GUIDELINES FOR URBAN LAND STUDIES:

ISSUES, DATA, AND METHODS

Prepared for

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CHAPTER I

INTRODUCTION

Rapid rates of urbanization in developing countries are creating unprecedented pressures to provide basic shelter and urban services to expanding populations. These pressures are, in many cities, raising serious problems of land need and availability. At the same time, urbanization and its relation to economic growth and equity are becoming an increasing concern within the U.S. Agency for International Development and AID Missions. The Office of Housing and Urban Programs, recognizing the need to assist Missions and LDC governments in preparing urban programs and projects, is developing analytic tools and guidelines for addressing urban problems and opportunities. Earlier this year AID issued the "Guidelines for Preparing Urban Development Assessments", a tool designed to provide a general understanding of the relationship between urbanization and economic development in a given country. The present document is another part of the series, presenting "Guidelines for Urban Land Studies".

Along with other urban development issues such as housing, non-farm employment generation, and municipal management and finance, urban land is becoming an increasingly important topic. Rapid and large-scale urbanization is raising such questions as: Will enough land be available to accommodate future urban expansion? Is it necessary to sacrifice agricultural land to make way for city growth? Are current patterns of land use likely to continue, or are there other feasible configurations? Can land use be made more efficient? Should the government exercise more direct control over land development? Can it do so effectively? What are the implications of current urban land use patterns and controls on the urban poor?

These are, of course, only some of the questions that are emerging about urban land. At the same time, urban land issues are often not separable in principle or in practice from other urban development issues--particularly housing, transportation, and public finance. Policymakers and implementers are in many cases unprepared to deal with urban land problems independently of other concerns. For these reasons, it is difficult to specify in the abstract what a study of urban land should or should not cover.

Therefore, these guidelines are intended to provide a flexible, practical framework for rapid collection and analysis of data on major issues of interest to policymakers. The information contained here is meant to assist AID and its contractors in formulating terms of reference for and carrying out a wide variety of studies of urban land. These studies may be used to answer the following questions:

1. How is land in a city (or group of cities) allocated and developed for various uses, and by whom?

2. Are current needs for urban land being met, and are future needs likely to be met, in a city (or group of cities)?

3. Do all segments of the population have access to the urban land they require?

4. What can be done to improve the efficiency of urban land use and development?

5. What can be done to help disadvantaged groups (e.g. the poor) meet their needs for urban land?

6. What can be done to help realize other social goals related to urban land (e.g. preservation of agricultural land; environmental protection).

Investigations of urban land should complement an AID Mission's overall urban development program for the country. AID's land studies should provide recommendations on further research, policy reform, technical assistance, training, or new projects. These may spill over into related sectors, depending on the local situation.

The role of the private sector is an important, if not always explicit, theme in any urban land study. This is an extremely sensitive issue in many countries, and its sensitivity is founded in widely varying traditions. In some nations private ownership and control of land are very high on the list of social values. In other nations governmental involvement in land use and development is viewed as a necessity for achieving social objectives. In still other cases, neither private individuals nor the public sector may dominate; rather, religious or traditional forms of land tenure and transfer may be highly important. These differences must be recognized and dealt with. At the same time, however, there will be instances in which greater private sector participation could improve the efficiency and effectiveness of urban land development. Opportunities may exist to promote private sector activity through more flexible land development standards, to encourage private investment by revising land price and rent controls, or to increase the accessibility of individuals to legal tenure (which fosters housing improvement). Issues of this kind should be addressed where possible.

It is essential to assess the political sensitivity of the land issue before starting the work. Terms of reference for land studies should provide guidance, where appropriate, on potential political questions. For example, it may be important to know that certain institutions have a vested interest in the control or disposition of public lands; that key private individuals control large amounts of land; or that certain types of proposals would be politically unacceptable.

The remainder of this document is divided into the following sections:

Taken as a whole, the contents of Chapter III, Topics for Investigation, represent a huge potential agenda. Given that most land studies are likely to be limited in scope and closely focused, it must be emphasized that Chapter III is intended as a "menu", not a comprehensive outline.

CHAPTER II

SELECTED LAND POLICY ISSUES

It is assumed that the technical team assigned to an urban land study will be familiar with the issues in the literature on urban land in developing countries. A large number of useful papers and reports is available on this topic. Accordingly, no attempt is made here to review urban land policy issues generally. A list of references appears at the end of this document. The brief discussions below are intended to stimulate thinking in selected directions.

1. "Efficient" Urban Growth

More "efficient" urban land use is often taken to mean denser development. Advocates of densification usually point out that the lower the density of urban development, the higher the per capita cost of infrastructure. Densification is also prescribed for cities where urban encroachment on fringe agricultural land is viewed as a problem. A common piece of evidence cited for inefficient land use is "leap frog" development; that is, urban expansion which bypasses closer-in land and occurs further out, leaving vacant tracts around the city.

