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**Poverty, participation and aerial cable-cars:**  
**A case study of Medellín**

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**1. Introduction <sup>1</sup>**

This paper reflects on partial results of an on-going research project seeking to learn systematically from a set of public transport and urban upgrading interventions fostered by the local government of Medellín, Colombia. Whether responses to a “social debt” as a former mayor put it, or fuelled by a populist drive, over the last ten years the local government has been reaching out to integrate previously invisible low income no-go areas into the fabric of the city. The introduction of aerial cable-cars under Mayor Luis Perez’s mandate was a key component to integrate some low-income districts into the city’s mass-transport (surface metro) system. This intervention helped increase not only the accessibility but also the visibility of local residents and their settlements, arguably a first and necessary step towards concerted actions to reduce poverty. The case of Medellín is worth reflecting on, not least because it is increasingly being followed in other cities in Colombia and elsewhere, but also because it offers lessons on the nature and impact of technological innovations at the urban scale.

A great deal of the appeal of aerial cable-cars as a transport solution for dense and hilly urban areas arises from its novelty, its relative low cost, minimum disruption to the existing urban fabric and low levels of particulate emissions (Brand and Dávila, 2011; Dávila and Daste, 2011). This paper argues that in Medellín’s case its success has more to do with the political and institutional context in which it was implemented, not least a comprehensive programme to address deep-seated urban, social and political problems where a vocal local community was able to express its wishes and become actively involved in municipal upgrading efforts.

The aerial cable-car system’s ‘success’ can partly be measured in the use of the system made by ordinary users, largely low-income residents from among the city’s poorest neighbourhoods. It also derives from the daily experience of users for whose quality of life a reliable, fast and safe system has made a substantial difference. The integration provided by the system to the city is a political and

institutional response to a socially and politically unstable situation, and has resulted in an increased sense of belonging among the residents of these low-income *barrios* (neighbourhoods).

**2. Medellín’s Metrocables**

Medellín, Colombia, second largest city, conjures up images of violence and gangsters, partly associated with the almost mythical figure of drug baron Pablo Escobar. As part of a major ‘makeover’ (Hylton, 2007; Fukuyama and Colby, 2011), Medellín, with nearly three million inhabitants has dealt with some of its long forgotten urban low-income settlements by combining creativity and confidence (Medellín and IDB, 2008; Rojas, 2010). The murder rates that made the world’s headlines in the 1980s and 1990s have significantly decreased, though violence has not entirely disappeared from its streets, especially in poorer neighbourhoods (Figure 1).

Figure 1: Medellín municipality: annual murder rates, 2000-2010 (per 100,000 inhabitants)



Fuente: Secretaría de Gobierno de Medellín

Source: Medellín municipality

Medellin was the first city in the world to use ski-slope technology as a means of public transportation (as opposed to tourism) to respond to the needs of dense, high-gradient, low-income urban areas. Two *Metrocables*, or aerial cable-car lines, have been built. The first line (Line K) opened in 2004, soon started running at full capacity and is widely perceived as a successful means of transport, thus prompting other cities in Colombia and Latin America, such as Rio de Janeiro and Caracas, to launch similar systems.

The second line (Line J) opened in 2008, though has not at present reached full capacity. This challenged the belief that the *Metrocables* by themselves will increase opportunities, improve living conditions and lead to human development for the local population (Brand and Dávila, 2011). This produced the argument that in order for cable-car systems to drive substantial economic and social change in poor and marginalised areas there must be a particular set of conditions regarding

topography, density and effective linkages with the existing mass public transit network, in addition to a broader set of physical and economic interventions such as those described below.



Figure 2: Medellín’s Metro system (north is on the left of the image) – Source: [www.metrodemedellin.gov.co](http://www.metrodemedellin.gov.co) (accessed 1 July 2011)

Line K (see Figure 2), connects the low income and previously unreachable north-eastern district of Medellín to the main surface metro line running alongside the Medellín River. The topography of these *comunas* (administrative districts) rises in a hilly terrain with steep gradients and unstable soils slashed by the abundant creeks feeding the Medellín River. These settlements developed informally since the 1950s, and eventually became the city’s densest residential areas, with over 400 dwellings per hectare in 2005.<sup>2</sup> As is often the case in spontaneous land invasions and irregular sub-divisions, infrastructure is scarce and often precarious. Streets are steep and often un-surfaced, inadequately covered by conventional bus lines. Line J was built in the western sector of the city, an area of greater income diversity and more varied topography, though also lower densities as the only land left for the future expansion of the municipality lies in a hilly sector at the end of the line.

