Management of Suburban Growth: Changes in Land Use and the Real Estate Market in the Area of Influence of the New International Airport of Quito, Ecuador

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Abstract

This study analyzes development policies in suburban areas of the city of Quito and the effects of these policies on land use and the real estate market during the period from 1997 to 2007, with particular emphasis on two trends in public activity. One concerns land planning and the construction of major infrastructure projects, with particular reference to the construction of the New International Airport of Quito. The second concerns the instruments used to collect revenues, finance public services, and promote local development, with particular emphasis on value capture instruments. The aim is to open the way for local debate on the effects of public projects and the mechanisms for redistributing the resulting profits, and also to contribute to achieve advances in the identification of urban land management policies.

About the Author

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Abbreviations and Acronyms

AIVA	Valuation Intervention Area (*Área de intervención valorativa)*
API	Association of Independent Professionals (*Asociación de Profesionales Independientes)*
CA	Association of Architects (*Colegio de Arquitectos*)
CAF	Andean Development Corporation (*Corporación Andina de Fomento*)
CCAPP	Council of Production Associations and Chambers of Pichincha (*Consejo de Cámaras y Asociaciones de la Producción de Pichincha*)
CCC	Canadian Commercial Corporation
CCQ	Construction Industry Chamber of Quito (*Cámara de la Construcción de Quito*)
CONAM	National Modernization Council (*Consejo Nacional de Modernización)*
CORPAQ	Quito Airport and Free Zone Corporation (*Corporación Aeropuerto y Zona Franca de Quito*)
DAC	Civil Aviation Agency (*Dirección de Aviación Civil)*
DINAC	National Valuations and Cadastre Directorate (Dirección Nacional de Avalúos y Catastros)
DMQ	Quito Metropolitan District (*Distrito Metropolitano de Quito*)
EDC	Export Development Canada
EMAAP	Metropolitan Sewerage and Water Supply Enterprise (*Empresa Metropolitana de Alcantarillado y Agua Potable)*
EMA	Metropolitan Sanitation Enterprise (*Empresa Metropolitana de Aseo)*
EMOP	Metropolitan Public Works Enterprise (*Empresa Metropolitana de Obras Públicas)*
EMR	Metropolitan Slaughterhouse Enterprise (*Empresa Metropolitana de Rastro)*
EMSAT	Municipal Transport Service and Administration Enterprise (*Empresa Municipal de Servicio y Administración de Transporte)*
FAR	Floor-Area Ratio
FEDTA	Ecuadorian Federation of Airline Personnel (*Federación Ecuatoriana de Tripulantes Aéreos*)
FDT	Front for the Defense of Tumbaco (*Frente de Defensa de Tumbaco*)
IADB	Inter-American Development Bank
LDA	Agrarian Development Law (*Ley de Desarrollo Agrario*)
NAIQ	New International Airport of Quito *(Nuevo Aeropuerto Internacional de Quito*)
OPIC	Overseas Private Investment Corporation
PUOS	Land Use and Occupation Plan (Plan de Uso y Ocupación del Suelo)
PRO	*Ríos Orientales* Project
Registro Oficial	Official Gazette

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Management of Suburban Growth: Changes in Land Use and the Real Estate Market in the Area of Influence of the New International Airport of Quito, Ecuador

1. Urban process, Land use, and the Real Estate Market in the Northeastern Parishes of the Quito Metropolitan District

Major segments of the globally integrated economy are seeking new location sites on the outskirts of metropolitan regions, creating new cities in the form of strips and sub-centers. The urban area outside the old city limits is thus being converted into an important strategic location for the construction of an environment appropriate to the new urban economy.[1]

Until the beginning of the twentieth century, Quito had the form of a concentric, radial city. By 1950 it had an urban area of 1,335 hectares and a population of 209,932. In the 1950s and 1960s the urban area gradually spread in a longitudinal direction, with incorporation of surrounding villages to the north and south of the historic center. The oil boom of the 1970s facilitated an economic growth that consolidated the urban bureaucracy and the construction industry. Beginning around the same time, strong migration flows toward the cities reinforced the bi-centralism of Quito and Guayaquil. The city of Quito grew out of the development of business and real estate speculation after national agrarian reform policies and limited control of city limits permitted the transformation of the highland areas into urbanized areas. It was in this period that squatter settlements began to appear with greater intensity in southern and northwestern Quito. But land invasion was not a frequent process; rather it was a system of organization through intermediaries: individuals connected with political parties, traffickers, and speculators who mediated the access to land for squatters. During this phase, in terms of its territorial organization the capital became a longitudinal city with numerous sub-centers and extreme contrasts between the northern (upper-class residential), central (administrative functions), and southern (industrial and middle-class and working-class residential) areas.

The period of the 1980s was characterized by the development of a pattern of dispersed, discontinuous growth, with the spread of the area of influence into the surrounding valleys (Pomasqui, Calderón, Tumbaco, Los Chillos). The saturation of the developed urban area of the city provided the impetus for a process of growth toward the neighboring valleys, with discontinuities in the developed urban area caused by the irregular topography. The existence of restrictive municipal zoning regulations limited urban growth in areas designated "not for development" because of ecological protection, protection of agriculture and cattle-raising, and protection from natural risks or mountainsides. In 1993, after Quito was declared a Metropolitan District, the suburban area was incorporated as part of municipal land planning.

The parishes of Tumbaco, Guayllabamba, Puembo, Tababela, Pifo, Yaruquí, Checa, and el Quinche are in the second ring of urban expansion. According to the 2001 Census, the population of the eight parishes of the zone under study was 110,489. Inter-census growth rates for these parishes were similar to the growth rates for the

[1] Aguilar y Ward (2003). in Ossenbrug, Jürgen, "Formas de globalización y del desarrollo urbano en América Latina," available at: http://www.iberoamericana.de/articulos-pdf/11-Ossenbrugge.pdf

central urban area, around 5 percent, with the exception of Pifo (4.25) and Tababela (2.21). The population growth is related to an accelerated process of urbanization and attraction of a migrant population to work in agriculture, especially flower-growing and poultry-raising. Current estimates place the population of the northeastern parishes of the Quito Metropolitan District (*Distrito Metropolitano de Quito*—DMQ) at 270,000, including the residents of Tumbaco and Cumbayá. By 2030 it is estimated that this figure will have risen to 630,000 (ASTEC, 2005).

