. There is an inherent vagueness of not defining which areas or communities these policies are going to be built for just a general naming of the cities leaving a general assumption that this is for the main city core.

These observations and values give us insight into why there is a dissonance in the implementation and real-life experiences in the peri-urban communities. There is the will to create a smart city policy to deliver and benefit

everyday sectors beyond connectivity, but it does not reflect a more comprehensive account of how the urban space has grown and included peripheral areas. Though branded as smart initiatives for the metropolitan area, there clearly is an urban city core bias beyond anything else. In regard to the second sub-question, it is clear that the planning does not cater to these areas which is troublesome but not necessarily surprising. This is due to the types of actors involved in the decision-making process and who they cater for towards policy to benefit. The vagueness of benefiting "vulnerable" communities does not show a complex take on how to cater for zones and beneficiaries beyond those private businesses and those in the central zones of Bucaramanga itself. This could be because of the costs to make expansive policy for many areas but also a lack of views and connection to these zones as viable for these projects.

These gaps in policy and planning not only reveal the deep-rooted challenges faced by peri-urban communities but also stress the need for alternative ways of inclusion and empowerment. Amid these persistent barriers, the peri-urban zones' abilities to self-organize, adapt, and act for their needs becomes even more critical. This resilience and agency in the face of neglect do not only highlight their resourcefulness, but also serve as a compelling counter-narrative to the limitations imposed by urban-centred policies. In the following section, we delve into how this resilience and agency manifest within the community, exploring the strategies they employ to navigate and transform their lived realities.

5.3 Persevering Beyond Policy: Community Resilience and Technological Adaptation in Alsacia Malabar

This final sub-section focused on answering the final sub-research question of "How does the peri-urban community of Alsacia-Malabar exercise resilience and agency, and how does the use of technology impact both their empowerment and subjugation?". In it there were many particularities found that the residents of Alsacia Malabar showcase resilience in how they organise themselves and utilise mobile phone technology to cater to their needs. They both showcased resilience by using these technologies to persist in their existing difficulties and exclusions but also using them to adapt to organize further. This highlighted how the use of technology even of a smart nature can have an everyday aspect and not be part of a grand scheme or policy. However, there were also frictions and subversions questioning if these initiatives could achieve profound transformability in the community.

The main use was for communication in different areas. Mobile phone use has proved crucial for those who work in agriculture and animal husbandry and communicating this to their *patron* or owner of the land who they work for. This is a utility-driven call for action as it is directly related to their economic livelihoods and their duties as employees to their employers (Schwinn, 2007, p. 6). They quite often make and receive calls to inform them regarding the progress and maintenance of the crops, yield and future resources needed for the harvest with the owners (Field notes, July 2024). This is mainly done through

WhatsApp messages, voice notes, voice or video calls and regular cellular phone calls (Field notes, July 2024). The previous discussion of the spatial exclusion also shows the communication of the community together with the collective WhatsApp group of "Alsacia Malabar" where information and requests are shared for all to see and interact (Field notes, July 2024). There they organized to find labour to fix or do maintenance on the road, and also send the status or conditions of the road in the different parts of the *vereda* for the residents and the potential hikers showing their resilience to persist like in Figure 5.5.

Figure 5.5

Venn Diagram showcasing the interaction between spatial exclusion with persistence

Spatial

Sub par mobility infrastructure

Temporary fixes

60 years of transiting the road

Persistence

The ability to continue
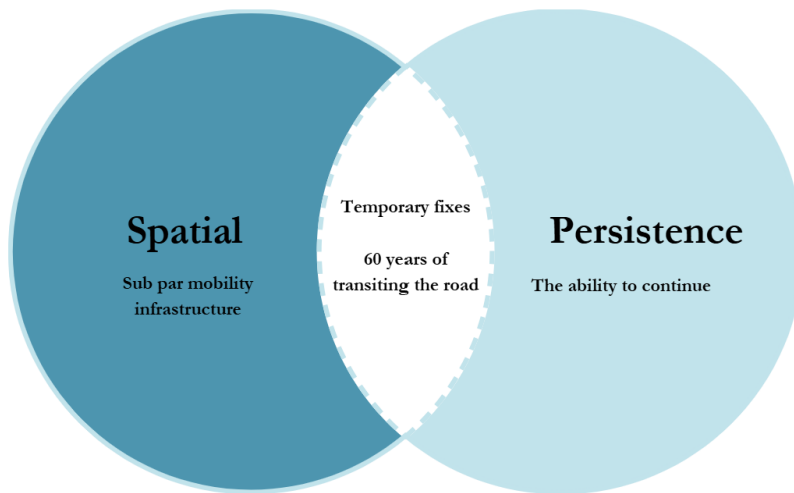
Source: Created by Author in Canva

This is how technology use in their daily lives but technology has also been harnessed to persist the difficulties to persist their living conditions. This was seen with a collective effort to target, maintain, and fix the road amongst themselves with what they could. There is a fund available for small-scale works on the road for members to fix potholes and light maintenance with light machinery and human labour contributions. They organized amongst themselves on a WhatsApp group to coordinate such needs when asked.