The building of the *Metrocables* in Medellín is the result of a sort of alchemic blend comprising social responsibility, the search for efficiency and populist politics. The technical proposals by the publicly-owned Metro Company sought to inject passenger numbers into the metro system while showing concern to promote social development in areas previously not covered by the system. This found an echo in Luis Pérez, elected as mayor for the municipality of Medellín for the period 2001-2003, who sought to challenge what he perceived as a bias in the city’s investments towards wealthier neighbourhoods by means of highly visible projects some of which deliberately targeted low-income neighbourhoods (Brand and Dávila, 2011).<sup>3</sup> The cable car could have hardly resulted otherwise. The municipal government covered 55% of the funding costs of the first Metrocable line (with the Metro Company covering the rest), which opened less than three years after the idea was taken up by Pérez, though under the administration of his successor as elected mayor, Sergio Fajardo.<sup>4</sup>

Today three aerial cable-car lines operate in the city, with more planned. Line K and line J are public transport systems linked to the over-ground metro system where access is through payment of a flat rate tariff regardless of the length of the journey.<sup>5</sup> A third line, Line L, opened in 2010 connecting the system with a natural park high above the river valley on the outskirts of the city (See Table 1), with a transfer station located at the end of Line K in what was previously considered one of the roughest

parts of the city, the Santo Domingo Savio neighbourhood, though presently visited regularly by national and even international tourists.

Cable-car systems are relatively cheap to build and compare favourably with Bus Rapid Transit (BRT) and rail systems. The cost of the first Metrocable was around US\$24 million and the second US\$47 million (at 2003 exchange rates). However, aerial cable-cars cannot transport more than 3,000 passengers per hour and the national government in Colombia does not consider them mass-transit systems so funding must come entirely from local government sources.

In the case of Medellin, the publicly-owned Empresas Públicas de Medellín (EPM), constitute an important source of municipal finance. The municipal utilities provider (providing electricity, water and sewerage, and telecommunications services) is a large and efficient company with assets worth ca. US\$10 billion in 2011. Enacted by statute, 30% of EPM’s surplus goes to the municipal authority, or around US\$250 million in 2010. The also publicly-owned Metro de Medellín Company claims that, debt obligations aside, it is one of the few urban mass-transit systems to make an operating profit.

**Table 1: Metrocable lines: Basic information**

	<b>Line K</b>	<b>Line J</b>	<b>Line L</b>
Launch date	August 2004	March 2008	February 2010
Construction time	14 months	15 months	10 months
Length	2,072 m	2,782 m	4,469 m
Commercial speed	5 m/s	5 m/s	6 m/s
Number of pylons	20	31	25
Number of stations	4 (incl. Metro station)	4 (incl. Metro station)	2
Number of cabins (capacity 10)	93	119	27
Distance between cabins	60 m	60 m	340 m
Operational capacity	3,000 passengers/hour	3,000 passengers/hour	1,200 passengers/hour
Estimated total cost	US\$ 24 million (at average 2003 COP-US\$ exchange rate)	US\$ 47 million (at average 2007 exchange rate)	US\$ 21 million (at average 2009 exchange rate)
Cost per kilometre	US\$ 11.6 million	US\$16.9 million	US\$ 4.7 million
Sources of finance	Municipality: 55% Metro: 45%	Municipality: 73% Metro: 27%	Municipality: 38% Metro: 34% Provincial government: 17%; Ministry of Transport: 9%; other: 2%.

Source: Metro de Medellín

In the 1990’s Medellin had reached worldwide notoriety as a violent city. Emerging as a major centre of the international narcotics trade in the 1980s, the lack of state control was painfully evident in large areas of the city, though mainly in low income neighbourhoods where a disaffected youth provided a ready recruiting ground for the private militias of notorious drug lords and the activities of left-wing guerrilla groups seeking to destabilise the State. Additionally, the ruthless introduction of trade liberalisation policies by the national government in 1991 led many manufacturing firms protected for decades under import-substitution industrialisation policies to shed thousands of jobs or outright bankruptcy. Poverty and unemployment rose dramatically in Medellin as a direct result of such policies (Brand, 2005; Hylton, 2007).

