

**URBAN TRANSFORMATION IN SLUM DISTRICTS THROUGH PUBLIC SPACE
GENERATION AND CABLE TRANSPORTATION AT NORTHEASTERN AREA: MEDELLIN,
COLOMBIA**

Carolina BLANCO*

Hidetsugu KOBAYASHI**

Abstract

One out of every two people in this world lives in a city. A sense of wealth and increased opportunities, have been traditionally associated with the cities if compared with the rural areas. Nowadays cities expansion is experiencing the growth of large slum areas -notably in developing countries- threatening all levels of quality of life of their population. This paper presents some of the characteristics and circumstances associated with the origins of slums and their consequences in the urban core. It presents the integral approach of the local government of Medellin in Colombia applied within former slum areas, including the introduction of an aerial massive transportation system known as "Metrocable" (aerial mono-cable gondolas) which was introduced, connecting the informal areas of the Northeastern communes, with the rest of the urban network "Metro". It is suggested by the results that the strategies that accompanied the Public Space and Mobility programs, initiated a radical transformation on internal and external perceptions within the area. This transformation was based not only on the real-estate finances, but on the understanding of the socio-spatial fundamentals and the community-oriented planning.

Keywords: slum districts, community participation, Metrocable, Integral Urban Project: PUI

Introduction

The population growing rate in many countries and its distribution on the urban areas has changed rapidly in the last 50 years. According to UN-Habitat, since 2007 at least half of the global population resides in cities. Taking this into account, one of the most important challenges that the Urban Development and Regional Design strategies must face hereafter, is to prevent mistakes made in the past and avoid the expansion of slum areas as a result of extensive migration from the rural areas to the cities, especially on those parts of the globe that will be exposed to the major urban transformations: Asia and Africa.

Even though an intense urbanization process has been reshaping countries worldwide, it was

* PhD Candidate, Faculty of Engineering, Hokkaido University, Japan. M. Eng

** Professor, Faculty of Engineering, Hokkaido University, Japan. Dr. Eng.

particularly speedy in Latin America between the 1950s and the 1960s, reaching a 2.8% annual growth in the 1960s inducing an unbalanced development that keeps affecting the region¹. Negative impacts on the housing and public services' supply jeopardized the capability of cities to cope with the demand, facilitating the conditions for the appearance of urban slum settlements located at the peripheral areas of the largest cities of the region, sadly known by the name of *cinturones de miseria* or misery belts in English. After 1930, the population of the region estimated in 110 million (Merrick, T 1994), almost fivefold, surpassing nowadays the 500 million inhabitants.

Rapid fertility declines slowed Latin America's population growth at the 20th century's end (Brea J. 2003), and governments gradually opened alternatives for discussions on the topic of informal districts and slum areas upgrading programs.

This paper presents, a case study in Colombia, introducing the main features of the Integral Urban Project of Medellin city in Colombia (PUI, due to its acronym in Spanish for *Proyecto Urbano Integral*), where the main public massive transportation system in Medellin (Metro) was introduced, connecting by air the informal urban sector known as *comuna nororiental* located at the northeastern hilly area through a new massive mono-cable gondolas system (having an internal maximum capacity of 10 people per gondola and with a total installed capacity to transport 3000 people per hour), known as Metrocable.

The introduction of the Metrocable in one of the most marginalized areas of the country was the beginning of a physical and social transformation within the area not just in terms of reducing the transport gap between the inhabitants of the peripheral neighborhoods (which commonly needed to walk long routes before being able to access the Metro system or the urban buses network), but also in terms of recognition of these areas by institutional bodies and even encouraging self-recognition for their inhabitants, who when commuting by air were able to observe better their neighborhood. These new processes have been transforming deeply the way, in which a critical area of the city was perceived by insiders and outsiders of the general community, leading to relevant social, socio-spatial and socio-economic revitalization, while promoting inclusive patterns of urbanization.