> *"We then fix it ourselves. The truth is that it is like that. Or if they*
> *send machines, then that's fine... Well, if they [ask through*
> *WhatsApp] that a worker must be sent to the road, then it is done.*
> *And if you want to pay, then you pay." (Participant 3 July 2024)*

Furthermore, The use and rotation of mobile phones in households for the children to access and complete their homework is one major tool that is used in their daily lives. The original workshop dedicated to sports, art and literature offered by the NGO *Fundacion Me Interesas* adapted their space in their programs to help the children to do their work with the assistance of the teachers.
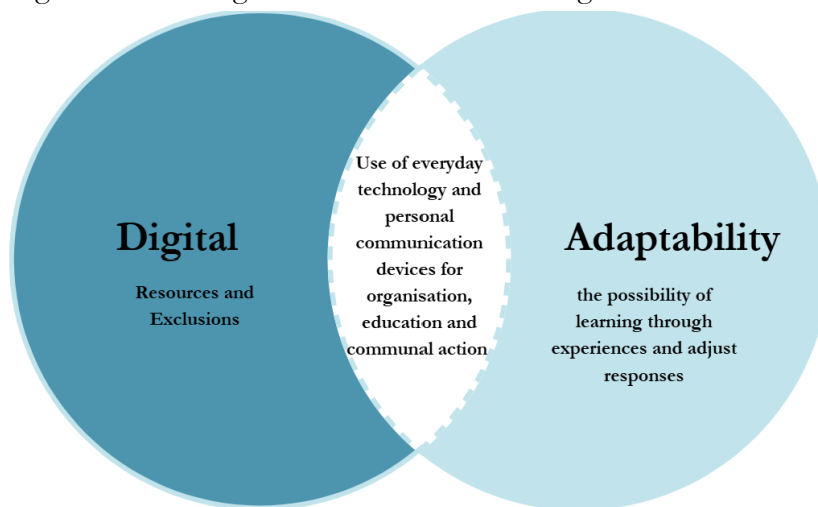
> *"We started out with sport activities then moved into more art and lit-*
> *erature… We realized that they needed help in doing their homework*
> *so at the end of the sessions or at the end of the workshop cycles we*

The technology also allowed for better communication and coordination
for the eco-tourist activities that the *vereda* caters for. The presence and connec-
tion of some of the properties to different waterfalls of the Judia and
Monetefiore attract hikers and there are mountain bike trails present where
bikers can course through. By using the weather forecast apps and also com-
municating with household members at the beginning of the trails they can get
a sense of how many hikers or bikers are likely on the trails and can sell snacks
or beverages for extra income (Field notes, August 2024). These are all exam-
ples to Folke et *al.*'s (2010) comparison of adaptability. The community show-
cases resilience first through their persistence by maintaining and still living
where they reside with difficulties, but they also adapt the resources and tech-
nologies they have with these mobile technologies seen in Figure 5.6 (Folke et
al., 2010, pp. 4-6). This showcases another part of resilience beyond plain sur-
vival but of creative innovation of the resources readily available to adapt. This
mirrors Kinder's (2016) exploration, which demonstrates how peripheral areas,
often viewed as disadvantaged, showcase innovative and creativity in their use
of technology.

Figure 5.6

Venn Diagram showcasing the interaction between digital means with adaptability

Digital
Resources and
Exclusions

Use of everyday
technology and
personal
communication
devices for
organisation,
education and
communal action

Adaptability
the possibility of
learning through
experiences and adjust
responses

Source: Created by Author in Canva

The Alsacia Malabar showcase resilience on the two fronts of persistence
and adaptability but can the community also bwhat about transformability?
There was also the use of mobile phones for coordination and cooperation
between different actors to raise funds and collective action. Though this could
also be seen as a utility-based action it also exhibits all the other three actions:
norm, emotion and dramaturgic. Utility-driven was seen through messages, the
meetings for the board of action of the community are organized to decide
when or what funds should be raised. From this, it was revealed there were
reserves of money to pay for labourers for work on the road if needed and as-
sistance to influence the municipality in lending heavy machinery to do the
work from the community itself (Informal Conversation with Alicia August

2024). This was also seen with the participation and organization of the annual 'bazaar' in conjunction with the *Campesino* Music Festival of Floridablanca in the *vereda*. The municipality/town hall with the cultural house would provide musicians, the sound system and promotion of the event, whilst the community members would prepare and cook food for the participants and spectators of the festival. The funds raised in the food and beverages would be saved to build a new chapel in the community, which was at this point, a poorly structured building.

Figure 5.7

Sign Advertising the Bazaar activity with a mass service, selling food, and musical performances
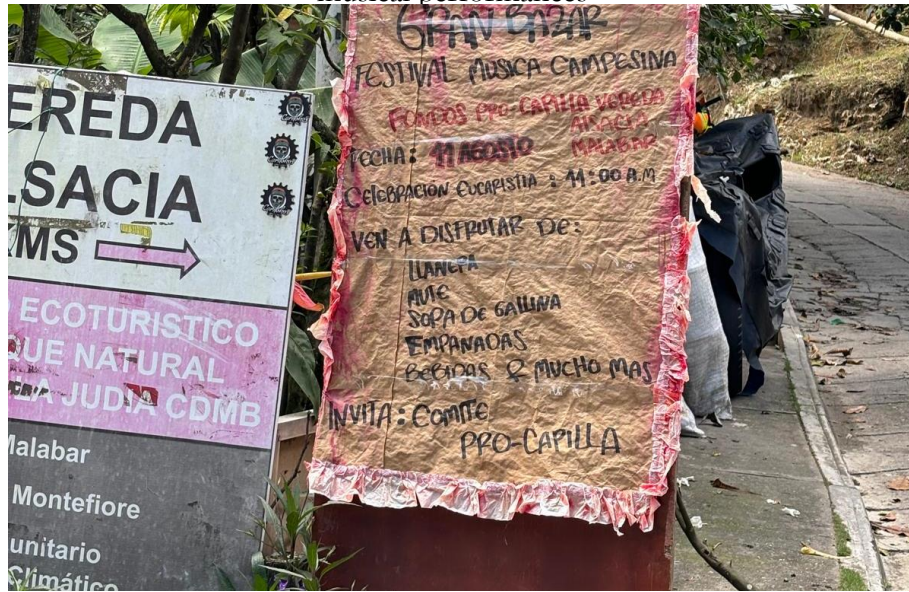
Source: Fieldwork 2024

Figure 5.8

Site of the Campesino Music Festival

Source: Fieldwork 2024

Though these are examples of stepping stones to transform and change the space for a better future, it is also important to note that these examples are not always harmonious. Transformability can be difficult in particular with a community that can be very competitive, and there is the presence of other hierarchies even though they may all collectively feel the issues of limited mobility and educational growth. Many expressed that though they share the space and live on the *vereda* together, they are secluded and have to look out for themselves instead of relying on others.