It is wrong to assume that higher density is automatically more efficient. The important question is: does the prevailing population density of a city represent a reasonable balance between, on one hand, the optimization of private demand for location and use of space and, on the other, the achievement of social goals related to land? To take the example of infrastructive costs, densification to reduce infrastructure costs is called for if it makes total shelter costs more affordable for certain income groups. Thus, higher densities applied to certain areas or projects can benefit the urban poor. However, middle- and upper-income groups may be able and willing to pay more for infrastructure in order to live on larger lots and in locations farther from the center of the city. This raises the issue of who pays for infrastructure. If infrastructure costs are recovered from users, the "optimum" settlement density is that which results from the aggregation of individual location and space usage decisions based on land, shelter, infrastructure, and transportation costs. However, if infrastructure costs are borne largely by the government, then public sector cost minimization may dictate densification of land use for all population groups.

A further complication arises over the effect of large-scale densification. If public policy succeeds in limiting significantly the peripheral growth of the city in favor of densification, this is equivalent to reducing the supply of new developable land. The result is that the price of land that can be developed (or redeveloped) will increase. Thus, large-scale restrictions on horizontal urban expansion may make shelter less affordable.

The conservation of fringe agricultural land also illustrates the balance between public goals and private preferences. A reasonable judgment on what public policies to pursue to conserve agricultural land depends on good information on the costs and benefits and on who pays and who gains. Do farmers have enough incentives to use the land productively for agriculture? What agricultural products are being raised, and for what markets? Are agricultural products from other areas available at comparable prices to replace those which may be sacrificed if the land is developed? What type of urban development is proposed or likely to occur on the land? Will preventing development on the land tend to drive up other land prices in the city?

Finally, the quest for efficient land development is hampered by the dynamic nature of cities. Their functions, social composition, and economic activities tend to change over time. A World Bank study notes:

> In a static sense, an efficient allocation of land is one where each parcel of land is assigned to its highest valued use, with value understood to include not only the private value in that use but also the social value of net external benefits or costs imposed by that use. In a dynamic sense, the objective is not only to encourage an efficient allocation of land at any one time, but also to encourage flexibility in the transition from one land use to another in response to changes in demand. **Because of the durability of most improvements built on land, there will often be conflicts between the desire for full utilization of land at any one time and the desire for flexibility in changing land use over time; some land will usually be kept temporarily vacant to preserve its availability for a planned future use.** This competition between current and future use can become especially severe when urban growth is rapid.1 [Emphasis added]

2. Land Price Escalation

"Excessive" land price increases are often cited as a major problem in LDC cities. The question of what is meant by "excessive" is too complex to treat here (the reader can consult several of the references on this). In terms of AID's interest in lower-income shelter, high land prices may be a problem if there is little or no land available in a city that is suitable for housing and priced low enough to make shelter affordable to the urban poor. Whether or not this is the case should be determined through a careful affordability analysis of lands in different parts of the city.

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[1]Donald C. Shoup, "Land Taxation and Government Participation in Urban Land Markets: Policy Alternatives in Developing Countries," in Urban Land Policy Issues and Opportunities, Volume II, World Bank Staff Working paper No. 283, May 1978. p.9.

Over the long run, land prices increase at roughly the same pace as prices generally, but often there are periods when land prices escalate well beyond the overall index. The reasons for this are complex and relate to macro-economic factors, regulatory structures, and socio-political conditions. Urban land prices can increase substantially:

- Due to high urban population growth;
- Due to rising real incomes;
- In fringe areas, because often the greatest price increases occur where agricultural land is converted to urban uses;
- During periods of low real interest rates, particularly when there is high inflation. Land prices increase because capital is shifted from other investments into land, increasing the demand;
- Because of shortages of serviced land, created by the inability of public institutions to keep up with the demand for infrastructure;
- Because of actions that change the investment risks of holding land, such as credit and taxation policies;2
- Where capital markets are poorly developed, and where land is the best collateral for participation in the limited pool of bank credit available;3 and
- As a result of semi-monopolistic local land ownership and "insider" privileges relating to the provision of services or land use controls.4

Any scheme to directly control land price increases or recover speculative profits is likely to be difficult for most LDC governments, particularly local ones, to enforce. Possible measures include:

1. Fixing prices or rates of increase;
2. Heavy taxation of capital gains on land transactions;
3. Imposing "penalty taxes" on vacant urban land;
4. Expropriation of vacant urban land that is not developed within a specified period; and
5. Recapture of "unearned" price increases through betterment taxes.

Indirect measures may in some cases be more effective than those just listed. For example, interest rates may be adjusted to prevent "excessive" investment

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[2]Harold Dunkerley, "Urban Land Policy Issues and Opportunities - An Overview," in Urban Land Policy Issues and Opportunities, Volume, I. World Bank Staff Working Paper No. 283, May 1983. p.5-63.

[3]Ibid.

[4]Ibid.

in land rather than in regular financial instruments. Also, vigorous and well-planned infrastructure development programs can alleviate "shortages" of serviced land.