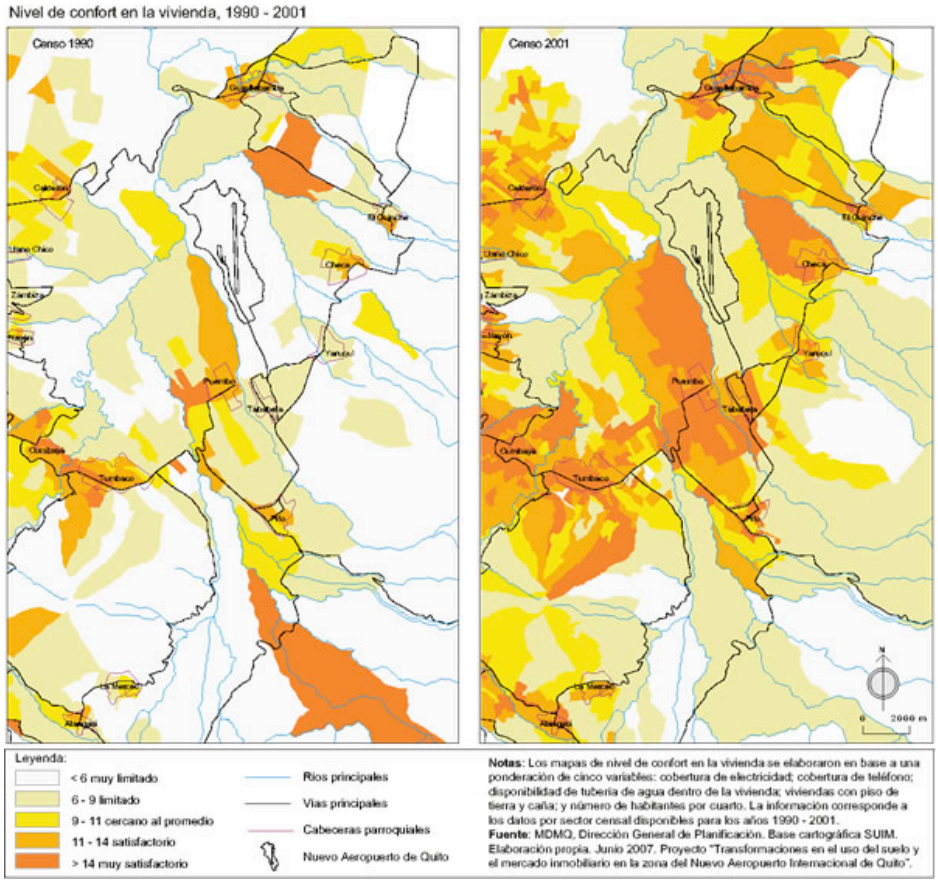
Table 1: Population of the Eastern Parishes of the Quito Metropolitan District

Parish	Pop. 2001	Rate 1990-2001
Puembo	10,927	5.23
Pifo	12,388	4.25
Tababela	2,300	2.21
Yaruqui	13,774	5.47
Checa	7,397	5.97
El Quinche	12,919	5.87
Guayllabamba	12,227	5.42
Tumbaco	38,554	5.14
Total	110,489	

Source: Census 1990-2001. In: D'Ercole, Metzger, 2002

During the 1990-2001 inter-census period, there were major changes, aimed at improving housing conditions and expanding basic utilities services in the Tumbaco/Cumbayá area and in the downtown areas of the northeastern parish centers. This trend has been reinforced since 2004 with a major effort by the municipality to extend the water supply and sewerage networks, improve secondary roads, and improve public spaces in rural village centers.

Figure 1: Housing standards, 1990 and 2001[2]



In the years between 1997 and 2007, Tumbaco was developed as a micro-regional business, administrative, and financial service center, a process that was reinforced by the establishment of the Tumbaco Valley Zone Administration to perform decentralized municipal functions. The New Airport Zone Administration was established in 2007, but has not yet commenced formal operations because of a dispute among parish centers with respect to the location of the new airport.

Land Use in the Northeastern Parishes

Land use in the northeastern parishes of Quito is characterized by competition between use for clearly agricultural activities and other uses influenced directly and indirectly by the metropolis and its spatial expansion. Agricultural use of land is giving way to industrial, business, residential, institutional, and recreational uses, public services, service networks, exploitation of materials and also vacant urban and rural land. Agricultural uses that could be called traditional continue to exist side by side with new forms of investment. These include capital-intensive and labor-intensive farms and small peasant plots resulting from previous land parceling or *comunas*.[3] The new investments (e.g. floriculture, hydroponics hothouse crops) make it possible to optimize land use and increase its profitability.

[2] The legend in Figure 1 shows housing service levels color-coded as: Very Limited (white); Limited (light yellow); Close to Average (yellow); Satisfactory (orange); and Very Satisfactory (red).
[3] *Comunas* means indigenous village communities and *Comuneros* means the members of *Comunas*. These Spanish words are used throughout this paper.

Urban planning processes promote a compact city by increasing population density in neighborhoods and stimulating vertical development in the downtown areas. But as the city expands, it incorporates traditional agricultural areas that are losing their value for agricultural and livestock purposes. This fuels the start of a speculative process created by the demand for land for urban use, even when these areas are undeveloped.

Land use in the northern parishes is determined by various factors that do not necessarily originate in the metropolis and which also are not self-explanatory from a study of the rural area. It should be noted that the literature generally does not analyze the rural environment and assumes that there is an explicit intention on the part of the metropolis (as isolated entity) to change its rural environment. Territorial differentiation of rural land-holding is based on criteria that go beyond the size of the property and take into account the quality of the soil, exploitation strategies, and the concept of ethnic territories. For these reasons, we feel that it is important to examine the direct and indirect influence of processes that are occurring beyond the metropolitan area and are associated with the dynamics of the agricultural and livestock production systems.

Several differentiated uses are found in the area under study:

- Large-scale agricultural and livestock farms with low levels of capitalization;
- Intensive agricultural production systems (vegetable gardens, flowers) financed with national and/or foreign capital and oriented toward the specialized domestic market or toward export, placing strong pressure on rural land;
- Orchards producing fruit for sale in the urban market, vegetable gardens used for private-consumption;
- Suburban second-homes;
- Small peasant farms that have developed out of the *huasipungos* (small plots of land given by landowners to Indians in exchange for their labor), *comunas* and agricultural associations;
- Semi-urban lots of less than one hectare, served with basic utilities services that have crop production for private consumption, but the principal use is residential;
- Legal and illegal subdivisions and urbanization developments;
- Rural village centers (parish centers);
- Conurbation and urban expansion areas.

In the northeastern parishes, there are some 26,045 hectares used for agricultural and livestock purposes, and 26,764 hectares areas covered by highlands, wetlands, scrub land, and water courses. Land use is contingent on the available irrigation from the Canal del Pisque (11,564 hectares) and other sources of water from the highland supplied through irrigation ditches and streams. The area classified for crop use includes 351.46 hectares for agribusinesses that have installed production chains with small chicken and pig farms. Flower-growing businesses occupy 1,359 hectares of hothouses (Granda, 2006).

The agricultural properties are under pressure because of the dynamism of extremely profitable production systems (floriculture businesses), which require lands with special agro-ecological characteristics, leading to an increase in land prices. The rural sector needs fertile soils, with accessibility to the domestic and international markets

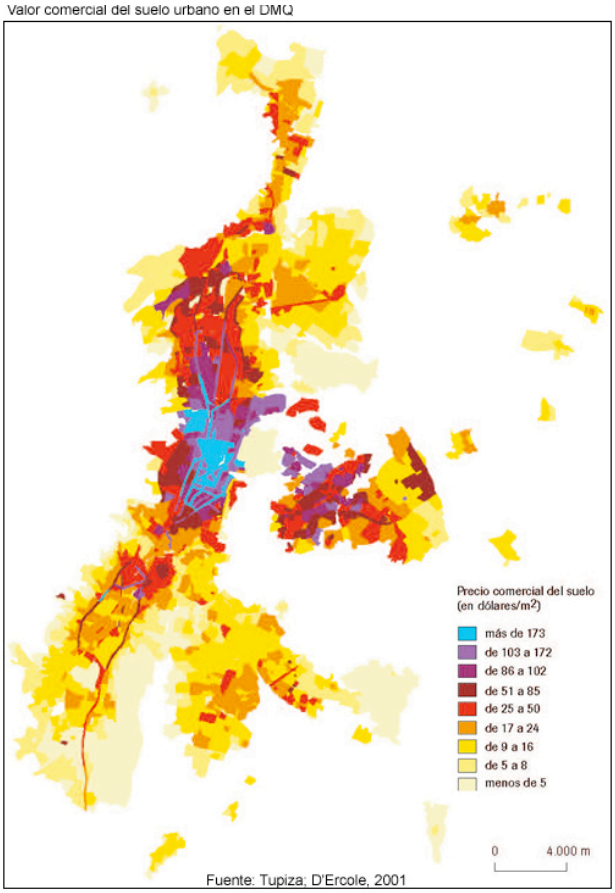
and availability of irrigation and labor. This has led to an intensification of land use in the suburban parishes, where agricultural production has changed in less than two decades. The Guayllabamba, El Quinche, and Checa sectors have specialized in the summer or hothouse production of flowers, while the Yaruquí area has promoted strawberry and vegetable garden cultivation.