> *"No, here everyone defends themselves as best they can. The truth is that it is like that" (Participant 3 July 2024).*

> *"We stay more here on the farm because it is... far from the houses... That's also why it's been kind of nice because there's no one to bother us" (Participant 1 July 2024).*

Some argue that there is a community but there are divisions. Those who work more in the urban city are differentiated from those hired to work on the land. Like Alcoff (2006) points out these are aspects that influence the positionality and experiences of issues in the community and have caused friction in decision-making on several fronts. For example, there were conversations that instead of pushing to restore the primary school building they would maybe use that site for a communal entertainment building instead (Field Notes on a phone call, August 2024). Those who can put more capital or funds into projects are more affluent and can be more present in the overall group. This showcases aspects of competitive and subversive agency. The positions and experiences of the members of the *vereda* are different based on economic and social relations, shifting the needs of what is seen as more important and who can make their voice be heard the most. This relates to Davies (1991) on how the ones that can express their experiences the most can collectivise the rest

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and push action towards the collective. Wallis' (2011) and Chib *et al.* (2022) analysis of new power hierarchizations in technology is also viewed here. Those who have better signal can communicate more often and can organize more details than those who experience connectivity issues. Those who live and are more affluent producers heavily clash with other residents with lower socioeconomic incomes in decision-making as they are the main people to invest financially. Even though they can all participate and voice their opinions in the group they are subverted based on other categories and markers.

These examples of persistence, adaptability and transformability highlight how the community have agency and resilience in light of the wide gaps left by smart urban-centred city policies. Alsacia Malabar showcases how the use of everyday technologies in their lives surrounded by difficulties in their context can be creative and innovative. Their collective agency can also be harnessed and spearheaded through technologies, but it does face challenges. There are still socioeconomic and social divisions within the community that shape and differentiate who gets priority and the decision-making. With these aspects in mind, the community still shows a counter-narrative to the presently mismatched policies that barely take them into account. The final chapter will discuss how these results implicate for inclusive development in the peri-urban areas.

6 Discussion and Conclusion

This study sought to explore the research gap of what communities do in light of the exclusion of how smart city initiatives in peripheral zones. In this research what was discovered were three main types of exclusions: spatial, social and digital. What seemed to be the most prevalent one that affected the community was the spatial one. This is not only due to the geographical distance between the city and the smart core but also due to the limited mobility and its negative spill over into other social needs. Related to Cook and Butz (2015) argument the ability to move and immobility can have severe social effects on people. In Alsacia Malabar this was seen in how the quality of the main road has spilled over to their livelihoods, education and chances of social mobility. This is one of the many faces of social exclusion as well but a further outlook it's the cyclical effect of the quality and type of education to the community's youth. The closure of the school and the COVID-19 pandemic had strong negative effects on the community but the added face of a curriculum pushing digital education has caused a further layer of exclusion and limitations. The realities of the youth and community show a discrepancy in the digital education perspective and areas where the necessary resources for these to take a flight are limited. Inadequate knowledge of and access to computers makes the push of this education difficult to complete for the children in these areas compared to the smart city core areas. This intersects with the final aspect of exclusion identified in the digital sector. This peri-urban zone experiences the digital divide and the adverse effects of a policy that does not conceptualize further exclusions based on city core models. Like van Deursen and van Dijk (2011) argue already existing inequalities and exclusions can be amplified through the access or difficulty of access to technology necessary for development that follows a smart path.

These aspects are not novel and well-known to impact peri-urban contexts. What that then pushes us to question is how pervasive can the exclusion can be are can the cycle be broken from this trifecta. Would spatial aspects always impact the social and will the social and digital influence each other as well? The projections and research show that peripheralization will continue to grow and the socio-spatial difficulties that come with these are not going to subside with them either. This reasoning causes one to reflect on the original push for smart city initiatives, and the potential of the role of technology. As discussed by Wallis (2011) and Hollands (2008) technology and its diffusion were seen as a potential factor for increasing efficiency and even agency in social provisioning. Whilst the community does face a digital divide they are not hermits or disconnected but show a use of everyday technology that does help and influence their needs. Different to the smart urban core that the policy clearly shows from the content analysis and lack of inclusion of the peripheries the digital does play a role but in the form of resilience of adaptability to the contexts around them (Folke et *al.*, 2010).This is where resilience comes through and showcases in the results and overall research. In the face of the difficulties, mismatched policy and exacerbated exclusions communities still act and persist. Alsacia Malabar showed clearly the two first forms of resiliency in both persisting and living in light of their contexts and adapting both practical-

ly and digitally to their needs. The policymakers seem to overlook this practical adaptability of the everyday in not grand and technocratic projects and this could be a path to more holistic social planning and policy.