Fajardo, who was elected on a ticket of political independence from traditional parties, championed the idea of “re-paying the city’s historical debt towards the poor” (Dávila, 2009). The urban development strategy promoted under his administration focused on previously abandoned areas,

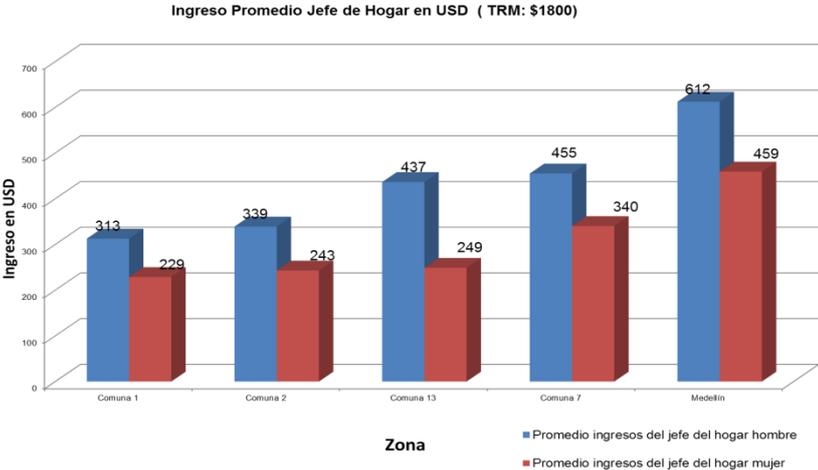
starting with *Comunas* 1 and 2 (in the northeast of the municipality), among the city’s poorest and most violent and where the first aerial cable-car was about to be launched. Cable-car systems, initially conceived as mere transport solutions, were to be integrated into a comprehensive urban development strategy called ‘Integrated Urban Projects’ (Proyectos Urbanos Integrales - PUIs in their Spanish acronym). PUIs seek to activate previously economically depressed areas combining strategies for improved mobility, housing, public spaces and the environment (Medellín-EDU, 2011) and built on prior efforts at comprehensive development in the city seeking to tackle simultaneously social and built environment problems such as PRIMED, a pilot project with support from the German government (Betancur, 2007; Bahl, 2011).<sup>6</sup>

Assessing the success of these strategies involves a complex process of analysis. Urban violence and the consequent forced migration inside Medellín have increased in recent years (*El Tiempo*, 2011). Successes in the fight against illegal drug cartels have reduced violence though this is probably also linked to a realignment in the relative power held by different organised gangs. An assessment of the direct impact that mobility and upgrading interventions have had on the well-being of residents in these *comunas* cannot exclude these city-wide trends.

**3. Poverty and exclusion in Medellín’s poorest *Comunas***

The two Metrocable lines built as part of the public transportation network reach the city’s poorest areas. Line K serves *Comunas* 1 and 2 and line J serves *Comunas* 7 and 13. As shown in Figure 3, how average incomes among household heads are below the city’s average, with incomes among female household heads lower than men’s. A comparison of health, education and life expectancy indicators with the city as a whole also reflects higher levels of poverty and deprivation in these areas.

Figure 3: Average monthly income of household head in Metrocables’ *Comunas*, 2007 (US\$)

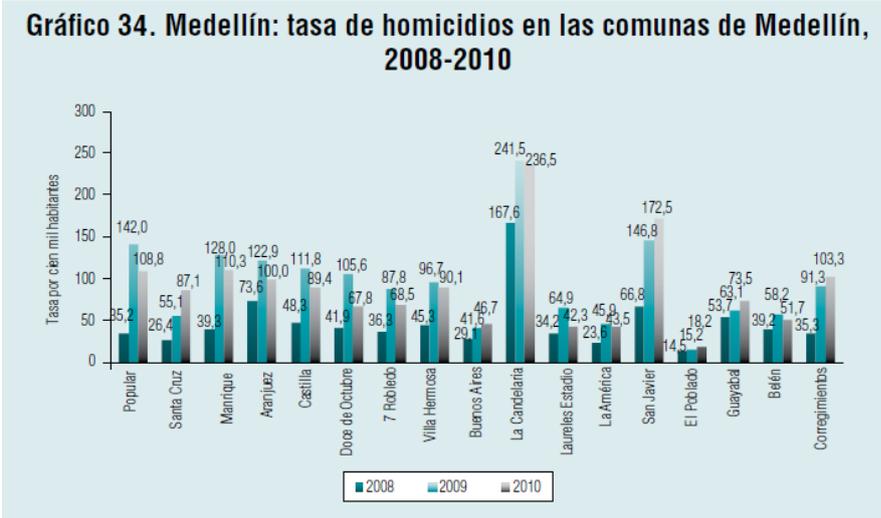


Source: Departamento Administrativo de Planeación, Encuesta de Calidad de Vida Medellín 2007 (1 US\$= COP 1,800)