3. **Land as Wealth for Lower-Income People**
Land is a form of wealth not only for the well-to-do, but, in many places, for lower-income people as well. In carrying out an urban land study, it is important to investigate the extent to which lower-income people use land as an economic good. A family may sell land and then reinvest the proceeds in income generating activities. It may use land as a form of savings hoping that greater returns may be received later when it is sold or rented. It may subdivide a portion of its holdings in hope of receiving income through its sale or rent. Restrictions which are frequently put on low-income shelter projects to prevent beneficiaries from selling their plots may thus actually act as a deterrent to the augmentation of their incomes. Studies of informal land systems outside of Cairo indicate that low-income families actively participate in land markets, acquiring land for future sale or for their own housing needs. They also frequently acquire more land than they require, in hopes of renting a portion to generate future income. This pattern of development has resulted in the construction of significant numbers of housing units and in large numbers of these dwellings being vacant.5 Similar activities have been observed in Nairobi and other parts of sub-Saharan Africa where it is quite common for low-income households to rent out portions of their plots or houses to others.

4. **Public Land Acquisition and Development**
The literature on urban land issues is replete with discussions of land acquisition and development by the public sector for purposes broader than the traditional infrastructure construction. The approaches cited include advance land acquisition for specific purposes, usually lower-income housing; land banking to control the future pattern of city development; and direct land development by public authorities through schemes such as land readjustment. These measures often are viewed as means for controlling land prices or pre-empting land price increases.

Large-scale land acquisition and development by the public sector has been tried in a number of cities, mainly in developed countries during the 1960s.6 There is little evidence on how successful these endeavors have been in

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[5]William A. Doebele, "Some Unexplained Aspects of Urban Land Markets: Proposals for Research." World Congress on Land Policy, edited by Matthew Cullen and Sharon Woolery, Lexington Books, 1982. Pp. 363-368.

[6]United Nations, Urban Land Policies and Land Use Control Measures, Volume VII, Global Review, New York, 1975; and United Nations, Land for Human Settlements - Some Legal and Economic Issues, New York. 1977.

achieving their goals, partly because many have been experimental. One of the more successful approaches seems to have been land readjustment as carried out in South Korea. In this system, government "assembles" individual tracts into a large development area, plans and services the area, and redistributes portions of the now higher-valued land to the original owners, keeping a piece for itself as compensation. The main advantages of land readjustment are that it requires no capital expenditures for land (only for services) and that it does not involve the government in long-term management or ownership of land.

Large-scale public land acquisition and development pose many serious problems, including:

- The need for a good urban development plan on which to base the land acquisition, banking, or development program;
- A general lack of institutional capacity in LDCs to plan and manage such programs; the problems include low technical capacity, lack of coordination among agencies, and the potential for corruption;
- Legal impediments to land acquisition by governmental bodies;
- The difficulty of making reliable forecasts of the market for land banked or developed by the public sector and of assuring the financial soundness of these types of programs; and
- Obtaining the capital needed for initial land purchases.

While the difficulty of these problems should not be underestimated, they can be overcome with great effort and the application of innovative ideas. The literature on urban land development contains numerous suggestions on how to tackle legal, institutional, and financial obstacles. In the area of finance, for example, public sector land development can be facilitated through:

- Land readjustment schemes in which government's financial burden is limited and its control short-term;
- Revolving funds which need only initial capitalization;
- Cross-subsidization to support low-cost shelter provision in large project
- Public-private joint ventures; and
- Public sector guarantees for long-term credit from private sources to lower-income people.

5. "After-the-Fact" Measures

Urban development practitioners will be aware that public interventions in the land market often take place after the fact. Public infrastructure provision, for example, almost always lags behind lower-income housing development and sometimes even behind middle- and upper-income residential or commercial development. Measures such as new zoning, land registration, master planning, and land taxation are often undertaken to ratify what has already happened without the city's control rather than to influence future development.

This will remain a reality in LDC cities until urban development institutions develop significantly greater authority, technical ability, and financial capacity. For the time being, therefore, public authorities will have limited capacity to influence future land use trends. Land policy and program recommendations should take this into account. For example, in cities where squatter settlements are absorbing large numbers of new residents, the best the authorities may be able to do in the short to medium run is advance site planning for squatter areas so that later infrastructure upgrading can occur efficiently. Similarly, municipal authorities should be encouraged to register land and regularize tenure in lower-income settlements even if they do not meet all development regulations.

If governmental authorities have limited ability to guide future urban development through positive measures like advance infrastructure provision, land use planning, taxation, or public land acquisition, are they at least able to enforce existing land use regulations in order to prevent undesired development? Unfortunately, it is a truism of LDC urban development that land use enforcement is generally lax. Construction occurs without permits; permits are granted where no development should occur; new nonconforming uses appear after zoning regulations are enacted; new buildings fail to conform to codes; new developments ignore environmental regulations on surface drainage, sewage, and garbage disposal; private and public land is invaded by squatters; property and land sales taxes are avoided. There is usually no shortage of urban land use regulations already on the books in LDCs, but factors including lack of education and training, lack of public awareness, low public sector salaries, and inadequate numbers of personnel conspire to limit enforcement. Land use policy analysts should give these problems high priority.