¹ According to the Economic Commission for Latin America and the Caribbean (ECLAC), Latin-America is the most unequal region of the world



Fig. 1. Massive aerial transportation of Medellin: Metrocable.

Source: CBlanco 2008

1. The city as a pole of development?

At the beginning of the XX century, the cities were seen as synonym of progress and increase of opportunities for its citizens when compared with rural inhabitants. Hundredths of families were migrating from the rural areas to the cities full of expectations on better education and employment opportunities. However the reality was not always matching those hopes, and instead, the formation and rapid increase of slum areas forced to rethink the positive linkages to the city, drawing a more dramatic picture outlined by poverty and vulnerable communities. The “State of the World’s Cities Report 2006/7” prepared by UN-Habitat alerts about the fact that close to a third portion of this urban inhabitants live nowadays in precarious settlements, accounting for almost one billion people (a comparable amount when adding Latin America, with the population of the current European Union state members²). The report stated that “the world’s one billion slum dwellers are more likely to die earlier, experience more hunger and disease, attain less education and have fewer chances of employment than those urban residents that do not reside in a slum”. If the projections on population are correct, and no improvements in the situation are achieved before the year 2030, the urban population will reach 5 billion from a total of 8.1 billion people; those from which 2.67 billion could lack of an appropriate place to live.

² Mexico is included with Central and, South America representing approximately 575million inhabitants. The European Union population accounts for 499.7 million people. Sources: ECLAC’s and Eurostat statistical Year Books 2008.

1.1. Slum areas formation and the Government main dilemmas

Slums, are also referred depending on the region using terms such as *barrios marginales*, *gecekondus*, *favelas* or shantytowns, constituting physical evidence of a social and economic problematic derived from speedy migration processes in cities unable to cope with the pace of development required to provide affordable housing or develop a suitable financial alternatives for these new settlers, plus the increase of urban population with reduced purchasing capacities, and hence with difficult access to land tenancy. As a consequence, illegal invasions and abnormal land purchase of not urbanized terrains take place. In spite of enormous shortages and lacks, many of these settlements are able to gradually consolidate within the time, and even some of them acquire public services and legal status after decades of foundation.

It has been suggested by various studies (Blanco 2002, Ortiz et al 2005) that paradoxically, when the slums are compared with formal districts, in the long run, the costs faced by the institution(s) interested in upgrading or advancing regularization processes within these settlements, are higher to undertake than in wealthier parts of the city. Nevertheless, the social impact and the benefits including better indicators in terms of health, security, education, institutional awareness and self involvement from the communities, justifies the economical effort. One of the reasons is linked to the public services like aqueduct and sewage, those which require extensive space to install their underground networks, as well as the need to adapt the solutions to the usually intricate urban forms, being in many cases necessary to remove entire homes to introduce new equipment such as communitarian facilities, parks, technical substations, etc.



Fig. 2. Illegal water installations. Fig. 3. Opening space for public services and common areas.

Source: Urban Development Enterprise of Medellin City - EDU

In order to manage the situation of large scale informal districts growth, local governments were supposed to deal with the dilemma of supporting or not certain program's frameworks. Depending on the country, their governments have been using either repressive measures to avoid the extension of new city

limits through strategies based in neglect these kinds of settlements, or denying their internal crisis with the subsequent lost of control of their whereabouts. On the contrary, in other cases some local governments have tried to face the issue by implementing strategies including the assignation of terrains with basic public services' provision, shelter upgrading, social regeneration programs and large scale infrastructure improvement projects, among others.

In Latin-America, it has been frequently argued by the formal real estate representatives, that the local governments discourage the efforts undertaken by the legal constructive companies, whenever the government advances direct interventions and finance projects on areas where unscrupulous land tenants have made objectionable business, without following the planning rules that those formal real estate representatives actually do follow. In the same sense, counterarguments by different sectors, mainly coming from the civil society, demand higher social responsibility postures from the government, in order to foster progress within these slum areas and their population. The Government of Medellin through the PUI developed by the Urban Development Enterprise (EDU) has successfully undertaken an alternative methodology to be replicated in places experiencing similar situations.