What this means for the smart city and the peripheries is then to be questioned. There is evident proof that the smart city planning itself is exclusive and does not meet the needs of those beyond urban cores. The initiative for these to be a springboard for better inclusivity has reamplified previous existing difficulties and made them more apparent. Even with this, it does not mean technology or digital measures are forsaken to fall in this trap. The case of the community of Alsacia Malabar shows that everyday digital use can be a tool for adaptation that can have serve as a resource for targeting certain types of difficulties from spatial, social and digital exclusions. What this could offer for policy is to stop this reliance and increased investment in adapting the smart city model to the peripheries. Looking at Kim (2022) and Kinder (2012) and how communities without grand schemes or initiatives utilized, hijacked and adapted the technology initially planned in a certain way to a more adapted and meaningful context for them. What could then be an alternative in an attempt to harness these resilience and adaptability measures is to push for these adaptations from the community themselves with support from basic technology education and its diffusion to the area. Already with the more accessible mobile phones they have managed to hone certain parts of their surroundings, and with the possible presence of a Digital Centre that are in rural and other peri-urban areas in the country, it could open new doors as well. This can be a definite more holistic approach to bridge the discrepancies between urban planning and community needs.

The possibility of harnessing the digital adaptation of the community can be a stepping ground for innovation and overall resilience, but there are concerns regarding whether it can cause mass social transformation. During the research, the concept of resilience by Folke et *al.* (2010) and its types, persistence, adaptation, and transformability, have been explored. The community showcased persistence in many forms from the spatial, social, and digital limitations they faced, but also their adaptability in particular with everyday technologies. However, whether these actions could lead to profound social transformation is an extent that the research was not able to fully capture. The snapshot of Alsacia Malabar showed how even with the collective agency, resilience and collaboration there were still subversive and resurgence of factors that caused exclusions of a consensus on decision-making. Socioeconomic divisions, social hierarchization based on positions of religion, gender, and age all resurfaced even with their organizational efforts prying whether the role of the digital truly shifted their already present social standings. This is where research should focus on in the future: finding the conditions and the factors of resilience measures by people in peri-urban areas that can achieve transformative change for their communities. Looking at the conditions for transformability in overcoming persistent hierarchies could be the key to targeting the recurring spatial and social issues in the peripheries. A way to research is by looking at the amount and types of civic engagement by the community and asking if are some voices that are more valuable and why. Another indicator that could be seen is the local governance of said communities and viewing how their input, actions, and attendance could push for profound change. Also, looking if there

are changes in social norms and hierarchies over an extended period, which is something this research could not do due to the practical constraints.

The peri-urban zones will only continue to grow in size and the urban city space has changed profoundly. The urban and urban core focus is problematic for and harmful for effective policy as this paper has shown. This research highlights how these spaces are not hopeless or only vulnerable but active, adapting and flexible to their present difficulties. The smart city had dominated and has been pushed as the main way to achieve efficient development but technology and everyday uses of digital media do not have to be extremely elaborate to make an impact for change. Peri-urban communities like Alsacia Malabar showcase that betting on community-driven adaptations could be a gateway to profound transformation and a transformative style to urban development.

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Appendices

Appendix I Filled in Ethics Form

for RP research carried out by MA students[1]

<u>Aim:</u>
This Form aims to help you identify research ethics issues which may come up in the design and delivery of your Research Paper (RP). It builds on the session on Research Ethics session in course 3105 and subsequent discussions with your peers and RP supervisor/reader. We hope the form encourages you to reflect on the ethics issues which may arise.

<u>The process:</u>
The Ethics Review process consists of answering questions in the following two checklists: B1-Low-sensitivity and B2-High-sensitivity. Depending on the answer to these questions you might need to fill section **C-Statement of Research Ethics** too.

The background document "ISS Research Ethics Guidelines for MA Students" provides advice and detailed information on how to complete this form.

Step 1 - Fill checklists B1 and B2
Step 2 - After answering checklists B1 and B2, the process proceeds as follows:

- **If you answer 'yes' to one or more low-sensitivity questions (checklist B1):** please discuss the issues raised with your supervisor and include an overview of the risks, and actions you can take to mitigate them, in the final design of your RP. You can refer to the ISS Research Ethics Guidelines for MA Students for help with this.

- **If you answer 'yes' to one or more high-sensitivity questions (checklist B2)**, please complete section 'C' of the form below describing the risks you have identified and how you plan to mitigate against them. Discuss the material with your supervisor, in most cases the supervisor will provide approval for you to go ahead with your research and attach this form to the RP design when you upload it in canvas. If, after consultation with your supervisor, it is felt that additional reflection is needed, please submit this form (sections B1, B2, and C) to the Research Ethics Committee (REC) for review as follows:

    When submitting your form to the REC, please send the following to researchethics@iss.nl:
    1) the completed checklists B1 and B2 (or equivalent if dealing with an external ethics requirement)
    2) the completed form C 'Statement of Research Ethics'
    3) a copy of the RP design
    4) any accompanying documentation, for example, consent forms, Data Management Plans (DMP), ethics clearances from other institutions.

    Your application will be reviewed by a reviewer who is not part of your supervisory team. The REC aims to respond to ethics approval requests within a period of 15 working days.

Step 3 - Integrating the Ethics Review process into the RP:

- This Ethics Review Form (checklists B1 and B2) needs to be added as an annex in your RP Design document to be uploaded in the Canvas page for course 3105 and to be presented in May.
- If, as a result of completing sections B1 and B2 of this Review Form you also need to complete section C , add section C 'Statement of Research Ethics' and Section D 'Approval from Research Ethics Committee' (if available) as an annex to your final RP design to be to be uploaded in the Canvas page for course 3105 in July.