CHAPTER III

TOPICS FOR INVESTIGATION

This section presents a list of topics that could be included in urban land studies. Under each topic are suggested data requirements, questions or issues, and in some cases guidance on analysis or presentation. Again, this material is intended as a checklist, not as a comprehensive outline. Obviously each topic is not discrete; in fact it will be difficult to address most urban land issues without cross-referencing among a variety of the topics listed below. The technical team must use its judgment to select and prioritize issues from this list, which covers the following:

1.0 Urban Context: Profile of the City Being Studied

It is useful to set the stage for the urban land discussion by describing the city or cities under consideration. The city profile may cover the following:

1.1 Demographic Data

- 1.1.1 Population growth trends
- 1.1.2 Household size and composition trends
- 1.1.3 Gross city density trends

1.2 Employment and Income Data

- 1.2.1 Size of city labor force and distribution by sector (including "informal" workers)
- 1.2.2 Household income distribution
- 1.2.3 Number of establishments by size and sector of activity

NOTE: Data may be difficult to obtain; if so, consultants should not spend too much time on this topic.

1.3 Housing Data

- 1.3.1 Number of dwelling units by type (houses, apartments, slum houses, rooms, etc.)
- 1.3.2 Indices of overcrowding (persons per room, proportion of households having more than two persons per room)
- 1.3.3 Proportion of dwellings with access to urban services
  - Water supply
  - Sanitation
  - Electricity
  - Public transport

1.4 Transportation Data

- 1.4.1 Distribution of trips by purpose and mode
- 1.4.2 Distribution of work trip lengths (time or distance)
- 1.4.3 Automobile ownership

1.5 Topography

Summary of the main topographic characteristics of the city, especially those affecting land development (natural barriers, swampy areas, and steep slopes).

1.6 Geographically Disaggregated Data--Intra-city Distribution (by zone)

- 1.6.1 Population size and gross density
- 1.6.2 Median household income
- 1.6.3 Employment (by sector, if possible)
- 1.6.4 Number of dwelling units (by type, if possible)

1.6.5 Matrix of population in residence zone by employment zone[7]

NOTE: If citywide disaggregated data are not available, consultants should focus on high-priority districts if useful.

1.7 Geographic Growth Trends
- 1.7.1 Areas where residential expansion for upper and lower income households is currently occurring or likely to occur
- 1.7.2 Areas where industrial and commercial expansion are currently occurring or likely to occur

1.8 Institutional Structure
- 1.8.1 Description of institutions involved in urban development
- 1.8.2 Description of institutions involved in land planning, regulation, and development.

[7]This is useful if data are readily available. The matrix's column headings are zones of residence; the row headings are zones of employment; and each cell shows the number or proportion of people who reside and work in the corresponding zone(s). Plotted on a map, these data give a clear idea of commuting patterns.

2.0 Structure and Operation of the Land Market

It may be appropriate to present an overview of the city's land market. The idea here is to characterize the city's functional land use distribution, the amounts of land under different forms of ownership and control, and the proportion of land transactions carried out under various types of markets or transfer systems. This information will, among other things, show the extent to which a land market exists (and what submarkets it may consist of). This knowledge provides an essential framework for analyzing other topics.

The following data may be collected and discussed:

2.1 Current Distribution of Functional Land Uses in the City

Area devoted to:

- 2.1.1 Residential use
- 2.1.2 Industrial use
- 2.1.3 Commercial use
- 2.1.4 Governmental and institutional use
- 2.1.5 Circulation
- 2.1.6 Parks and other open space
- 2.1.7 Undeveloped urban land

NOTE: If possible, it is useful to present a map showing the geographic distribution of these areas in general terms. Obviously, these uses are sometimes finely mixed, but in many cities they tend to cluster in certain zones, and often extensive areas are largely homogenous.8

2.2 Ownership and Control of Land

Types and Areas of Land:

- 2.2.1 In private ownership
  - Conventional (freehold)
  - Illegal subdivisions
  - Squatting
  - Other local categories
- 2.2.2 In public ownership
  - Central government, by ministry
  - Parastatal
  - Local government
- 2.2.3 In "traditional" status (e.g. communal, religious, or charitable land)

8On the other hand, in some cities a large amount of low-income employment occurs in low-income residential areas. The issue of fostering or preserving this mix may be quite central to the land issue for the urban poor.

2.3 Types of Land Markets

Proportion and types of land transactions which are:

2.3.1 Formal registered commercial transactions

2.3.2 Informal or extra-legal commercial transactions

- Illegal sales of public lands
- Illegal subdivisions (lacking permits and not meeting legal standards)
- Informal land rental (owners renting portions of their plots)
- Unregistered sales or rentals of plots

3.0 Urban Land Values

In many countries the subject of urban land values is extremely important, particularly as a basis for analyzing the extent to which land is affordable: 1) to individual lower-income households for shelter; and 2) for large-scale acquisition by public agencies or private developers for lower-income shelter projects. Because good land value data are often hard to obtain, it is advisable to select districts or zones for which knowledge of land values is important.