Measurement of violence is an important indicator as this has been a recurrent problem in Medellín affecting especially poorer communities. Decreasing levels of violence are arguably an indicator of improved well-being. In recent years the murder rates in the *Comunas* were three times higher than the municipal average, though with substantial variations between neighbourhoods (Figure 4). These

rates were, however lower than those of the 1990s, when Medellín was often dubbed ‘the most violent city in the world’ by the international media. Lower rates resulted from consistent action by organised civil society, the targeted efforts of both national and municipal governments, though also from a realignment of forces within the city’s organised crime (Hylton, 2007).

**Figure 4:** Murder rates in selected neighbourhoods in *Comunas* 1, 2, 7 and 13, 2008-2010 (per 100,000 inhabitants)



Fuente: Metroinformación, cálculos propios

Source: Medellín municipality

As it becomes increasingly clear, attributing social and economic impact directly to the introduction of a cable car system like Line K is difficult because of the complexity and comprehensiveness of subsequent PUI interventions. The limited availability and reliability of information in informal areas adds difficulty to the evaluation task. The complex interconnection between different factors increases the risk of attributing causality to the introduction of a cable-car system. Focusing on the impacts of the Metrocables in the local economy, for example, may show how externalities such as short term economic cycles, government targeted interventions, flows of people and changes in the nature and rates of internal violence, along with a lack of official information, interfere with an unambiguous measurement of their influence in the local economy, household incomes or increased land values and rents. Not to be under-estimated are marked increases in the sense of social inclusion and local pride by the local population, as evidenced from our research.

**4. Improved mobility for all?**

A clear impact from the implementation of the cable cars can be seen in improved mobility for users by reducing journey times, increasing safety in the system and offering greater comfort. Line K offers a regular service and sheltered stations while, excluding queuing times, the average travel time has been substantially reduced. Between 2000 and 2005, for example, average journey times for those using the cable-car/Metro combination and travelling to a distant location within the metropolitan area (*Comuna* 8) dropped from 120 minutes to 65 minutes, whilst for those using bus as the main mode of transport average times rose from 63 to 105 minutes (Área Metropolitana del Valle de Aburrá, 2006).<sup>7</sup> Such significant drops are most likely attributable to the introduction of the aerial

cable-car in 2004, though also partly to better integration between the Metro system and bus feeder routes (which involve an additional payment of half the bus fare). However, this does not take into account queuing times at stations at peak times, which may range from 10 minutes to over an hour, while accessing the station can involve lengthy walks on hilly streets, which restricts access for less able-bodied users. Users interviewed for the project perceive queuing times as an additional cost they are prepared to pay in exchange for accessing the Metro system when they travel long distances, involving payment of a single fare as opposed to several fares that may result from using two or more bus routes.

Another important consideration in relation with mobility is the travel patterns of the users and non users of the system. Male workers benefit more from the system as they tend to travel to distant destinations which would otherwise involve changing the mode of transport (savings of 33% compared to two bus journeys); while women tend to do more multi-purpose travelling, requiring a single ticket to reach a central destinations and walking from there to different points. For the second travel pattern, a single bus ticket may be cheaper. The evidence from the project, however, is that users are prepared to wait and walk long distances if it involves monetary savings on transport fares (which are high in relation to average incomes).