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[1] This checklist and statement is adapted from the Institute of Development Studies (IDS) Research Ethics Committee and informed by the checklists of two Ethics Review Boards at EUR (ESHCC and ERIM) and the EU H2020 Guidance – How to complete your ethics self-assessment.

Project details, Checklists, and Approval Status

A) Project/Proposal details

1.	Project/Proposal Title	A critical look at Smart City Counterhegemonic Initiatives in Bucaramanga's Urban Planning Exclusion
2.	Name of MA student (applicant)	Maria MargaritaTamara Lozano
3.	Email address of MA student	676633mt@student.eur.nl
4.	Name of Supervisor	Arul Chib
5.	Email address of Supervisor	chib@iss.nl
6.	Country/countries where research will take place	The Netherlands and Colombia

7. Short description of the proposed research and the context in which it is carried out:

The research will be a qualitative process of gathering experiences, stories and accounts of a peri-urban community in the metropole area of Bucaramanga over their counterhegemonic strategies used in light of smart city and urban planning exclusions. I would carry out interviews to understand these experiences but in particular how the youth feels in light of limited opportunities from the growing neglect and distance. Thus, I would interview youth members, their parents, NGO workers presently helping in the community, some private sector individuals that have projects in the area and some local town hall officials. This data will then be transcribed and coded to unravel some of the main findings and implications of these strategies to the smart city literature and urban planning policy making.

B) Research checklist

The following checklist acts as a guide to help you think through what areas of research ethics you may need to address. For explanations and guidance please refer to the background document 'ISS Research Ethics Guidelines for MA students'. Please complete both sections (B1 and B2)

	Please tick the appropriate box	YES	NO
	B1: LOW-SENSITIVITY		
1.	Does the research involve the collection and or processing of (primary or secondary) personal data (including personal data in the public domain)?	✓	
2.	Does the research involve participants from whom voluntary informed consent needs to be sought?	✓	
3.	Will financial or material incentives (other than reasonable expenses and compensation for time) be offered to participants?		✓
4.	Will the research require the co-operation of a gatekeeper for access to the groups, communities or individuals to be recruited (e.g., administrator for a private Facebook group, manager of an institutions, government official)?	✓	
5.	Does the research include benefit-sharing measures for research which takes place with people who could be considered vulnerable? – please revise the background document (Guidelines) for more information.	✓	

If you have ticked 'yes' to any of the above boxes (1-5), please discuss with your supervisor and include more information in your RP design describing the issue raised and how you propose to deal with it during your research.

YOU ONLY NEED TO COMPLETE THIS SECTION IF YOU HAVE ANSWERED YES TO ONE OF THE QUESTIONS IN SECTION B2 ABOVE (Questions 5-11)

C) Statement of Research Ethics

Using the background document 'ISS Research Ethics Guidelines for MA students', please address how you are going to deal with the ethics concern identified, including prevention measure to avoid them from manifesting, mitigation strategies to reduce their impact, and preparedness and contingency planning if the risks manifest.

Please number each point to correspond with the relevant checklist question above. Expand this section as needed and add any additional documentation which might not be included in your RP design, such as consent forms.

[TO BE COMPLETED BY MA STUDENT AND DISCUSSED WITH THE SUPERVISOR. IF THE SUPERVISOR FINDS IT NECESSARY TO SEEK FURTHER REVIEW, THE STUDENT MUST SUBMIT THE FORM TO THE RESEARCH ETHICS COMMITTEE]

The main ethical challenges I expect to find are mainly regarding the participants themselves. As I will be utilizing a gatekeeper, they might feel pressured to collaborate with me and give responses that will resemble a participant bias instead of their own. I hope to mitigate this effect by speaking and being with them for a couple of days before actually starting the interviewing process to make them feel as comfortable as possible. I will then seek to inform them of the nature of the research, and the procedure and seek their written informed consent if appropriate otherwise their oral consent will be utilized.

In addition, as I will be speaking with several members of the youth, issues regarding those that are under 18 if they can give their informed consent. I do not plan to speak to those under 18 without asking their parents' for their informed consent first. This will be included in the consent form and communicated to the individuals themselves. Additionally, speaking to the issues parents also feel associated to their children is also important so my plan is to first hear from them and then ask to hear what their children think as well. Furthermore, a focus group discussion could be arranged with those members of the youth as they participate in weekend workshops organized by local NGOs where their parents are in a close vicinity and to not make them feel stressed over the intensity of a one-on-one interview. Within the conversation with the youth, I will optimize and strive to keep their answers private and anonymized so they feel comfortable, but in the case they disclose information that would jeopardize their safety and well-being I will comment this to their parents.

The data that will be gathered from the interviews will go through the necessary precautions of storage and analysis. After gaining informed consent from the participants to record and store the data, their identities will be anonymized to secure their privacy. Moreover, this will be saved in an external hard drive that will be encrypted and backed up to the university's cloud service of One Drive for the analysis process later. There will be extra measures and restrictions placed on these files to guarantee that the accessibility is limited to myself, the researcher.

Finally, I will be dealing with a vulnerable community and do not want to make this just an extractive process. They will share experiences, feelings and stories of certain contexts that are not the most pleasant and the youth also wants to find alternatives to stay and have a future. Simply taking that information could feel reductionist so my aim is that by making this project multicollaborative with both local officials it could foster a better culture of cooperation. It could help visualize their issues more explicitly and push for more action and involvement in holistic policy-making for their actual present concerns.

D) Approval from Research Ethics Committee

*To be completed by the Research Ethics Committee only if

Approved by Research Ethics Committee: .... **Date:** ....