There is also the expansion of the area for residential use, mainly for single-family housing. The area includes semi-rural subdivisions for second-homes and vacation or weekend houses for the more prosperous residents of the city as well as some abandoned subdivisions. There are only three de facto affordable housing developments in the area and the number of gated communities has increased in the past decade, chiefly in the form of small developments.

However, precise information about the suburban property structure is scarce because the cadastre is not up-to-date and does not take into account the current landholding situation and use of land in this sector.

The Real Estate Market in the Suburban Area

Figure 2: Urban Land Prices in the Quito Metropolitan District



The land market in Quito is characterized by a high-income nucleus that, since the middle of the twentieth century, has been expanding northward around Mariscal, the banking, administrative, commercial, and tourist center and the residential area populated by the elites of the capital, located on the interior slopes of the Quito valley. In the 1990s, this process of urban expansion crossed the geographical barrier and has since spread toward the Cumbayá valley, where an urban development center promoted by real estate companies was developed together with luxury residential urbanizations that have shopping centers, hospitals, and educational centers for the elites of the capital. The emergence of a large middle class and upper middle class in this sector has led to occupancy of productive farm land, acquisition of land from former *comuneros*, and the consolidation of an urbanization process that in some cases has displaced the low-income population and in other cases has led to the consolidation of districts and neighborhoods through densification.

At the end of the 1990s there were only two very dynamic markets: the housing oriented projects in the city center and the spread of single family homes on the nearby valleys. Land was sold for developments, chiefly in Tumbaco, Pomasqui, Los Chillos, and the southern district of the city. With the "dollarization" of the economy in 2000, the increase in the supply of properties, the downward trend of inflation levels, the decline of interest rates, and the greater availability of mortgage loans for purchase of housing (among other factors) created the conditions for a significant rise in customer demand for housing. The positive changes in the market gave buyers higher purchasing power, reflecting a recovery from the initially low demand levels observed at the time of the change to dollar-denominated currency. The real estate market adjusted to supply high-end housing in response to the shift in demand toward higher-end units.

This phenomenon is expressed in an increase in the number of completed housing projects in various areas of the city. The north and south have high-density projects, with those in the south having a larger number of units. The valleys have gated communities of single-family houses. Tumbaco-Cumbayá valley has the highest price per square-meter, although there was a slight decline in the average starting in 2004 with diversification of the supply of properties. In the years between 2000 and 2004 there was a 55 percent increase in the average price per square-meter of construction in the built-up urban area, along with a preference for real estate projects located in the northern part of the city (Gridcon, 2007).

Factors that have influenced the real estate market include:

- Intensification of agro-production systems oriented toward the foreign market and extension of basic utilities services to outlying areas caused an increase in agricultural land prices prompting speculation, in view of the potential for further increases. In these conditions, small-scale peasant agriculture is under pressure because of the demand for the best lands. The price of a parcel located in an irrigable area with gentle slopes of between 2,400 and 3,100 meters experienced an average increase of 500 percent in constant currency between 1986 and 1996." (Gasselin, 1996).

- The inflation in the late 1990s that led to the crisis of the financial system and the dollarization process in Ecuador in 2000 modified and distorted the structure of market prices for property. This led to a process of speculation that was also motivated by the purchases by early-retirees among public employees as part of the program of State modernization and down-sizing. The insecurity prevailing in the financial system and the political and juridical instability motivated the acquisition of assets including real estate, with the suburban parishes the targets for the demand for low-priced land.

- International migration of urban residents is the expression of a two-fold dynamic. On the one hand, properties are sold as a way of obtaining capital for travel or for payment of the resulting debts. On the other hand, migrants send home remittances that are invested in the purchase of land or in construction, whether in the formal or the informal market, through real estate companies, mutual associations, or brokers.

- Major infrastructure projects such as access routes to the city and to the Quito international airport have increased the land supply and the demand for land, influencing the erratic behavior of land prices. Because of uncertainty about the location of the highways, when faced with potential announcements of expropriation some owners have opted to sell their land, while others have increased their asking-price in the expectation of improvements resulting from access routes between the central built-up urban area and the new airport.

- The incorporation of community lands into the real estate market through processes of differentiation or internal fragmentation and outside pressures led to the breakdown of community organization, as is illustrated by the following testimonies:

  "It filled up with fancy people, you couldn't keep chickens or pigs...The IERAC delivered the documents to us, now it's a neighborhood. We've already sold, they ordered us to, you might say, because the Americans came and they made us sell because of sanitation reasons. It's better to sell and get out...we were *comuneros*, we were united ...It's crazy the way this place is building up. This *comuna* has money it could give to the poor, but they're not giving, they don't want to share" (Manuela, Iguiñaro).

  "The neighborhood grew enormously in 20-25 years, now it's saturated...a lot of people had to leave because of the price the Americans offer, they come and offer 20 dollars, 40 dollars per meter...the new owners become president, they change the rules, there are irregularities, there's disunity...they've thrown us off the land where we played soccer" (Luis, Ocaña sector, Tumbaco).

Between 1997 and 2007, the value of agricultural parcels in the Puembo, Pifo, Tababela, and Yaruquí sector increased by around 400 percent. In El Quinche and Checa parishes, the average cost of irrigated land ranges between US$15 and US$20 per square meter. Depending on the technology used, the per-hectare value of flower-growing farms ranges from US$20,000 to US$100,000 per hectare (Granda, 2006). In rural sectors that have basic utilities services (water, electricity), land prices range between US$30 and US$50 per square meter.

The penetration of the real estate business into city areas and the housing development toward the various valleys gave potential buyers a chance for a better quality of life and the choice among a wider range of types, sizes, and housing prices, allowing them to obtain better a return on their investment if they could obtain favorable purchasing terms, thanks to their greater power to negotiate with sellers.

Developments oriented toward high-income buyers were located chiefly in the district that extends outward from the Cumbayá/Tumbaco (Cunuyacu, La Viña, Pachosalas), or on agricultural land with environmental attractions and good promotion systems that promise their inhabitants exclusivity. For example the Los Arrayanes "country club" where there is high-end housing together with a golf course, sports fields, and recreational services for the club members. In these sectors, land values range between US$100 and US$500 per square meter.

On the other hand, prices for deteriorated lands on mountain slopes distant from urban centers, and prices in designated nature conservancy areas, are flat. The vacant lands that can be supplied with drinking water and sewerage services account for more than 30 percent of the study area.

Additionally, in the DMQ there are 76 *comunas*,[4] 179 associations, and 17 second-degree organizations registered with the Community Development Office of the Ministry of Agriculture and Livestock. The *comunas* are governed by a special law[5] that is independent of the Municipal Government Organic Law and the Metropolitan District Law, and which gives members the power to organize occupancy and land use. In the parishes under study, there were 25 *comunas*, chiefly in Pifo, El Quinche, and Tumbaco parishes. The areas that have expressed the greatest concern over the progress of the highway projects connected with the new airport are the *comunas* located in the Cerro Ilaló area and the Oyambarillo *comuna* in Tababela, since some of the highways go through *comuneros* neighborhoods.