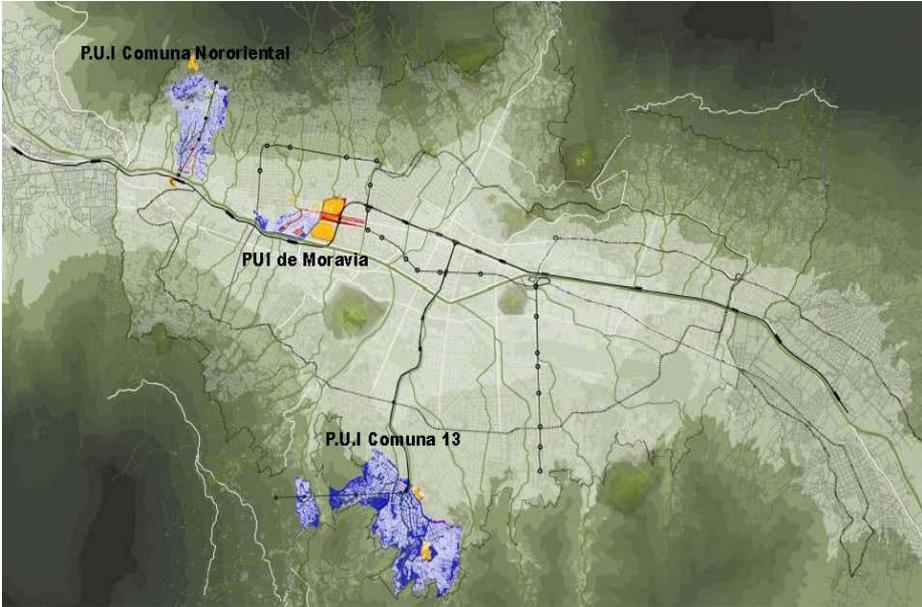
Cable cars and the whole Metro transport network are designed to transport passengers travelling light, banning bulky parcels and uses which may be associated with forms of livelihood different to those of formal sector workers. Not surprisingly, the main group of users of the system are formal sector workers (in construction, manufacturing, services) who cover long journeys and for whom the advantages are very much defined by savings of costs over time. The benefits are less clear for informal workers, who constitute the majority of the area as well for other groups such as children and young people, housewives and the elderly. In 2005 trips into and out of *Comunas* 1 and 2 were done mainly by bus or walking with 32 and 38% of all journeys, respectively. An estimated 18.5% involved a cable-car/Metro combination (Área Metropolitana del Valle de Aburrá, 2006). Although this may seem low, it compares favourably with city-wide figures for 2006, when 8% of daily journeys were made using the Metro system (Área Metropolitana del Valle de Aburrá, 2007).<sup>8</sup> Arguably, given the relatively central location of *Comunas* 1 and 2, such figures could be higher, which might be partly explained by the difficult topography of the terrain, which means those living closest to the stations are more likely to use the system, but also by the high cost of the Metro fare in relation to average incomes, as well as long waiting times at peak hours, factors reported by some participants in focus groups conducted as part of this research. There is no substantial evidence of increases in the number of journeys for non-essential trips that might suggest that the interventions have helped increase average incomes while encouraging greater use of what the city has to offer outside these *comunas*.

## **5. Urban upgrading and deepening democracy**

The introduction of the PUIs as a strategy for intervention in low-income areas has also represented a significant attempt to change political practices particularly in low-income areas of the city. Comprehensive upgrading interventions through the PUIs were a central component of the urban policy for upgrading neighbourhoods of the municipal administrations of Mayor Sergio Fajardo

(2004-2007) and his successor Alfonso Salazar (2008-2011). The emphasis was placed in integrated strategies encompassing upgrading of public spaces, the creation of social infrastructure such as schools and libraries, increased job opportunities, and improved housing (Medellín and IDB, 2008). The first PUI was developed in the area of influence of the first Metrocable line and is named 'PUI Comuna Nororiental' after the locality. Three other PUIs are being implemented in different areas of the city (Figure 5). The stress on the high quality of the design of civic buildings and street furniture and the creation of public spaces draw inspiration from the 'Barcelona model' of urban regeneration (Monclús, 2003). This was later marketed as Medellín's 'social urbanism', largely a branding exercise in a city that is highly conscious of its image (Echeverri and Orsini, 2010; The Architectural Review, 2011; Brand, 2010; Hylton, 2007; Quinchía, 2011).

**Figure 5:** Integrated Urban Projects (PUIs) in the late 2000s



Source: Medellín municipality

A key feature of the Fajardo administration's approach to settling "the city's historical debt" with informal settlements was the attempt to weaken long-established patron-client systems of local political representation. Since the early 1960s these were embodied in neighbourhood associations promoted by the central government and known as *Juntas de Acción Comunal* (JACs), initially designed to promote self-help collective efforts at supplying local infrastructure that the state did not have the means to supply, such as sewerage, roads, schools and so on. Although JACs have by and large served this purpose, in the process saving the state considerable resources in investments it ought to undertake, there has been a certain amount of leakage of funds and misappropriation by local JAC leaders who see themselves as mediators between local communities and the local government. Decisions about use of government funds are rarely consulted by leaders, and more often than not are spent on infrastructure projects which are often over-valued, thus allowing a proportion of construction costs to be siphoned off by JAC leaders and corrupt contractors.