2. Formulation circumstances and other Initiatives

One of the most difficult stages that must be surpassed in order to make viable the programs proposed in some slums of the world is the reach of consensus among the actors involved. Many projects have been criticized when they proceed punctually lacking of a holistic approach, or when actions and criteria of intervention among the institutions participating are dispersed. Particularly important is to listen to the community ideas concerning on their own development processes and expectations. The following section provides a general referent on similar cases and the circumstances that framed the PUI theoretical concept.

2.1. Favela-Barrio, Brazil

Even though the critic circumstances limited the options to develop any kind of program in the Northeastern commune, the starting point included as a referent, examples as the challenge assumed under similar conditions through the Strategic Plan for Rio de Janeiro, Brazil known as *Favela-Bairro* (The Slum to Neighborhood Program). The Municipal Housing Secretary promoted it in 1993 as part of the housing policy of the city, starting urban improvements basically related to urban infrastructure and the creation and access provision to urban facilities, involving around 253,000 residents in 73 communities. The objectives intended to generate social benefits that consecutively could contribute in the integration of the *favela* (term used in Brazil when referring to shantytowns) into the urban fabric and convert it into a regular neighborhood. In 1995, the International Development Bank (IDB) provided part of the financial resources, as well as worked closely with the local institutions to develop an implementation methodology using

indicators that contributed in the decision making and selection of the *favelas* to be upgraded first, and the development of tools to undertake budget's control. During the first phase, the local government organized contests where recognized architectural firms and young architects participated with proposals and for the second phase, public tenders were introduced. Besides quality of life improvements through infrastructure and social involvement, the *Favela-Bairro* program made an effort to introduce in later phases an income-generation component supporting small business and skill training opportunities.

2.2. PRIMED, Colombia

The PRIMED (Integral Program for the Informal Settlements Improvement of Medellin) was taken as a Colombian referent which established an important precedent, being one of the first programs with an integral approach facing the reality of the informal urban sectors in Medellin. Its basic planning principles were: community, territory, state, and rational investment interconnected through integral levels within all the notions (Fig. 4).

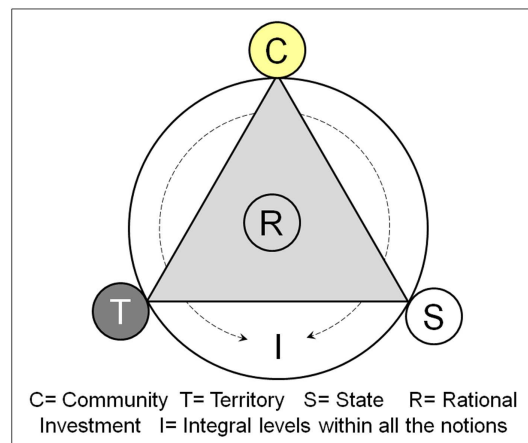


Fig. 4. Planning principles applied for neighborhood upgrading.

Based on: PRIMED Documents compiled by UNESCO

The initiative started in 1993, through a National Decree that officially declared a tripartite cooperation strategy between the National Governments of Colombia and Germany (Ministry of Finances with the support of the KFW bank group), as well as the Medellin local government, with the participation of the Program of the United Nations for Development (PNUD) and the Social Solidarity Network RSS among others (Blanco 2002). The PRIMED 1 focused on improving the quality of life for some 200,000 people living in 70 peripheral districts, through public services improvements and community participation. It was focused in the main slums located at the north-western, central-eastern and central-western areas of Medellin.