The transformation of production relations and the advance of the urbanization process also led to the transformation of a community-type social organization that had existed in the area since colonial times. This situation was promoted by the 1994 Agrarian Development Law (*Ley de Desarrollo Agrario*--LDA) thereby the property regime for community land was modified to permit division and legalization of individual titles of ownership.[6] In practice, the LDA conflicted with the *Comunas* Law, since the LDA permitted free division of *comunas*, the only requirement being approval by a majority of the *comuna* members, while the Municipalities Law required approval by the Ministry of Agriculture for the division of community properties. The LDA permitted legalization of many *de facto* partitions of *comunas* and access to complementary services such as financing. As much communal land come onto the real estate market and has been purchased by external third parties, the original area was divided into small unproductive parcels and conflicts have sprung up between *comuneros* over the determination of boundaries and individual property lines for subsequent establishment of property titles (Navas, 1998).

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[4] There is no information about the distribution or location of the *comunas* in the rural areas of Quito Metropolitan District, and the little research that exist focuses on case studies of identity aspects or management of natural and cultural resources, without much information on limits and boundaries or conflicts over land holdings.

[5] The *Comunas* Law was issued in 1937 as an initiative of the executive branch to legalize communities, annexations, and sites with more than 50 inhabitants, including women and children. This Law grants legal personality to the *comunas*, rendering them capable of exercising rights and contracting obligations, with the *comuna* council (the *cabildo*) being the representative body. *Comuneros* enter into land-use contracts, which are sometimes executed before lawyers so that they become public documents. Some *comunas* still retain lands for collective use as pastures or for protection of specific eco-systems and water sources.

[6] Article 22 of the 1994 Agrarian Development Law states: "Lawfully constituted *comunas* that wish to divide up among their members some or all of the rural lands that belong to them as a community may divide them pursuant to a resolution passed at a general meeting by two-thirds of their members. However, division of higher-altitude areas and also of lands intended for planting of forests is forbidden. In addition, by decision of two-thirds of their members, *comunas* may also be transformed into any of the associations established in the Cooperatives and Companies Laws. The operations contemplated in this article will be exempt from taxes. They may make adjustments, offsets, or payments that render the aforementioned operations feasible in an equitable manner."

For such authors as Castillo and Beilock (2003), "the principal cause of *comuneros*' loss of land was that the combination of the type of investment made by the Ecuadorian government and the communal structure of landholding increased land values, that is, the reserve prices of land, for parties who were not members of the *comuna*, and at the same time it caused a decrease in land values for the *comuneros*." The *comunas* have now sold approximately 91 percent of the potentially irrigable lands to large producers and real estate speculators.

2. Public Interventions in the Suburban Area

According to Article 14 of the Municipal Government Law, the planning duties of the municipalities include planning of district development; preparation of district development plans, programs, and projects; direction of the physical development of district and development planning; approval of plans for the physical development of the district and plans for urban development; monitoring of land use in the district; and approval or rejection of parceling and parcel restructuring projects that are part of an urban development plan. Ultimately, the municipalities have to deal with the planning of public works, activities, and carryout other actions that tend to increase land values.

The municipalities are is also in charge of providing many of the basic services, either directly or through concessions, depending on current legislation. The Municipal Council is responsible for "deciding which of the local public projects must be carried out by municipal management, whether directly or by contract or concession, and which must be carried out by private enterprise; and it must, if appropriate, authorize participation by the municipality in mixed public-private companies." In the case of the DMQ, the municipal companies most likely to generate incremental land values due to their investment projects are the Metropolitan Public Works Enterprise (*Empresa Metropolitana de Obras Públicas—EMOP*), Metropolitan Sanitation Enterprise (*Empresa Metropolitana de Aseo—EMA*), Metropolitan Sewerage and Water Supply Enterprise (*Empresa Metropolitana de Alcantarillado y Agua Potable—EMAAP*), Municipal Transport Service and Administration Enterprise (*Empresa Municipal de Servicio y Administración de Transporte—EMSAT*); and the Metropolitan Slaughterhouse Enterprise (*Empresa Metropolitana de Rastro—EMR*).

Land Planning in Suburban Areas

The planning of Quito began with the Jones Odriozola Regulatory Plan (1942) and was based on a "hierarchical, speculative, and segregated model." The planning for the Quito Metropolitan Area began in the mid-1970s with the Quito Plan, but was not consolidated as a proposal until the 1980s and more effectively in 1993, when the Metropolitan District Law was adopted to clarify the powers of the city's Municipality. The General Land Development Plan was issued in 2000; it incorporates various instruments for planning urban and suburban growth, including the Land Use and Occupancy Plan. In 2006 and 2007, Partial Plans for expansion of the city into the valleys were approved and a proposal was formulated for management of land that could not be developed. In addition, there was a move toward environment management in the form of the Environment Reorganization Program of the EMAAP to promote the planning of ecological conservation areas.

The legal exploitation of urban land in outlying areas takes the form of land parceling and development that promote the horizontal growth of the city. There are few cases of vertical growth, and those few are usually concentrated in the small city centers of rural parishes and in areas of strong pressure for business uses (Cumbayá and Tumbaco).

"Illegal" land development is usually associated with forms of land parceling not recognized by the municipality and consisting of subdivision into low-priced lots without the proper permits and usually without urban services. However, there is another form of "illegal" land development associated with middle-income and high-income schemes in urban expansion areas. These take the form of unauthorized subdivisions and structures in nature conservancy areas or agricultural lands. When formal urbanization is impossible, land subdivision take the form of vegetable gardens, property division by rights and actions, and the horizontal condominium system. Experts point out that due to the expectation of new infrastructure, the supply of land has dried up or values have become erratic. If we compare the cadastre valuation map of urban and rural land in the eastern parishes of the DMQ with the legal and illegal developments that existing in the area, we find serious discrepancies in what is considered "rural."

The tradition of local planning serves to define guidelines to structure the territory of the city and to adapt the institutional management tools. However, there are still inconsistencies between the various instruments, particularly the Land Use and Occupation Plan (*Plan de Uso y Ocupación del Suelo*—PUOS); the municipal tax map; the provision of services by some of the municipal companies; and the approval of subdivisions, developments and structures by the Zone Administration.