Currently Medellín has arguably one of the most open and effective local planning systems in Colombia. It has a strong focus on citizen rights, it seeks to give concrete embodiment to the national Constitution of 1991's principles of democracy, participation and decentralisation, actively encourages the search for medium- and long-term strategic goals, and seeks to bring together spatial planning at both the urban and the rural scales. Because it comprises a range of instances where citizens can actively participate, ranging from the metropolitan scale (comprising the nine municipalities in the Metropolitan Area) to the local neighbourhood scale, it has gained respectability among the city's population.

Drawing on this planning framework and on earlier city initiatives (Valencia et al., 2008; Carvajal, 2009), and with advice from Brazilian specialists, Fajardo's administration introduced the notions of participatory budgeting as developed mainly by the Workers' Party in Porto Alegre, Brazil, and later tried out in tens of municipalities in Brazil and elsewhere (Cabannes, 2004).<sup>9</sup> This involves devolving decisions for the investment of a portion of municipal funds to local communities within the framework of the municipal development plan. Projects decided collectively by local communities have represented no less than 5% of the total funds earmarked for investment. Between 2004 and 2011, close to US\$100 million were decided using the PB mechanism in the four *Comunas* where the aerial cable-cars are located (see Table 2). This represents over a quarter and in some years even close to a third of the municipality's PB budget (distributed among the municipality's 16 *Comunas* and five rural districts).

**Table 2:** Public investment in *Comunas* 1, 2, 7 and 13 through participatory budgeting, 2004-2011

Número de comuna y/o corregimiento	Comuna	Presupuesto 2004-2005	Presupuesto 2005-2006	Presupuesto 2006-2007	Presupuesto 2007-2008	Presupuesto 2008-2009	Presupuesto 2009-2010	Presupuesto Estimado 2010-2011	Pesos Millones	Millones dolares, \$ 1800 X USD
1	Popular	6,743	5,300	5,890	7,500	7,500	8,381	8,980	50,294	28
2	Santa Cruz	5,814	4,500	5,000	7,100	7,100	7,694	8,244	45,452	25
7	Robledo	3,159	3,700	4,112	6,100	6,100	6,848	7,337	37,356	21
13	San Javier	3,499	3,900	4,334	6,500	6,500	7,014	7,515	39,262	22
<b>Total Comunas Metrocable</b>		<b>19,215</b>	<b>17,400</b>	<b>19,336</b>	<b>27,200</b>	<b>27,200</b>	<b>29,937</b>	<b>32,076</b>	<b>172.364</b>	<b>96</b>
<b>Total Medellín</b>		<b>59,990</b>	<b>62,000</b>	<b>70,000</b>	<b>101,500</b>	<b>101,500</b>	<b>112,000</b>	<b>120,000</b>	<b>626.990</b>	<b>348</b>
Inv Comuna/Inv Medellín		32.0%	28.1%	27.6%	26.8%	26.8%	26.7%	26.7%	27.5%	

Source: Medellín municipality

In order to promote greater involvement and ownership of the projects by the local population, the administration has specified that all public work contractors must hire a significant component of local manual labour. The relatively modest size of projects, transparency in collective decision-making and strict monitoring arrangements have drastically reduced opportunities for leakage of funds. Interestingly, though public works have a clear attraction mainly for local skilled or unskilled workers who can be guaranteed to be employed if only for short periods, not all collective decisions have involved building infrastructure. Since the introduction of the PB scheme, communities in *Comunas* 1 and 2, for example, have decided to use part of these funds to finance 1,200 scholarships for local young people to pursue studies at university level. This was not without opposition from the Fajardo administration who argued that funds should be used only to finance studies in the municipality's technical schools which offer vocational qualifications, not professional degrees. This was felt by community leaders to be perpetuating the localities' poverty and stigma associated with a

lack of trained professionals among the population born and raised there, hence their insistence on the need to fund local young people to complete university degrees.<sup>10</sup> This offers an example where a highly vocal and organised local community, given the space to represent its views and wishes through a devolved planning system, is able to shift the views even of local administrations that regard themselves as progressive and seeking to change the status quo.