It was awarded in 1996, as one of the “best practices” at the second United Nations Conference on Human Settlements held in Istanbul, Turkey, due to its intergovernmental coordination, its provision of public services’ infrastructure and the land regularization efforts. Although successful in the first years, the program then suffered of economic and a political reduced support, which ended weakening the original operational structure and dried up further phases. However, it marked a remarkable antecedent in the country, especially because it was not limited to the physical component of upgrading, but included a complete social perspective that included training and community building strategies.

3. Case Study: PUI -Medellin

Medellin is the capital city of the Antioquia prefecture, in the South American country of Colombia. This prefecture concentrates 12% of the Colombian population, producing around 15% of the national GDP. After Bogota which is the capital city of Colombia, Medellin is the second largest industrial pole of the country and leads the national energy production, as well as the banana, coffee and gold trade in the national and international markets.

Table 1. Medellin City

General Information	
Extension	380.64 Km ²
Population (Census 2005)	2,223,078 inhab.
Altitude	1479 m.s.l.
Annual temperature	18 - 24 C

Similarly to the paradox mentioned in the introduction regarding Latin America, the prosperity of this city is eclipsed by disparities about the quality of life between the population residing at the formal urban area (mainly located within the Valley area) and the population that occupies some of their surrounding hills on precarious settlements.

3.1. Stigmatization of the Northeastern Communes

The communes 1 and 2 are located within a territory characterized by an intricate topography, lack of good transportation systems and the presence of hundredths of squats that have formed illegal settlements since half of the last century, including a few neighborhoods that acquired legal status after long regularization processes. Additionally to its complexity and illegal tenancy origins, the Northeastern communes, as well as the Central-eastern areas were scenarios of the late 1980’s and 1990’s crime escalation, derived from confrontations between the -nowadays extinct- Medellin Cartel, the paramilitaries (currently under a demobilization process), and the guerrilla including urban militias. Taking advantage of

the poor living conditions of the communes, and the high rates of unemployment, armed groups target the youth and children as their eventual future militants.

According to a study focused on the homicides committed in Medellin between 1990 and 2002 (Cardona et al), it was found from a sample randomly studied, that 77% of the victims were less than 35 years old and 37% of them lived in the lowest *estratos*³ of the city. The mentioned study concluded among others, that “the most heavily affected groups were young males who live and die in poor neighborhoods”. Many other researchers, journalists and even reporters filmed and documented the phenomena that affected slum areas of the city and that seemed unchangeable, though unbearable 5 years ago. The Northeastern commune became a synonym of danger and seemed to be condemned to remain as a ghetto feared by the rest of the city.



Fig.5. Complex topography and illegal tenancy used to be a feature of the poorest communes

Source: Urban Development Enterprise EDU - Medellin Mayor's Office

3.2. Integral Urban Project (PUI): Northeastern Area, Medellin - Colombia

The Integral Urban Project PUI made part of a program called “Actions with my Neighborhood” and was targeted as one of the main strategic programs included in Medellin's Development Plan

³ Administrative measures in Colombian internally divide by sectors the cities according to their socioeconomic profile. Those divisions receive the name of *estratos* and ranks from 1 to 6. Usually the lowest estratos (1 and 2) receive some alleviation in their public services' fees, while the highest estratos (5 and 6) pay a surplus regarding their net consumption, to support the fees for the lower estratos. Although an economical measure based in solidarity principles which is positive, there is a negative effect of stratification with a direct impact in the urban morphology and segregation of Colombian cities. It has also tend to create stereotypes depending on the residential area from the citizens and their associated strata level.

2004-2007. With a politic-administrative subdivision of 16 “Communes” the city government selected the Communes 1 and 2, to apply the first PUI, since both areas had the lowest human development indexes (IDH) in Medellin, prior the project implementation. The concept and methodology was developed and refined by the Urban Development Enterprise from Medellin through this first experience and is being implemented nowadays in other sectors of the city. The criteria set for this kind of projects, defines a holistic intervention model, based on community participation, inter-institutional coordination, housing promotion, public space and transport (mobility) improvements, collective facilities upgrading, and environmental recovery, following the highest standard levels available.