Additional comments for consideration from Research Ethics Committee:

If the REC needs more information before approving, the REC secretary will be in touch with the MA student. If after requesting more information the REC still has concerns, the REC secretary will ask the supervisor to discuss these with the student. In the unlikely event that there is still no resolution, the REC will refer the application to the Institute Board.

4

Appendix II Tables Regarding Participant Demographics

Table 1

List of Respondents to Interviews

Respondent	Relation	Age	Gender
1	Community Member	25+	Female
2	Community Member	25+	Male
3	Community Member	30+	Female
4	Community Member	18	Male
5	Community Member	16	Female
6	Community Member	12	Female
7	Community Member	9	Male
8	Community Member	9	Male
9	Community Member	7	Male
10	Community Member	8	Male
11	Community Member	60+	Female
12	Expert and longtime involvement in the Community	85	Male
13	Chamber of Commerce Representative	30+	Female
14	NGO Head	58	Female
15	NGO volunteer	33	Male

Informal Conversations

Respondent	Place	Date
16	At their home	10/07/2024
17	Walking on the road together	24/07/2024
18	At their home	11/07/2024

Questionnaire Expert Interviews

Date interview:	
Location inter-view:	
Interviewer:	

#1 Personal/Position/Profession Relation to Bucaramanga

1a. Let us start with you telling me a bit about yourself. What is your name and what do you do in regard to the city of Bucaramanga? *Empecemos contándome un poco sobre usted. ¿Cuál es su nombre y a qué se dedica en relación con la ciudad de Bucaramanga?*

- Occupation/Ocupacion
- What is your involvement with city/ Cual ha sido su participacion en el desarrollo de la ciudad

1.b. Are you from Bucaramanga and or its surrounding metropolitan area? Tell me how the city has changed since you have lived here? *¿Eres de Bucaramanga o de su área metropolitana? ¿Dime cómo ha cambiado la ciudad desde que vives aquí?*

- Probe: The generational turnover points/milestones --> education, livelihoods, services, infrastructure→ exactly how have these changed
  - *Los puntos/momentos de cambio generacional --> educación, medios de subsistencia, servicios, infrastructure→¿cómo han cambiado exactamente?*

1.c. What are some of the biggest challenges you have faced living here? *¿Puede detallar algunos de los mayores retos a los que usted ha enfrentado viviendo aqui en Bucaramanga?*

#2 What is Inclusion/ Is Bucaramanga Inclusive?

2.a Do you feel like you belong or are a part of the city? Do you feel that you are not part of the city? *¿Usted piensa que usted hace parte de la ciudad o comunidad de Bucaramanaga/Floridablanca? ¿Usted piensa que no hace parte de la ciudad, detalle porque?*

- Probe: what do you think it is that makes you feel included?
  - *¿qué cree que es lo que le hace sentirse incluido?*
- Probe: Based on the answer or program/aspect do you feel you are part (BLANK) in the city?

- o *¿Según la respuesta o el programa/aspecto se siente parte (EN BLANCO) en la ciudad?*
- Probe: What is you do regarding this exclusion?
  - o *¿Qué hace usted con respecto a esta exclusión?*

2.b Who do you think are those/the groups that face the most disadvantages in Bucaramanga? ¿Quiénes son los grupos más desfavorecidos en Bucaramanga?

- Probes: do you think there are differences between the access different groups receive in the city? Can you tell me some?
  - o *¿cree que hay diferencias entre el acceso que reciben los distintos grupos en la ciudad? ¿Puede decirme algunas?*

2.c Do you know about any projects about inclusivity, like *Familias en Accion* or *Pacto Para la Educacion*? If so can you tell me about them? *¿Conoce proyectos orientados a la inclusion como los de Familias en Accion o el Pacto Por la Educaccion? Si es así, ¿puede hablarme de ellos?*

- Probe: inclusive for you or are they inclusive for others?
  - o *¿son inclusivas para ti o lo son para otros?*
- Probe: do you think they are effective?
  - o *¿cree que son eficaces?*

2.d What has been the role of education and inclusivity? How has the city targeted education? *¿Cuál ha sido el papel de la educación y la inclusión? ¿Cómo ha orientado la ciudad la educación?*

#3 Potential of Technology and Smart Cities

3.a. What changes have you seen in the change in technology in everyday life in the last 30 years? For example, being used in education, schools but also infrastructure and mobility. *¿Qué cambios ha observado en la evolución de la tecnología en la vida cotidiana en los últimos 30 años? Por ejemplo, en la educación, las escuelas, pero también en las infraestructuras y la movilidad?*

- Probe: Describe these changes
  - o *Describa estos cambios*
- Probe: Do you see benefits and real change
  - o *¿Ve beneficios y cambios reales*
- Probe: Do you think all residents have benefited from these?
  - o *¿Cree que todos los residentes se han beneficiado de ellas?*

3.b. The city announced different plans to use 'smart' initiatives for example increasing free connectivity in public spaces and interconnected networks for better mobility. Do you feel their effect or relevance? *La ciudad anunció diferentes planes para utilizar iniciativas "inteligentes" por ejemplo aumentar la conectividad gratuita en los espacios públicos y las redes interconectadas para mejorar la movilidad. ¿Siente su efecto o relevancia?*

- Probes: with the change in technology, do you feel it is useful for all residents?

- o *con el cambio de tecnología ¿cree que es útil para todos los residents?*
- Probes: do you feel their effect? Yes or why not?
  - o *¿siente su efecto? ¿Sí o porque no?*
- Probes: Would others struggle more in accessing these?
  - o *¿Otros tendrían más dificultades para acceder a ellas?*

3.c. What do you feel about this idea of smart cities? Do you think there are other alternatives that people could go for? *Qué le parece esta idea de las ciudades inteligentes? ¿Cree que hay otras alternativas que la gente podría optar?*

- Probe: Positive or negative thoughts
- Probe: pros or cons
- Probe: are people actually benefitting?