In countries where urban land transactions are registered, a reasonable picture of land values for the "formal" market can be drawn based on data from public agencies and, in some cases, real estate companies.[9] Land values for areas of the city where land transactions are mainly extra-legal or unregistered will be more difficult to obtain. It is important to attempt to obtain prices for vacant land transactions, so that building values are not included in the data base.[10]

If sufficient data are available, the information on land values can be displayed by means of:

- **Land Value Maps**
  This map can show the geographical distribution of land values across the city. The urban area may be divided into an appropriate number of zones for which average land values are obtained. If possible, the zones should be drawn so as to allow depiction of land value gradients in several directions from the center of the city.

  NOTE: It is desirable for the zone system used here to correspond as closely as possible to that used for showing socio-economic data, in order to correlate land values with population density and income levels.

- **Land Value Trends Charts**
  Data on land values usually covers transactions occurring over a number of years. These historical data should be converted to constant prices using a suitable index and tabulated in such a way as to show the evolution of land values at various distances from the center of the city (see Table 1 and Figure 1 as examples). It is also important to identify, if possible, major "cycles" in land prices brought on by changes in overall economic and market conditions.

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[9] Independent verification is useful, as underreporting and undervaluation are frequent.

[10] Selective field sampling may be necessary if it is predetermined that this issue is of high priority. Local real estate brokers may be a useful source of information.

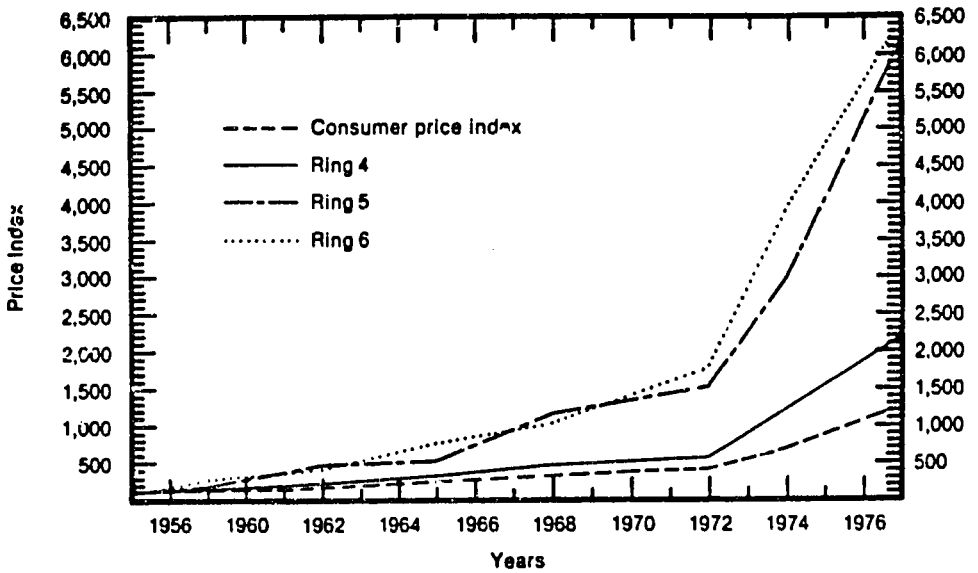
TABLE 1

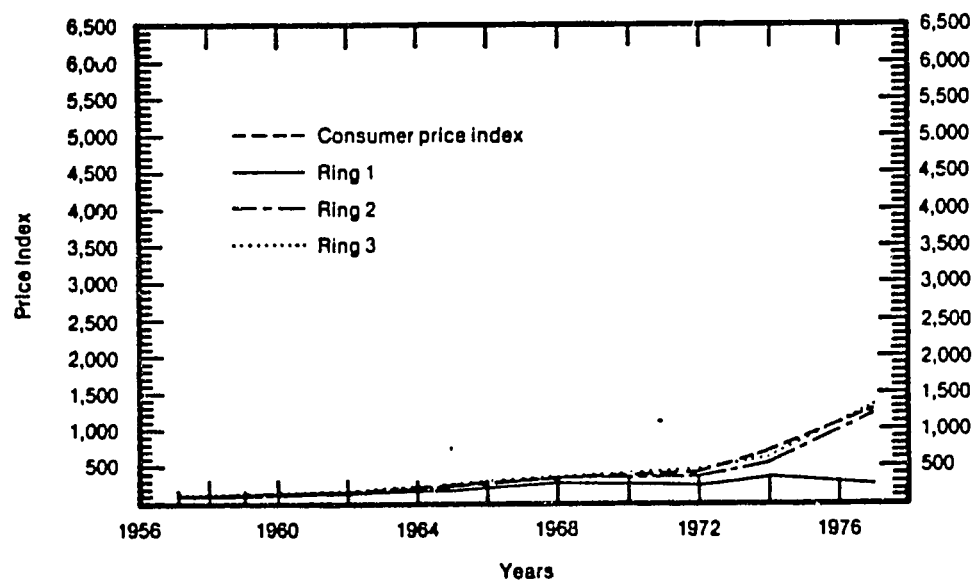
Evolution of Land Values by Rings, Bogotá and Cali, 1964-1978
(1978 Colombia pesos per square meter)