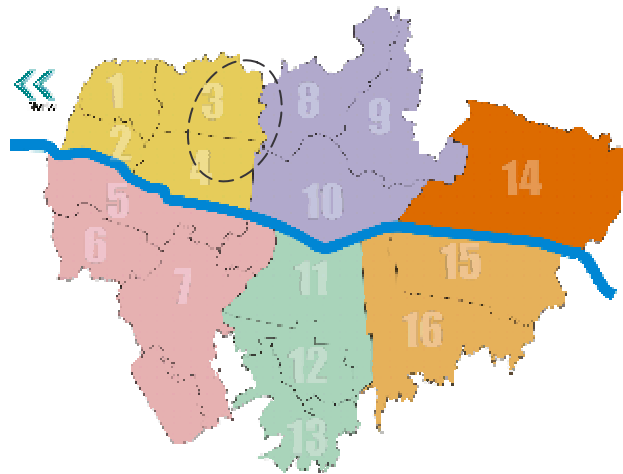


Fig. 6. Plan of Medellin’s communes, and PUI location

Source: www.medellin.gov.co

Table 2. PUI - Northeastern Area Summary

Relevant Statistics	
Total Area of the communes	347 Has.
Total Population of the area	230,000 residents
Specific area of the PUI	158 Has.
Specific beneficiaries	170,000 residents
Habitation Density	150 dwelling /Ha.
Public space/hab. before PUI	1 sq. mt/habitant
Public space/hab. Medellin	4 sq.mt/habitant
Illegal land occupation PUI	60% of total dwellings
Unemployment area PUI	60.% (2005)
Unemployment Medellin	13.% (2005)

Source: Urban Development Enterprise EDU – Medellin

3.3. Three Main Components

Before the formulation phase started, the diagnosis process specified three key elements (Table 3) as the main bases of every stage of the project.

A. Institutional Coordination

One of the first elements to be developed within the project was the coordination between the several public institutions called to take part. The local government assured since the beginning the financial resources for the feasibility studies and started a process of divulgation as a way to attract external investment and social acceptance. Gradually new participants were introduced through the figure of strategic alliances with the public and solidarity sector, the NGOs and the Universities. Multidisciplinary groups and discussion tables were organized as a way to specify the goals and the best ways to achieve results, without duplicating efforts.

PUI: Integral Urban Project			
	COMPONENTS		ACTIONS
	INTEGRAL URBAN PROJECT - PUI NORTHEASTERN COMMUNE: MEDELLIN	INSTITUTIONAL COORDINATION	
		INTERSECTORIAL COORDINATION	
SOCIAL		COMMUNITY PARTICIPATION AND COMMUNICATION	IDENTIFICATION
			VALIDATION
			PARTICIPATION
			EDUCATION
PHYSICAL		PUBLIC SPACE & TRANSPORT	CONSTRUCTION OF NEW PUBLIC SPACES
			IMPROVEMENT OF EXISTING PUBLIC SPACE
			ORDERING OF THE PUBLIC TRANSPORT SYSTEMS
		HOUSING	NEW HOUSING CONSTRUCTION
			HOUSING IMPROVEMENT
			HOUSING LEGAL TENANCY
		PUBLIC FACILITIES	IMPROVEMENT OF COMMON FACILITIES
			CONSTRUCTION OF NEW FACILITIES
	ENVIRONMENT	ENVIRONMENTAL RECOVERY	

Table 3. PUI Main Components and Actions

Adapted from: Urban Development Enterprise EDU - Medellin Mayor's Office

B. Social Component

Once the institutional component was established, the community participation became almost the central axis of action. One of the most important activities developed in this component were the so called *talleres de imaginarios* imaginaries' workshops organized to gather the ideas of the community in relation to their collective spaces. In this way, specific places that were important for the social and spatial network such as the area for washing the clothes or the most suitable and needed leisure equipments were identified. During one of the imaginaries' workshops, the community was invited to answer the following

simple questions and to draw their dreams: How do I imagine my park?; What does this place mean to me?; Which memories do this place brings to me?; What would I like that the park would have?; How would I call my park?