## 6. Conclusions

This paper has argued that in Medellín's case the success of the introduction of aerial cable-cars owes more to shifts in a local political and planning culture, the effects of carefully crafted upgrading programmes implemented by skilled professionals working closely with the community and the symbolism embodied in a highly visible set of physical interventions than to the impact on mobility of the aerial cable-car systems itself. The highly visible effect of the aerial cable-cars might be seen as a temptation for city mayors and transport planners in hilly topographies and unequal social geographies to be seen to be making a visible impact on the problems of mobility and connectedness in some sections of their city. But the lessons from Medellín point to much wider and deeper processes of political and institutional change than what might be achieved through the technological fix of a relatively simple and yet attractive transport system.

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## Notes

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<sup>1</sup> This paper is based on an on-going research project undertaken by the Development Planning Unit, University College London (UCL) in collaboration with the Universidad Nacional de Colombia (Medellín campus), the Universidad de los Andes (Bogotá), and UCL's Department of Civil, Environmental and Geomatic Engineering. For more information see [www.ucl.ac.uk/dpu/metrocables](http://www.ucl.ac.uk/dpu/metrocables). This is the first systematic appraisal of the impact of Medellín's aerial-cable cars and looks to provide pointers for successful application in other cities of the world. The research (Grant RES-167-25-0562) is funded by the UK Government through the Economic and Social Research Council (ESRC) and the Department for International Development (DFID) joint scheme for Research on International Development (Poverty Alleviation). The paper draws significantly on Brand & Dávila (2011), as well as other outputs from the project team.

<sup>2</sup> The municipality of Medellín, with an urban population of 2.2 million in 2005, comprises 16 *Comunas* (districts). Line K traverses *Comunas* 1 and 2, with a combined population of 230,000 in 2005. Line J passes through *Comunas* 7 and 13, with a population of 295,000. Each comuna is further divided into *barrios*, of which there are 13 in *Comuna* 1, 11 in *Comuna* 2, 9 in *Comuna* 7, and 19 in *Comuna* 13. Medellín is the largest and

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richest of the nine municipalities that comprise the Medellín metropolitan area, with a combined urban population of 3.1 million in 2005 (source: [www.dane.gov.co](http://www.dane.gov.co)).

<sup>3</sup> Personal interviews with former mayor Luis Pérez, and with Ramiro Márquez, General Manager of Metro de Medellín (September 2010).

<sup>4</sup> The remaining 45% was funded by the Metro company. The municipality was also forced to under-write financially the project, given the reluctance of international insurance firms to under-write what was regarded as the possible object of terrorist attacks (personal interview with former Mayor Luis Pérez).

<sup>5</sup> In mid-2011, the Metro's single tariff for any length of journey stood at Col\$1,750 (US\$0.97), the frequent travellers fare at Col\$1,450 (US\$0.80) and a combined metro-bus fare at Col\$2,000 (US\$1.10). The basic conventional bus fare was Col\$1,500 (US\$0.83). By comparison, the minimum daily legal wage was around US\$11, including an 11.7 % transport subsidy component. The return-trip on the tourist aerial-cable car to Parque Arví (Line L) costs an additional Col\$2,500.

<sup>6</sup> PUIs are defined as a "model of intervention aimed at transforming positively, through social, physical and inter-institutional components, a specific urban space, by incorporating all elements of development in a parallel and planned manner, through infrastructure works with the highest quality standards, and with an ingredient of community participation so as to ensure their sustainability" (Medellín-EDU, 2011).

<sup>7</sup> An extreme example of time savings proffered by users of Line K in our focus group discussions is that the 2.1 km distance between the first station at river valley level and the highest station in the system can now be covered in 15 minutes, when on foot it can take an able-bodied person over 45 minutes.

<sup>8</sup> In 2006, the share of daily journeys across the nine municipalities in the Metropolitan Area was: 30% bus, 30% walking, 20% private cars and motorbikes, 10% taxi and 8% Metro.

<sup>9</sup> The introduction of participatory budgeting within the municipality's planning system is embodied in the City Council's Agreement 43 of 2007.

<sup>10</sup> Personal interview with Margarita Echeverri, community leader in Barrio Granizal, *Comuna 1*.