	Bogotá					Cali			
	Average Distance from CBD (km.)	*1963-1965*	*1972-1974*	*1975-1977*	*Growth Rate 1964-1978 (% per year)*	*Average Distance from CBD (km.)*	*1963*	*1974*	*1979*	*Growth Rate 1963-1979 (% per year)*
Ring 1	0	4,250	3,900	3,100	−2.3	0	5,900	4,600	6,400	0.6
Ring 2	2.2	1,850	1,660	1,550	−1.3	1.8	1,[illegible]00	1,100	2,400	5.6
Ring 3	3.8	1,350	1,350	1,320	−0.2	3.4	520	480	1,030	4.9
Ring 4	6.5	870	1,080	1,130	1.9	5.4	380	410	960	6.6
Ring 5	9.8	570	800	850	2.9	6.9	150	370	810	12.0
Ring 6	15.4	370	700	730	4.9					

Source: Rakesh Mohan and Rodrigo Villamizar, "The Evolution of Land Values in the Context of Rapid Urban Growth: A Case Study of Bogota and Cali, Colombia," in Matthew Cullen and Sharon Woolery, eds., World Congress on Land Policy 1980, Lexington Books, D.C. Health and Co., 1982, Pp.217-252.

FIGURE 1





Source: Rakesh Mohan and Rodrigo Villamizar, "The Evolution of Land Values in the Context of Rapid Urban Growth: A Case Study of Bogota and Cali, Colombia," in Matthew Cullen and Sharon Woolery, eds., World Congress on Land Policy 1980, Lexington Books, D.C. Health and Co., 1982, Pp.217-252.

The discussion of land values should include:

3.1 Factors Affecting the Distribution of Land Values

There should be a discussion of the factors that affect land values (divided into "residential" and "non-residential" uses) in different parts of the city. The ways in which areas are differentiated by the following should be covered:

3.1.1 Neighborhood quality: which areas are considered socially "desirable", which less so? This factor may involve various elements such as income levels, environmental amenities, crime rates, etc.

3.1.2 Topography

3.1.3 Availability of urban infrastructure and services

3.1.4 Accessibility: proximity to major roads and levels of public transit service

3.1.5 Ownership and legal status of parcels: the question here is, are there large tracts in the city whose owners are unlikely to sell or whose title is unclear?

3.1.6 Interest rates: if real rates of return in other financial markets are low, there tends to be more investment in land, driving prices up.

3.1.7 Technology/industrialization: some new technologies require more land-intensive plants, so that in certain cities industries have moved to the periphery where land is cheaper and more abundant. This may have altered the pattern of land values in certain areas.

3.1.8 Control of land prices by government: under what circumstances and by what mechanisms can governmental authorities control land prices?

3.2 Likely Future Land Value Trends

3.2.1 The historical land values should serve as a basis for some rough projections. It is suggested that values be projected only 5 to 10 years ahead, using simple assumptions about the extent of continuation of past trends. Two or three different sets of alternative projections may be presented.

3.2.2 Major Plans Likely to Affect Values: Planned projects that are affecting or likely to affect future land values in the city should be mentioned. These may include new roads or highways, government buildings or complexes, educational institutions or other large facilities, and major extensions of infrastructure networks. However, care should be taken to avoid "double-counting" with respect to 3.2.1. Most plans likely to be available to the research team will almost surely be known to the market and already be reflected in prices.

Potential Recommendations Involving Land Prices

- Changes in land price control regulations to promote more efficient land development
- Placing special taxes on undeveloped land to control speculation

4.0 Land Use Standards and Affordability

Land development standards have a direct effect on housing costs and affordability. It is important to examine not only formal standards in laws and regulations but also standards in common usage by lower-income urban dwellers.

4.1 Inventory of Official Land Use Standards Applicable to Lower-Income Shelter

Brief summaries should be prepared of the public laws and regulations governing residential land development for lower-income people. These should include:

- 4.1.1 Plot sizes and dimensions
- 4.1.2 Circulation space
- 4.1.3 Street widths
- 4.1.4 Open space requirements
- 4.1.5 Set-asides for public facilities
- 4.1.6 Densities (gross and net)
- 4.1.7 Floor area ratios
- 4.1.8 Limits on size of developable tracts
- 4.1.9 Site layout regulations

4.2 Standards Prevailing in Lower-Income Settlements

Lower-income residential areas often are not developed according to official standards. The land use standards that prevail in squatter settlements or illegal subdivisions often reflect local needs and preferences that should be taken into account in future planning. On the other hand, these "grass roots" standards may sometimes be inappropriate for efficient low-cost shelter development (e.g., excessively large plots, inefficient plot shapes, excessive street widths, etc.). Within the scope of an assessment, it is not possible to systematically survey a city's lower-income areas. The data for this subsection should be generally indicative and gleaned from for a few site visits and interviews.