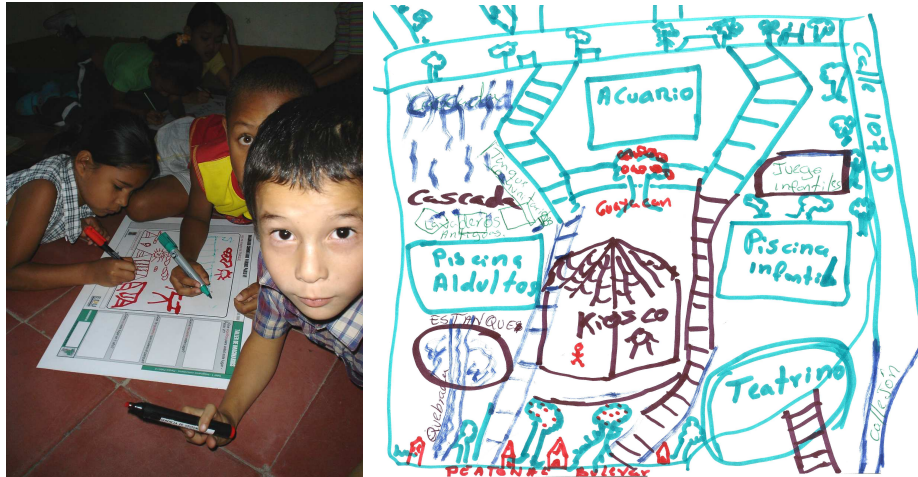


Fig.7. and Fig. 8. “Imaginary Workshops” with the community held in 2005

Source: Urban Development Enterprise EDU - Medellin Mayor’s Office

The working process with the community was maintained not just during the diagnosis and formulation, but in a permanent way, including skill training and workshops, as well as an employment program to hire some residents as part of the labor force for the construction works.

C. Physical Component

One of the weakest features of the area was difficult transportation and communication alternatives. The local government decided to interconnect the Metro and introduced a new system called the Metrocable. This aerial massive transportation system was inaugurated in 2004 and is used daily by ca. 67,000 people. As a final evidence of the institutional base, supported on the voice of the community, the three-dimensional results, or physical component did translate the ideas and concerns into projects basically through the following subprograms:

- i. Housing: in charge of constructing new dwellings and upgrading the existent units fostering better conditions of sanitation, illumination, access, also was responsible of the execution of the legalization and secure tenure processes;
- ii. Public equipment and facilities: in charge of providing the new collective spaces and properly maintain the current ones;
- iii. Environment recovery: undertook the conservation and restoration tasks related to the natural

surroundings.

- iv. **Public Space and mobility:** This subprogram constructed new public spaces such as bridges replacing old or inexistent ones increasing internal connectivity.



Fig. 9. *PUI Nororiental*: Northeastern Integral Urban Project providing new public spaces Urban Development Enterprise EDU - Medellín Mayor's Office