Major Projects in the Outlying Urban Areas

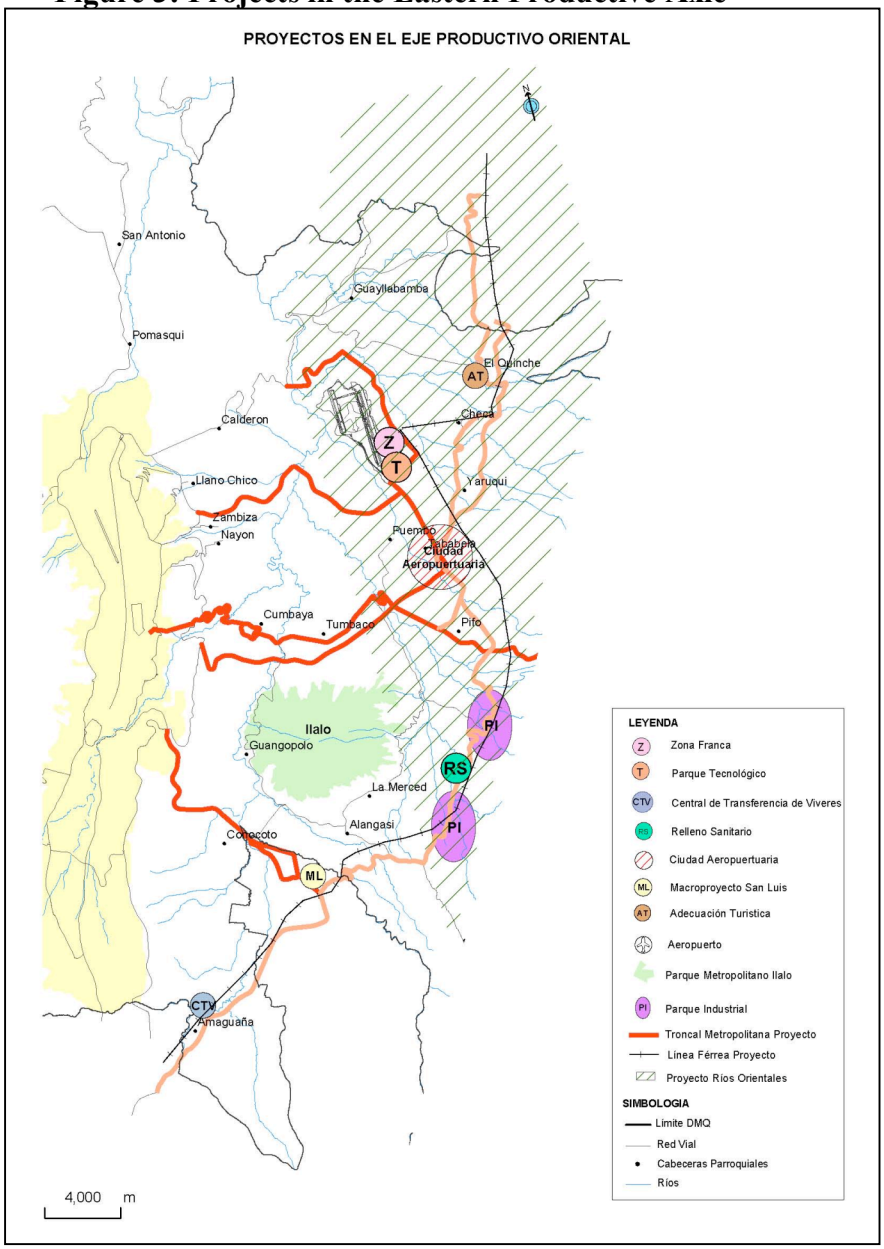
The planning guidelines for the DMQ promote the peri-urban zone and provide impetus for major projects that seek to make the Quito region competitive. The most important and most visible of these is the "*Aerotrópolis*" project, designed as an economic and land development center that includes the construction of the new international airport, a free zone, a technology park, and a logistics platform. Other major high-impact projects are located in this sector on the outskirts of Quito, such as:

- The highway system, including enlargement, improvement, or construction of access and bypass roads;[7]
- The Inga Land Fill, which covers approximately four hectares and is the final deposit for solid waste of the capital;
- A high impact industrial district will be located in the southern portion of Pifo parish;
- The Paluguillo water supply project for the new Quito airport and for Tumbaco, Pifo, Puembo, and Tababela parishes;
- The *Ríos Orientales* Project (PRO) of EMAAP aimed to meet the future demand for drinking water and the industrial use of the DMQ, and to supply hydroelectric energy during the coming decades. This project involves the

[7] The North and South access routes to the city, the tunnel that connects the administrative/financial district with the Cumbayá-Tumbaco valley, and the beltways, including the "Corredor Periférico Oriental" and the "Intervalles" highways, built in the years 1997 to 2007.

transfer of water from the Amazon slope of the central mountain range at a rate of 17 cubic meters per second, and a 20 MW hydro-electric generator.

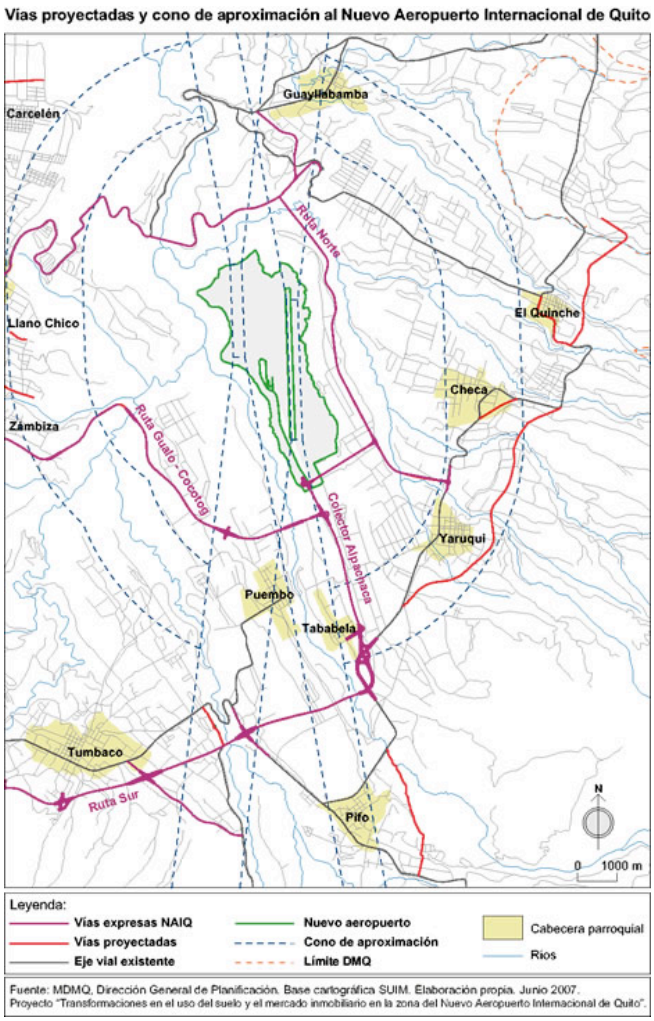
Figure 3: Projects in the Eastern Productive Axle



The major infrastructure projects on the outskirts of the city pose a city-building challenge, generating positive effects on the structure and operation of the urban system and on the territory as a whole. The New International Airport of Quito *(Nuevo Aeropuerto Internacional de Quito*—NAIQ) offers an example of the tensions involved in the process of reform of the state and functional decentralization, the search for linkage to ensure that the city and its area of influence will be part of the globalizing economy, and the changes in the paradigm of development and in land managements models.

The New International Airport of Quito (NAIQ)

Figure 4: Projected Roads and Area of Approach to the New International Airport of Quito



The NAIQ will be located in the Tababela/Puembo area, approximately 25 kilometers east of Quito, and planned to go into service in 2009. It is estimated that the airport will be able to handle more than four million passengers per year and 270,000 tons of cargo. The "Aerópolis" covers an area of 1,500 hectares, 540 of which are allocated for airport services and the free zone. The project creates an area of direct influence of about 12,000 hectares (corresponding to the northeastern parishes of the DMQ) along the access roads to the city. Industries, businesses, and service activities (tourism and transportation) in the free zone, as well as the new airport, will have tax abatements for a period of 20 years.

The development of a new airport in the Tababela sector was conceived about 30 years ago. But the powers that authorize the Municipality of Quito to construct and manage the new airport as well as to operate the Mariscal Sucre Airport and create a free zone were not granted until November 2000, under the Decentralization and Citizen Participation Law of 1998. The Quito Airport and Free Zone Corporation (*Corporación Aeropuerto y Zona Franca de Quito*—CORPAQ)[8] established by the Municipality, prepared preliminary studies for the basis of the international bidding and the public call to bid. CORPAQ assumed the functions, powers, and resources of the Civil Aviation Department.

The concession for the studies, design, and construction of NAIQ was awarded according to the "Swiss Challenge" method (turnkey fixed-price contract). The Canadian Commercial Corporation (CCC) was the successful bidder. Preliminary

[8] The CORPAQ was established as a non-profit private legal entity for social purposes by Resolution No. 114 of the Council of the Quito Metropolitan District, dated 25 October 2000. The functions, powers, and resources of the Civil Aviation Administration and the former Airports Committee, the land for the new airport and all the equipment, installations, and assets of Mariscal Sucre Airport were transferred to the CORPAQ, which was authorized to enter into contracts for the management of the properties and the free zone.