3.e. Have you seen a change in schooling system with technology or TICs? ¿Has visto un cambio en el sistema de educacion con el uso de tecnología o las TIC?

3.d. In your own words could you describe to me if the decisions/plans made by the city hall or other relevant stakeholders are meeting the needs of the citizens? *En sus propias palabras, ¿podría describirme si las decisiones/planes adoptados por el ayuntamiento u otros actores interesados responden a las necesidades de los ciudadanos?*

#4 Peri Urbanity

4.a What are your thoughts and experiences with the *veredas*? *¿Cuáles son los principales retos a los que se enfrentan las veredas en materia de urbanismo e inclusión?*

- Probe: what are some of the main challenges they may face?
  - o *¿cuáles son algunos de los principales retos a los que pueden enfrentarse?*
- Probe: do you think they are being heard?
  - o *¿cree que sus frustraciones son escuchadas?*

4.b. Have you been involved in *Pacto Por la Educaccion* or *Familias en Accion* that target communities in *veredas*? If so, what have you been involved with if not have you heard of other projects like these and could you describe them? *¿Ha participado en Pacto Por la Educación o Familias en Acción que se dirigen a comunidades en veredas? Si es así, ¿en qué han participado? Si no, ¿ha oído hablar de otros proyectos como estos y podría describirlos?*

4.c. What do you think people from the community in the *vereda* do to tackle their lack of inclusion*¿ ¿Qué cree que hace la gente de la comunidad de la vereda para hacer frente a su falta de inclusión?*

4.d. What has been the policy of schooling and education in these communities? What are some of the main challenges? *¿Cuál ha sido la política de escolarización y educación en estas comunidades? ¿Cuáles son algunos de los principales retos?*

Questionnaire Community Individuals

Blur and Introduction

Date interview:	
Location inter-view:	
Interviewer:	

#1 Personal Information and Role in Community

1.a. What is it that you do but also around in the vereda? *¿Qué es lo que haces pero también por ahí en la vereda?*

1.b. Can you tell me how long you have lived in the vereda? What has changed in that time? *¿Puede decirme cuánto tiempo lleva viviendo en la vereda? ¿Qué ha cambiado en ese tiempo?*

1.c. Do you feel part of the community? In what ways are you involved or not? ¿Se siente *parte de la comunidad? ¿De qué manera participa o no?*

#2 Main Issues the Community Faces

2.a. What are the main difficulties you have faced living here? Do you feel other members of the community share them? *¿Cuáles son las principales dificultades a las que se ha enfrentado viviendo aquí? ¿Cree que otros miembros de la comunidad las comparten?*

2.b. Are these difficulties recent or have they been there for a long time? *¿Estas dificultades son recientes o existen desde hace mucho tiempo?*

2.c. Do you feel that your struggles/experiences are different from others? Do you think there are differences between living in the *vereda* an in the city? *¿Crees que tus luchas/experiencias son diferentes de las de los demás? ¿Crees que hay diferencias entre vivir en la vereda y en la ciudad?*

#3 Feelings/Opinions on the Role of the Town Hall/Stakeholders

3.a. Are you aware of programs like Pacto para la Educacion or Familias en Accion? Do you feel these have helped with some of the difficulties? *¿Conoce programas como Pacto para la Educación o Familias en Acción? ¿Cree que le han ayudado a superar algunas de las dificultades?*

3.b. Do you think the town hall has done enough to tackle these issues? *¿Cree que la alacaldia ha hecho lo suficiente para abordar estas cuestiones?*

3.c. Do you think the municipality is involved in listening and providing for the wellbeing of the community? *¿Cree que la alcaldia se implica en escuchar y velar por el bienestar de la comunidad?*

3.d Have you been involved with the municipality or other actors to help in projects to better the community? *¿Ha colaborado con la alacaldia u otros agentes en proyectos para mejorar la comunidad?*

#4 Reactions, Strategies, Coping Mechanisms

4.a. How have you coped with the difficulties in the community? The closure of the school, limited infrastructure, and jobs? *¿Cómo ha afrontado las dificultades de la comunidad? ¿El cierre de la escuela, las infraestructuras limitadas y los puestos de trabajo?*

4.b. What or who do you think have helped you the most? *¿Qué o quién cree que le ha ayudado más?*

4.c How has the community organized themselves to tackle their difficulties? Have you felt the need to rely on the community rather than the municiplaity? *¿Cómo se ha organizado la comunidad para hacer frente a sus dificultades? ¿Ha sentido la necesidad de apoyarse en la comunidad más que en la alcaldia?*

Questionnaire Community Youth

Blur and Introduction

Date interview:	
Location interview:	
Interviewer:	

#1 Personal Information

1.a. Hi guys could you tell me a little bit about yourself? How old are you, what's your favorite colour etc.? *Hola chicos, ¿podrían contarme algo sobre ustedes? ¿Cuántos años tienes, cuál es tu color favorito, etc.?*

1.b. As you know my aunt is Ms. Claudia, who is part of your family? Do you all live together? What does your family do? *Como saben, mi tía es la Sra. Claudia, ¿quién forma parte de su familia? ¿Viven todos juntos? ¿A qué se dedica su familia?*

1.c. I see that you guys like the lessons that the teachers José and Juan do in the weekends. Do you all like to draw or do you like doing other hobbies too? Tell me about them. *Veo que les gustan las clases que hacen los profesores José y Juan los fines de semana. ¿A todos les gustan dibujar o también tiene otros intereses? Hablanme de ellos*