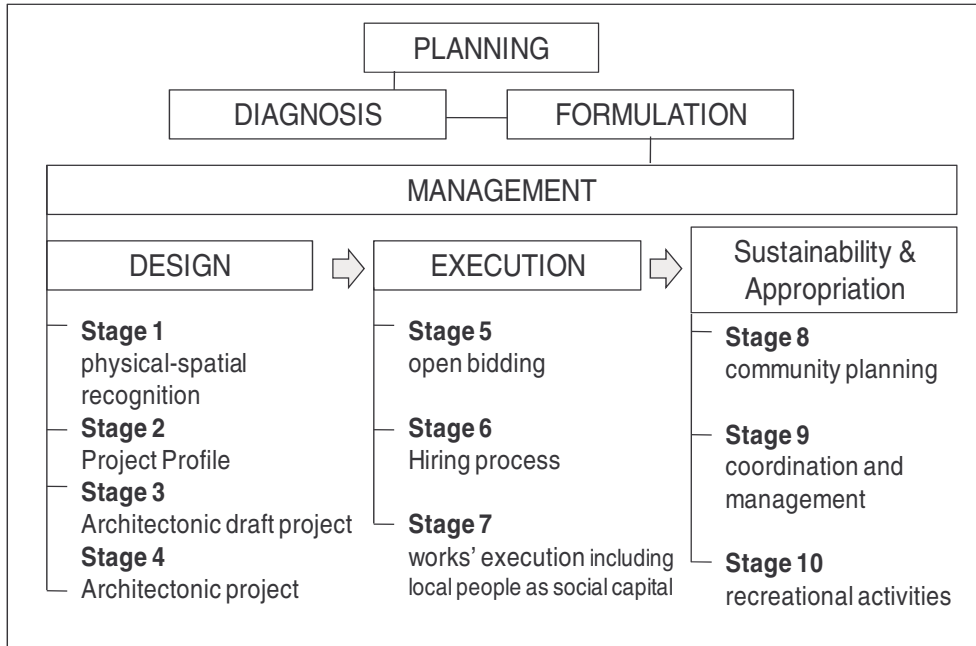
3.4. Methodology

The development of Integral Urban Projects demands the involvement of diverse institutions from different levels including civil and governmental bodies. The Urban Development Enterprise - EDU recently created (2002) is an industrial and commercial enterprise of the municipality of Medellín endowed with administrative and financial independence, in charge of the design, management and execution of PUIs, assuming as well, the inter-institutional coordination. In the development of its mission, it celebrates agreements, strategic alliances, and business collaboration projects with public and private entities.

The fundamental purposes that guided the PUI inside the northeastern area aimed to strengthen the community organizations through leaders' qualification programs, informative meetings with the community, and follow-up and evaluation activities of the project. The intervention from the National level was coordinated through a municipal management board, while workshops with public entities meant to establish agreements at different levels inviting as well the academic sector and promoting the participation

of national and international cooperation agencies. Finally, it supported the upgrading of public space through physical constructions.

The PUI was focused in the three main fronts (social, institutional, and physical components) following a cyclical planning process of diagnosis, formulation and task management. Nowadays, the positive results of the PUI developed in the Communes 1 and 2 are under test at additional parts of the city



including the Commune 13, the northwestern and the central-eastern areas.

Fig. 10. Methodological Diagram

Based on: Medellin Mayor's Office – BID Northeastern Integral Urban Project Document (2006)

3.5. Investment and results

Table 4. PUI - Northeastern Area Total Investment

Components	investment 2005- 2007
Public Space & Environment	U\$ 18,586,628.64
Housing	U\$ 4,911,751.85
Public Buildings	U\$ 6,398,602.00
TOTAL	U\$ 29,596,982.49

Source: Projections Urban Development Enterprise EDU –2005

The results include more than thirty projects such as the construction of pedestrian bridges, urban

promenades, a zone's development Center known as *Cedezo*, a housing consolidation and environmental recovery program – HCERP at the Juan Bobo basin stream area, The *Herrera* park and several public squares. Parallel projects in the area included the construction of a new school and the reform of another fourteen educational institutions plus a modern Library that received financial support from the Spanish government. The HCERP was awarded with the biannual Dubai International Prize 2008 (administered by the Dubai Municipality and the United Arab Emirates and the United Nations Center for Human Settlements), as one of the ten best practices in the world to improve the living environment.