NAIQ concession and construction contracts were signed in 2002, in the midst of the financial crisis, the institution of dollarization, and recurrent periods of political instability and weak governance. The CCC established the responsibilities of the concessionaire and the Quiport-ADC-AECON Consortium to finance, design, build and operate the two airports, guaranteeing the continuity of the aeronautical services.

Negotiations of project details for the signing of the contract and negotiations with lenders for the financing of the investment[9] ended in 2005. The concession contract took effect in January 2006, construction started in March 2006 and disbursement of the loan funds began in June 2006.

The construction of the new international airport of Quito and its complementary projects has not been without its critics. There are various levels of opposition to the installation of the airport on the Tababela plateau:

- On the *political level*, the controversy revolves around the claim of irregularities in the negotiations for the construction of the airport that threatens the economic stability of the Municipality. An audit of the Quito Air Terminal construction contract was therefore requested for the purpose of protecting the public investment. The management model, which involves the concession of municipal assets,[10] the increase in airport taxes and the growth of the external municipal debt,[11] has been sharply questioned by the government of President Rafael Correa, which is requesting revision of the concession agreements, participation by the local and national governments in the profits resulting from the operation of the international airport, and distribution of the profits to other airports of the country that have low levels of profitability and are requesting government subsidies to operate.

- With respect to the *competences* for the operation of the airport, the Civil Aviation Agency (*Dirección de Aviación Civil*—DAC) has on several occasions asserted its power as the only agency that regulates the construction of airports, heliports, and airfields, and has questioned the agreements for transfer of powers to the municipality. One of the principal concerns of the DAC was the loss of the revenues from airport taxes. In June 2007 the dispute

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[9] The project has an estimated investment of US$430 million, financed by Overseas Private Investment Corporation (OPIC), an agency of the North American government created to finance foreign projects, which has granted a loan of US$200 million; the Inter-American Development Bank (IADB) is financing 75 million; 75 millions; Export Development Canada (EDC), a Canadian agency, 37.5 million; and Eximbank, sponsored by the United States Government, is contributing 59.3 million. The new airport is a completely private project for which neither the Government of Ecuador nor the Municipality of Quito will provide any financing or financial security.

[10] The concession of the drinking-water and sewerage services of the Eastern Parishes is opposed by various non-governmental organizations, which feel that the Municipality of Quito, with the support of the BID, has begun a process of privatization of drinking water in the capital, by agreement with the National Modernization Council (*Consejo Nacional de Modernización*—CONAM).

[11] The municipal external debt has tripled in the past six years. The investments were intended for the execution of road work, clean-up of the environment, protection of slopes, restoration of the Historic Center, and plans for housing. The principal international institutions that have financed the projects in the city are the IADB and the Andean Development Corporation (*Corporación Andina de Fomento*—CAF).

was reopened, and the Quiport Corporation was asked to present the plans for the new Quito airport and to apply for the pertinent permit to carry out construction, on the grounds that the project managers had not initially obtained DAC authorization, as is required by Article 29 of the Aeronautics Code.[12] This claim is based on the contention that under the Civil Aviation Law the DAC must issue a resolution approving new airport installations and authorizing their operation before they can be put into service.

- With respect to the *aeronautical operation* of the NAIQ, the Ecuadorian Federation of Airline Personnel (*Federación Ecuatoriana de Tripulantes Aéreos*—FEDTA), the pilots' association, has expressed its concern about concealment of technical information concerning aeronautical feasibility and geophysical, meteorological, and other studies. It also issued comments on the location of the air terminal, claiming that climate conditions make aeronautical operation difficult.

- From the *historical-identity* point of view, the existence of an archaeological site at the airport terminal opened a debate on the pertinence of archaeological research and preservation on site. Since 2002, under the supervision of the Cultural Heritage Institute (Instituto de Patrimonio Cultural), work has been under way on the collection of ceramic, lithic, and bone remains and other artifacts. The material is being classified for subsequent museum exhibition.

- *Professional associations* are taking various positions. On the one hand, the Association of Architects (*Colegio de Arquitectos—CA*) is focusing its proposals on the need for a complete analysis of the traffic problem in the Tumbaco valley. It also claims that redevelopment at the site of the current airport of Quito must be approved. The Association of Independent Professionals (*Asociación de Profesionales Independientes—API)* led a feasibility study of the highway proposals, indicating alternatives for the construction of the Oyacoto highway.[13]

- The *productive sectors* supported the construction of the airport as a determining factor in the competitiveness of the region. However, in 2004 the Construction Industry Chamber of Quito (*Cámara de la Construcción de Quito--CCQ*), the ACCE, and the CICP issued a document suggesting a more detailed environmental evaluation of the southern route, including a more detailed definition of the mitigation measures to be undertaken. In June 2006 the Council of Production Associations and Chambers of Pichincha (*Consejo de Cámaras y Asociaciones de la Producción de Pichincha--CCAPP*) gave their unexpected backing to the mayor of Quito in the form of an official letter stating that the construction of the airport and the free zone is a matter of priority for the city and the northern part of the country.

- The *residents* of the area have expressed opposition to the highways in terms of both their routing, design and their potential concession. The Front for the Defense of Tumbaco (*Frente de Defensa de Tumbaco--FDT*) is leading the

[12] http://www.elcomercio.com/solo_texto_search.asp?id_noticia=75236&anio=2007&mes=6&dia=5

[13] Minutes of the Regular Meeting of the Metropolitan Council on 19 June 2003.

opposition to the construction of the southern highway as an express trench road. This position is supported by area landowners affected by expropriations,[14] and by the *comunas* whose lands are affected by high-speed highways, particularly those located along the northern edge of the Cerro Ilaló and in the Zámbiza-Gualo-Cocotog sector.

- In the area of influence of the existing Mariscal Sucre international airport, an aviation accident late in 2007 is creating pressure for removal of the airport from the city and is also generating expectations for an increase in construction opportunities and the transformation of its 150 hectares into an urban park. There are development plans and value-capture mechanisms are being explored.

The construction of the airport access highway system represents another area of tension between local impact and the specific needs of the high-speed highway engineering project. The concerns expressed by associations of residents, professionals and by technical studies are the high costs of effectively building an express highway, and the need for an integral solution to the traffic problem in the Tumbaco-Cumbayá valley. These concerns led municipal authorities to redefine the design for the southern highway.[15] However, subsequent studies highlighted the importance of building the three projected highways, and given the conflict surrounding the southern route (which goes through the most built-up area), a choice was made to secure the link between the city and the airport building the Cocotog road as a first phase.

Given the context of social and political conflict that surrounds the execution of the project, the Municipality has relegated to the background efforts to capture incremental land values deriving from the NAIQ investment projects. Nevertheless, the municipality is shoring up urban land management mechanisms that guarantee a certain amount of influence over land development. In this context, it must be kept in mind that the negotiations for NAIQ concession sought to include the property of the current airport, located in the central area of the city, as part of the benefits of the concessionaire. Instead, the municipality gave preference to providing public spaces and facilities, ensuring that the land would be used as an urban park. In doing so, the municipality promoted a debate on development options through an increase in the land-use and land occupancy coefficients in the area adjoining Mariscal Sucre Airport, presently affected by land use restrictions because of the airport approach path. Moreover, CORPAQ negotiated with the Quiport consortium of concessionaire

[14] A right of way, established by the Ministry of Public Works at that time, has been in existence since the 1970s. However, irregularities in the transfer of competences to the Municipality, subsequently to the Provincial Council, and once again to the Municipality generated spaces and inconsistencies supported by the popular conviction that "the road won't be built." Additionally, the Tumbaco Zone Administration issued permits for construction in highway restriction areas, an action that affects housing covered by proper municipal documentation.