4.3 Affordability Assessment

Using data collected for 4.1 and 4.2, plus supplementary data on land values from 3.1 and income distribution data from 1.2, a brief affordability assessment may be carried out using the PADCO/Bertaud Model. This exercise requires information on infrastructure standards and costs as well as housing construction costs and financing terms. The idea here is to examine the effect of prevailing land development standards on the affordability of typical low-cost shelter "solutions".

A sensitivity analysis can be performed which tests the effect of alternative plot sizes, circulation areas or street dimensions, densities, and other standards on the final price of one or two hypothetical shelter solutions that are representative of local types (e.g., sites and services or core house units that may have been offered by public agencies). The other characteristics of the shelter solutions

being analyzed--land price, infrastructure costs, unit construction cost, and financing terms--are held constant. The analysis may be built around a discussion of a table like Table 2.

Potential Recommendations Involving Standards

Adjusting land development standards to improve affordability to lower-income people

TABLE 2

LAND USE STANDARDS' EFFECTS ON SHELTER PRICE

Alternative Standards		PRICE OF SHELTER UNIT*		
		Total Price	Monthly Payment	Lowest Income Distribution Percentile to Which Affordable
Plot Size	A			
	B			
	C			
Circulation	A			
	B			
	C			
Density	A			
	B			
	C			
Other	A			
	B			
	C			

* Shelter unit used in this analysis has the following characteristics:

1. Infrastructure levels and total cost
2. Structure type, dimensions, and cost
3. Land price
4. Financing terms

5.0 Land Tenure Systems

The existing land tenure system may be a major restrictive force upon the development of land for efficient urban growth. The land tenure system is important in that security of title is the basis for both a housing finance system and a property taxation system. Furthermore, the tenure system may set restrictions upon the acquisition of land for public purposes. The amount of land set aside for charitable purposes (e.g. waqf in Islamic countries) or under tribal/communal ownership will restrict the uses to which the particular land can be put and whether or not such land can be transferred to private individuals. Finally, the existing percentage of freehold tenure or other long-term tenure of land in low-income areas is a good indicator of social participation by these groups and of the likely success of low-income shelter projects in the upgrading of housing stock.

5.1 Forms and Nature of Land Title

A description of the nature of legal title to land will identify a series of issues regarding the freedom of acquisition and transferability of urban land, as well as the type of title to land that may be granted to purchasers of sites and services plots and for other purposes. Data should be collected on the distribution of tenure types, as follows:

5.1.1 Percentage of ownership

- Freehold and lesser estates, such as the right of building, exploitation, and use
- Ownership of land separate from building
- Long-term leases of land, building, or both
- Ownership among different income groups

5.1.2 Percentage of registered titles (by area and type of title, if available)

5.1.3 Percentage of government-owned land

- Central government, by ministry
- Parastatal
- Local government

5.1.4 Percentage of land owned by charitable institutions (universities, religious institutions, etc.)

5.1.5 Percentage of customary land titles, tribal and communal ownership

5.1.6 Number of households renting units (by type of unit, if possible)

5.2 Security of Title

An analysis of this subject should provide answers to the following questions:

5.2.1 Are most titles to land registered, especially in low-income areas?

5.2.2 If title is not registered, or if squatting is prevalent, is there a doctrine of adverse possession, or similar theory, that makes such squatting relatively secure? Is most of the squatting on state-owned land, and is it more secure than squatting on privately-owned land? Are there generally-recognized "conventions" defining squatter security (e.g., construction of a roof or installation of the first public service)?

5.2.3 Are squatters' rights recognized with the payment of compensation for improvements that they have made if they are removed from the land?

5.2.4 Are legal land titles useful in obtaining credit for housing finance or other purposes?

5.3 Restrictions Upon Use of Land (see also Section 6.3)

It is also important to establish the extent to which the tenure system may restrict the use of land, through examination of these questions:

5.3.1 Is most land held in freehold tenure or for a lesser period than perpetuity?

5.3.2 If for a lesser period, are there restrictions upon the sale or transfer of land?

5.3.3 Is a large amount of land held in waqf (Islamic mortmain) or for charitable purposes? Can such land be used for private housing and similar purposes?

5.3.4 If there is a significant amount of tribal ownership or communal ownership, how may such land be transferred, if at all? Can an individual obtain legal title over such land?

5.4 Scale of Land Ownership/Absentee Ownership/Vacant Land

5.4.1 What is the distribution of land ownership in terms of small-holders vs. large-holders?

5.4.2 Is there legislation restricting absentee ownership or the amount of land that can be owned by one person or family? Are there provisions applied in practice?

5.4.3 Is there legislation requiring the productive use of land and the return of vacant land to the state? Is this provision applied? Is such land given to non-landholders?

5.5 Role of Public Ownership

5.5.1 In what areas is public land located? What are its present uses?

5.5.2 What are current restrictions upon the use of public land? What land rights can be given to individuals on public land? Can such public land be transferred? Under what conditions?