Conclusions

- Adjacent strategies to the Public Space and Mobility components, initiated a radical internal and external transformation on perceptions within the area. This transformation was based not only on the real-estate finances, but on the understanding of the socio-spatial fundamentals and the community-oriented planning.
- The Integral Urban Project (PUI) of Medellin demonstrated through its results the importance of a holistic approach, strongly based on the community participation and the social component. Although there is not a single formula to undertake the slums challenge, the development of a close relation between the community and the local government, is recommended as a way to reach concerted solutions.
- The validation of the multidisciplinary and institutional partnership, demonstrated to be effective at the decision making level. It built a solid political will, based in a long-term perspective rather than a short-term populist approach. However, the process to achieve a strong partnership was complex demanding usually additional time in relation with original schedules and extended hearings with the multiple stakeholders.
- A robust initial financial support was fundamental to construct trust among the participants, while facilitating the subsequent strategic alliances and the search for additional resources' opportunities. It contributed as well to gain the trust of the community who initially tent to be skeptic.
- Given the extreme spatial shortage that characterize the slum areas, the opportunity to generate new public space, was helpful in the promotion of a sense of belonging and understanding of the relevance and the need of protection within shared areas for community encounters.
- Given the relatively recent completion of the pilot PUI at the Northeastern commune, it is recognized the need to undertake a further review of the public space conditions and the community network achievements, in order to reconfirm previous conclusions or identify eventual shortages that may develop in the future.

Acknowledgements

The authors would like to thank for the support of the National Planning Department of Colombia, which authorized a research internship 2005 under the supervision of the Urban Development and Environmental Policy Directorate; the Japanese International Cooperation Agency JICA based in Colombia for their financial support providing local transportation and to the Urban Development Enterprise EDU from the city of Medellin, Colombia and their staff that generously shared their information and transmitted their enthusiasm, encouraging our ongoing research.

Bibliography

Aksoylu, S. "Comparing the Quantitative Characteristics of the Planned and Unplanned Housing Environment in Eskisehir-Turkey, IAPS 2002, Coruna, Spain (2002).

Blanco, C. MIBS Study: Integral Improvements in Substandard Settlements. National University of Colombia. (original title in Spanish: Estudio MIBS: Mejoramiento Integral en Barrios Subnormales) Bogota, Colombia (2002).

Brea, J. "Population Dynamics in Latin America," Population Bulletin 58, no. 1 Washington, DC: Population Reference Bureau (2003).

Cardona M; Garcia H; Giraldo C; Lopez, V; Suarez C; Corcho D; Posada, C and Florez, M. Homicides in Medellin, Colombia, from 1990 to 2002: victims, motives and circumstances, Cad. Saude Publica, Rio de Janeiro, 21(3), 840-851 (2005).

Gilbert, A. and Ward, P "Housing in Latin American Cities" Geography and the Urban Environment (1), 285-318 (1978)

Inter-American Development Bank. "Programa de Urbanizacao de Assentamentos Populares do Rio de Janeiro." Washington, D.C.: IDB, (September, 1998).

Merrick, T. "The population of Latin America, 1930–1990." Latin America since 1930: Economy, society and politics. Ed. Leslie Bethell. Cambridge University Press (1994).

Medellin Mayor Office "Proyecto Urbano Integral Nororiental" under the Medellin Mayor office – BID agreement (4800000830 of 2005) with texts of Cardenas Ana Lucia. Medellin, Colombia (November, 2006). Available in Spanish at http://edu.gov.co/pdf/sistematizacion_metodologia_PUI_web.pdf

Ortiz et al, Colombia: Housing and Land for the Urban Poor; Final Report : Case studies of Bogota - Soacha -Mosquera and Medellin; Cities Alliance, Development Planning Unit – DPU, University College London (2006).

United Nations HABITAT State of the World Cities report 2006-2007 (2006).

http://websie.eclac.cl/anuario_estadistico/anuario_2008/eng/index.asp last accessed : May 2009

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home> last accessed : May 2009