#2 Life on the Vereda

2.a. Have all of you grown up in the *vereda*? How long have you guys been living here? *¿Todos han crecido en la vereda? ¿Cuánto tiempo llevan viviendo aquí?*

Probe: What has changed? Surroundings, infrastructure, services? Better or worse? *¿Qué ha cambiado? ¿Entorno, infraestructuras, servicios? ¿Ha mejorado o empeorado?*

2.b. What are your daily routines? For example, I wake up at XXXX… Tell me about them? *¿Cuáles son sus rutinas diarias? Por ejemplo, yo me despierto a las XXXX... Háblame de ellas.*

Probe: Have these changed since the pandemic? *¿Han cambiado desde la pandemia?*

Probe: What about school? *¿Y la escuela?*

2.c. Do you stay all the time in the *vereda* or do you come down to the city as well? What do you do if you go? *¿Te quedas todo el tiempo en la vereda o también bajas a la ciudad? ¿Qué haces si vas?*

Probe: are there differences? Do they have stuff that is not usual in the vereda? *¿hay diferencias? ¿Tienen cosas que no son habituales en la vereda?*

Probe: Do you feel that those living in the city have a closer access to certain things? *¿Cree que los que viven en la ciudad tienen un acceso más cercano a ciertas cosas?*

2.d. Do you feel like you get along with the others that live here? Do you feel like you are part of the community? If not, why not? *¿Sientes que te llevas bien con los demás que viven aquí? ¿Sientes que formas parte de la comunidad? En caso negativo, ¿por qué?*

Probe: What makes you think that you belong? *¿Qué te hace pensar que perteneces?*

Probes: what makes you think that you do not? *¿qué le hace pensar que no?*

2.e. Are there certain things you would like to be different or improve in the vereda? Is there something lacking? *¿Hay algunas cosas que le gustaría que fueran diferentes o mejoraran en la vereda? ¿Le falta algo?*

Probe: what do you feel that needs to be improved? *¿que crees que debe mejorar?*

Probe: do you think people are trying to improve these*? ¿crees que la gente intenta mejorarlas?*

#3 Aspirations

3.a. what do you want to do when you grow up? ¿qué quieres hacer cuando crescas?

3.b. what would you like the vereda to look like in 10 years? *¿cómo le gustaría que fuera la vereda dentro de 10 años?*

3.c. do you think you will work and stay here when you are older? *¿crees que trabajarás y te quedarás aquí cuando seas mayor?*

#4 Activities/Coping

4.a. Tell me a bit about the time when the school closed down. What did you do during that time and now in terms of school? *Háblame un poco de la época en que cerró la escuela. ¿Qué hiciste durante ese tiempo y ahora en cuanto a la escuela?*

Probe: did you guys have online school or use technology to keep in touch during lockdown? Do you still use these? *¿tenían escuela en línea o utilizaron la tecnología para mantenerse en contacto durante cuarentena? ¿Todavía utilizan estas?*

Probe: If you are not in school what is it that you do? Do you still partake in studying by yourself? *Si no vas a la escuela, ¿qué haces? ¿Sigues estudiando solo?*

4.b. Do you hang out and organize activities with the other kids in your free time at the vereda? What do you do together? *¿Salen y organizan actividades con los otros niños en su tiempo libre en la vereda? ¿Qué hacen juntos?*

Probe: do you organize activities to distract yourselves? Do you go to the city often, and if so what do you do there? *¿Organizan actividades para distraerse? ¿Van a menudo a la ciudad y, en caso afirmativo, qué hacen allí?*

Probe: Is there somewhere or something you guys do when you are bored or due to the lack of things to do in the vereda? *¿Hay algún sitio o algo que hagan cuando se aburren o por falta de cosas que hacer en la vereda?*

Probe: do you use any form of technology for these? *¿utiliza algún tipo de tecnología para ello?*

4.c. Do you guys help your parents out with housework or with work? Do you take part in activities to make some money? *¿Ayudan a sus padres en las tareas domésticas o en el trabajo? ¿Participan en actividades para ganar algo de dinero?*

4.d. Do you take part in activities like the workshops by teachers José and Juan? *¿Participan en actividades como los talleres de los profesores José y Juan?*

Probe: would you do more of these activities? Do you find them useful? *¿Realizaría más actividades de este tipo? ¿Le parecen útiles?*

Appendix IV List of Documents Used for the Content Analysis

	Names of the Documents Used for the Content Analysis
1	Programa de Gobierno Del Candidato Héctor Guillermo Mantilla Rueda para la Alcaldía de Floridablanca - Santander
2	Recomendaciones Para Bucaramanga Una Ciudad y Territorio Inteligente: Hoja de Ruta
3	¿Cómo esta Floridabalanca en Educación?
4	Plan de Desarrollo Flroridablanca, Unidos Avanzamos 2020-2023
5	Propuesta para la implementación de un Centro Integrado de Control en el despliegue del modelo de ciudad inteligente en Bucaramanga
6	Índice de Ciudades y Territorios Inteligentes Enero– Agosto de 2022
7	Documento de Recomendaciones Para el Desarrollo de Ciudades y Territorios Inteligentes
8	Plan de Desarrollo Municipal de Bucaramanga 2024-2027: Bucaramanga Avanza Segura
9	Investigación exploratoria de requerimientos en la ciudad de Bucaramanga en pro de definir un estándar para la gestión de datos en el marco del proyecto Smart City
10	Plan de Desarrollo Municipal 2020-2023 "Bucaramanag , Una Ciudad de Oportunidades"