[15] On 6 July 2006 the Municipal Council issued the basic Road/Highway Order for the northeastern area of Quito. The highways comprising the network are the Sur, Zámbiza, upgraded Interoceánica, and Norte. It was decided to give priority to construction of the southern route, at a cost of US$124 million. The highway was redesigned to reduce the affected area from 100 meters to 50 meters. It will have a central express toll road and lateral service roads, and will include bikeways, sidewalks for pedestrian traffic, and an increase in the land use coefficient in the areas affected/benefited by the presence of the highway.

companies to have half of the free-zone area placed under the direct management of the Municipality.

3. Urban Land Management and Value Capture Instruments

The principal land management mechanisms are associated with the General Land Development Plan and the PUOS. Timely execution of these plans is connected with instruments, programs, and actions aimed at guaranteeing effective planning and safeguarding of urban growth. Urban land management and the capture[16] of incremental land values deriving from public projects are elements present in various instruments outlined below:

- City limits: Planning instruments indicate the urban areas, areas suited for development, and areas not suited for development, as well as the subdivision regulations, identifying land use and occupancy coefficients and deciding on projects that structure the parish territory. The only way for the DMQ to capture land value increments is to reclassify rural property as urban, in which case the valuation of the land and the valuation of the construction (including the method of calculation and the taxes associated with the property tax change) are increased considerably.

- Municipal Cadastre: The cadastre is outdated by almost a decade, notwithstanding the fact that in 2005 there was a reprogramming of the urban cadastre, including the establishment of 2,460 valuation units for the 600,000 properties of the DNQ in areas of valuation activity. The property information is continually updated in cases of legalization of neighborhoods and buildings, transfer of ownership, parceling authorizations or construction permits, through a system of interconnected information shared between municipal agencies.

- Cadastre Valuation at Commercial Value: The September 2004 reform of the Municipal Government Organic Law established that beginning in 2005 municipalities will have to update the cadastre and the property values every two years in order to reduce the gap between sales values and tax valuation. For this purpose, the value of a property would be estimated at market price, combining valuation of the land and valuation of the buildings or structures, according to the criterion of replacement cost (depreciation). The "property value" will thus be the asking-price or market price of the property, and that will be the benchmark for any municipal action related to the property.

- Valuation Intervention Area (*Área de intervención valorativa*--AIVA): Can be a district or portion of a district, developments, division into lots, highway and avenues, unified by the number of points obtained by means of valuation of zoning and construction, topographic features, infrastructure, and market values. Depreciation is another factor taken into account and that is calculated at one percent per annum for structures made of reinforced concrete and two percent for other types of structures. Properties whose value does not exceed

[16] Value capture applies to any tax or planning tool the ultimate goal of which is distribution of the increases in the value of the land. (Furtado, 2000).

US$3,750 are exempt from property tax. When senior citizens are involved, if the assets do not exceed 500 times standard base salaries, they will be exempt from property tax payment. In 2005 the urban AIVAS established. These were valued at market prices less 30 percent of the commercial value of the land, with the aim to avoid a speculative impact of the municipal valuation.[17] Rural AIVAS were established on the basis of the agricultural potential of the land and key factors for agricultural and livestock productivity such as availability of irrigation. In this latter case an effort was made to give preference to primary production. The availability of urban utilities services such as water and sewerage or the existence of built-up rural urbanizations were not considered.[18]

- Progressive taxation criteria: The AIVAS were standardized in order to establish economic sectors of urban land in the DMQ, based on an table with 11 categories of progressive taxation in which category 1 corresponds to the sector where land has the highest economic value and category 9 the sector where land has the lowest value. Categories 0 and 10 represent municipal facilities. These sectors serve as a basis for the establishment of ranges in calculating taxes and making assessments.

- Urban property tax: The tax rate is determined by the municipality, and ranges between a minimum of 0.25 per thousand and a maximum of 5 per thousand, with adjustment factors based on the location of the land and the number of meters of built structures.

- Rural property tax: The municipality has made no progress in updating the rural cadastre.[19] In suburban areas there are conflicting applications of the instruments. There are AIVAS identified as urban which in fact contain rural properties.

- Real estate transaction tax: The transfer tax is generated by the execution of acts and contracts deriving from transfers of ownership of real estate properties and the establishment and transfer of beneficiary interests, use, and residence with respect to such assets. When a real estate property changes hands in a purchase-and-sale operation, the tax assessed on this transaction is equivalent to 1 percent of the value of the property. In Ecuador this tax is collected by municipalities and provincial councils collect an addition of 0.15 percent.

[17] Valuation appraisers and real estate brokers point out that the cadastre for urban areas serves as a benchmark for the estimating property prices and for access to mortgage loans.

[18] This situation generates a differential of more than 100 times between the cadastre valuation and the sales prices, particularly in the Tumbaco, Puembo, Tababela, and Yaraquí plateaus.

[19] This technical instrument was issued by the National Valuations and Cadastre Directorate (Dirección *Nacional de Avalúos y Catastros*—DINAC), which each year presents the rural property report to each municipality for purposes of tax collection. With the tax reforms of 2005, the municipalities were instructed to create rural cadastres and to apply property taxes starting in 2008. Some municipalities have made progress in preparing multi-purpose rural cadastres, with the support of the Program for Regularization and Administration of Rural Properties (partially financed by the IADB), but most of the municipalities do not have local capabilities to advance this process.

- Tax on profits from the transactions of urban real estate properties and value-capture: This tax is imposed on the actual profit obtained by property sellers when they sell their property. The 2005 reforms provide that the minimum tax base shall be the "value of the property," and consequently the tax base is reduced to one per cent. The tax base is determined by deducting the following items from the selling price: the purchase price; special contributions or improvement made by the seller; 5 percent for each year elapsed since the acquisition of the property, starting from the second year; and the devaluation of the currency. However, there are no additional charges for properties that acquire a higher land occupancy coefficient or which have benefited from higher construction ratios (Floor-Area Ratio—FAR), for example an increase in the number of floor that can be built.

- Tax on vacant land: When a parcel of land is acquired by an individual who does not build some kind of structure on it, the legislation acknowledges the right of the municipality to punish the owner by charging him tax for non-utilization or under-utilization of the land. In this connection, Article 318 of the Municipal Government Law establishes an annual charge of two per thousand to be imposed on undeveloped properties until a structure is built on them. This decision relates especially to properties left undeveloped in the hope of an increase in their price, whether by incremental land value linked to public interventions or through land speculation. In addition, Ecuadorian legislation provides for a surcharge on obsolete structures, equal to 1 percent of the value of the property recorded in the cadastre.

- Special betterment levies: This is a mechanism for recovering the costs of road infrastructure investment in the DMQ. It is collected on the basis of the urban property tax.

- Increase in the land occupancy coefficient for preservation purposes: In historic areas, parcels occupied by inventoried building (non-monument buildings) can benefit from an offset in land occupancy coefficients allowing higher FAR under the conditions of occupancy and morphological characteristics specified by the Land Planning Directorate.

- Donation of land in areas undergoing subdivision or development processes: Land divisions in urban and rural areas are required to donate 10 percent of the gross land for green areas or community facilities.

- Urban development for affordable housing: Operating through public companies, the municipality has promoted housing projects and land purchases at preferential prices in the northern and southern areas of the city. Possibilities are being explored of building an urban center in the new airport area that will also ensure access by low-income residents to developed land.

- Regularization of squatter settlements and structures: Squatter settlements have been recognized and legalized after urban land has been occupied by

low-income groups.[20] This program did not benefit squatter settlements located in at-risk or ecological protection areas. Illegal structures were legalized by means of transitional provisions that made it possible to obtain construction permits even when they did not have municipal permits or were otherwise in non-compliance with the law.

- Donation of 25 percent of the income tax[21] by taxpayers domiciled in Quito has provided an incentive for various environment-management programs and projects, including implementation of the Cerro Ilaló environment-management plan, the reforestation of ravines, and the management of solid wastes in the DMQ.

The instruments described above were not directed toward value capture. But they have had a substantial effect on mobilizing funds for the financing of the development of the city, and have made it possible to implement public works in low-income neighborhoods, particularly the extension of water supply and sewage facilities, improvement of public space, and expansion of mass transit systems.

4. Considerations on the Socio-Spatial Effects of Public Interventions in Suburban Areas

In the past decade, the suburbs of Quito have experienced profound changes that have shown the existence of a territory in which heterogeneous and highly contrasting forms and types of land use co-exist. The changes are related to processes of urban expansion, the construction of major metropolitan infrastructure projects, and increased linkage of the various agricultural sectors with urban economic sectors. In this context, the land management and urban boundary control mechanisms are insufficient, especially in the presence of pressure for urbanization associated with concentration of public investment, whether through expansion of the supply of basic utilities or the execution of emblematic projects, especially projects that generate activity centers and/or increased population flows.

The suburban property subdivision process generates a pattern of land occupancy not anticipated in the land planning documents. A study of the northeastern parishes shows that in the case of Quito there is a process of increasing informality of urban growth among the middle and upper classes associated with land subdivision that use ownership system property rights formulas that make these subdivision not subject to urban development norms. Thus, these developments are not obligated to comply with minimum subdivision regulations or development processes norms. These phenomena require debate regarding pertinent national legislation and local management instruments that govern their application.

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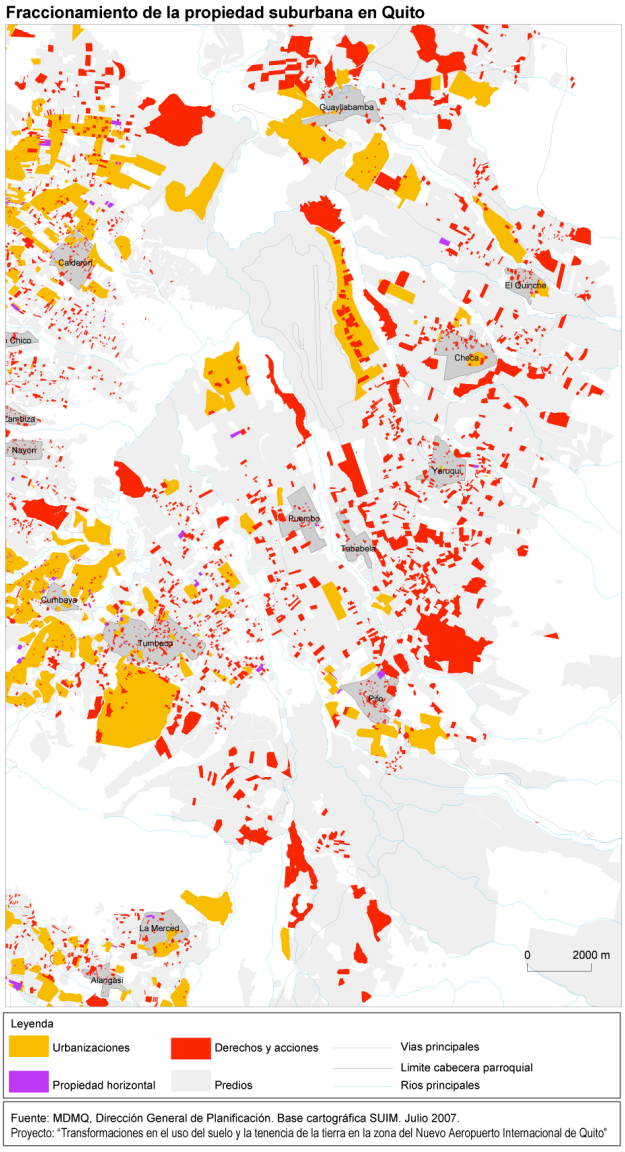
[20] In 2001 the municipality undertook a campaign to legalize squatter housing, developments, neighborhoods, and informal settlements. A total of 192 neighborhoods and 41,101 parcels had been legalized as of December 2007. The average age of these neighborhoods is 13 years (*Unidad de Suelo y Vivienda*—Land and Housing Unit).

[21] This law grants to municipalities and provincial councils a share of the income tax, through voluntary gifts by citizens and private companies. It was published in the Official Gazette on 15 October 1997, and at that time it benefited only Guayaquil. The Law was extended to Quito in 2001.

The debate on the illegality of the neighborhoods on the outskirts of the city is focused on low-income areas. During the period from 1997 to 2007, de facto squatter settlements were recognized, and occupation of urban land by low-income groups and unlawful structures was legalized *a posteriori* by means of transitional provisions that made it possible to obtain building permits even when properties did not have municipal permits or were not in compliance with regulations. The municipal urban development and housing company promoted procedures for acquisition and development of land for the construction of affordable housing in the central, northern, and southern areas of the city in areas with a strong presence of low-income groups and urban renewal areas. The lack of policies that favor the construction of affordable housing in urban expansion areas and new neighborhood centers is generating an unmet demand that at the present time has no concrete expression but which will have to be met. The allocation of housing vouchers is marginal compared to the housing stock and the demand for housing.

Figure 5: Suburban Property Subdivisions in Quito



Urban expansion is being constrained by conditions resulting from the dynamics of various agro-production systems. Speculative pressure by real estate agents who are seeking to build luxury and specialized housing for high-income groups is generating a process of rural gentrification in areas where forms of land-holding associated with traditional farming and peasant settlements still exist. This situation becomes more acute in the context of a process of breakdown of community organization and individual title documentation in areas held under regimes of communal property.

In addition, participatory construction of partial land development plans in suburban parishes reveals and reinforces processes of segregation in which high-income residents and/or residents with more power to bring pressure on zone administrators have succeeded in maintaining the exclusive nature of certain areas by preventing reduction of parcel size or developments oriented toward low-income groups.

Moreover, lack of timely information about major land development projects generates uncertainty and speculation. The residents of Cumbayá and Tumbaco (high-income sectors) have been awaiting municipal decisions on the final design of the airport access routes. Citizen activism succeeded in paralyzing the building of the southern route. In this context the need for the municipality to guarantee the connection between the city and the airport and to face the costs of expropriation and expenditure of political capital, resulted in the local authorities postponing facing the challenge of city-building in the outskirts of Quito.

Finally, it must be kept in mind that there are a few studies on urban land markets (Jaramillo and Rosero, 1996; Tupiza and D'Ercole, 2001), some studies by the National Valuation and Cadastre Directorate that monitor real estate offers to determine the AIVA(s), and studies on costs of infrastructure projects. The latter include references to the real estate market related to estimated land values for parcels subject to expropriation. However, there are no on the process of land speculation and the dynamics of the real estate industry. There is also no information on land value increments generated by public interventions. The partial plans for the land use of the suburban parishes do not contemplate analysis of the real estate market, and do not monitor rural parceling or the dynamics of expansion above and beyond the supply of land in the formal sector. What is needed is a more systematic investigation that will support municipal decision-making, legislative debate, and the formulation of local public policies.

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