5.5.3 Under what circumstances and through what mechanisms may government purchase or take over private land?

5.5.4 Must government be compensated for increases in value resulting from public investments?

Potential Recommendations Involving Land Tenure

- Revising physical and legal criteria for granting tenure to make it easier for lower-income people to be eligible
- Establishing or improving land registration or cadastre programs
- Establishing tenure "regularization" programs for illegal settlements

6.0 Institutional Processes Affecting Land Transfer and Control

The institutional processes connected with the transfer and control of urban land may ease or impede the adequate provision of land and extension of ownership rights to low-income households. These important institutional processes are:

- enforcement of land use regulations;
- acquisition and expropriation of land for public purposes;
- land registration procedures;
- process of land sale or transfer;
- the mortgage finance process and security in land and housing;
- rent control and landlord-tenant rights;
- land reform, land banking, and land readjustment;
- planning law;
- zoning; and
- environmental protection

In all cases, the institutions involved should be identified and their performance briefly evaluated.

6.1 Enforcement of Land Use Regulations

There are two major aspects with regard to planning, subdivision, and building permits that should be examined.

6.1.1 Do land use regulations allow "regularization" of illegal settlements and upgrading of housing and surroundings in low-income areas to encourage dwellers (including squatters) to make improvements? What institutions are involved in regularization? Do these institutions actually cooperate with regularization efforts?

6.1.2 To what extent are land development laws--zoning, building codes, and subdivision regulations--actually enforced? Are building permits sought? Are violations penalized? Which institutions are involved, and how do their approaches to enforcement compare?

6.2 Acquisition and Expropriation of Land for Public Purposes

The ability of the government to acquire or expropriate land for public purposes can be critical to the provision of land for low-cost housing and other facilities in a timely manner and at a reasonable cost. It is important to examine not only what formal powers are available, but also how those powers are used in practice. The power of expropriation, for example, may be strong in law but so much in conflict with local mores that it is not used in practice. Critical questions to be examined are:

6.2.1 For what public purposes may land be acquired? Do they include sites and services and other uses where the benefit goes to private individuals? What about industrial projects?

6.2.2 Under what circumstances may land be expropriated? Who has the authority to expropriate land?

6.2.3 Do the land acquisition and expropriation powers reside with the level of government concerned with executing the project or with direct jurisdiction over the issue?

6.2.4 What is the procedure for taking land? How long does it take in practice? Is there an appeals process or other means of review to curtail abuses?

6.2.5 Is there a procedure for granting compensation to owners for land expropriated? How is the value of such compensation set? Is it present market value, expected development value, opportunity cost, or some other standard?

6.2.6 Is there adequate enforcement power for these expropriation decisions?

6.2.7 If there is no expropriation procedure or one that is not used in practice, what other procedures are used for land acquisition? How long do they take? How is compensation, if paid, set? What is the method of enforcement? Does it work?

6.2.8 Can the government compel the development of vacant land or charitable land for specific public purposes? (Where such powers are not available, or where the expropriation power does not extend to such situations, the options to provide urban land for public purposes may be severely limited.)

6.2.9 Can state-owned land be sold or leased to private entities? For what purposes? Do these purposes include low-income housing or industrial projects?

6.3 Land Registration Procedures (see also Section 5.3)

The adequacy of land registration and cadastre procedures is critical to establishing the security of title necessary for housing finance and property taxation systems. Land registration also provides the legal basis for ownership and thus and incentive to provide improvements to property. The critical points to be examined here are as follows:

6.3.1 What is the procedure for registration? Is it considered a normal procedure or not? What time is required?

6.3.2 What is the level of certainty of title under land registration? Is it absolute? What kind of evidence can undermine the title?

6.3.3 What is the cost of registration (formal and informal)?

6.3.4 Is there a cadastral survey underlying the system (i.e., were all land rights determined at some point since 1900)?

6.3.5 What is the quality of cadastral mapping? Is cadastral information publicly available?

6.3.6 Is land registered in low-income areas? If not, have squatters residing for a certain period of time been given legal title that is noted in land registration records?

6.4 Process of Land Sale or Transfer

It is also important to examine the ways in which the land market operates, the public or private nature of land sales, and legal restrictions upon the transfer of certain types of land. These factors affect the ability to guide development and to provide urban land for specific purposes. Important issues are:

6.4.1 What is the official procedure for validation of land sales (registration, stamp tax, signature of designated officials, etc.)?

6.4.2 Is this procedure followed in practice, especially in low-income areas? What is the practical effect of not following it? Does it lead to lack of legal title? What is the market for less than legal titles?

6.4.3 Do there exist communal or tribal rights which restrict land transfer? What is the effect of family joint ownership? Is there any process by what such land can be sold? Are the purposes limited for which such land can be sold?

6.4.4 Is there a right of preemption or first refusal by which the government, neighbors, or other members of the community have first right of purchase?

6.5 The Mortgage Finance System and Security in Land and Housing

The strength of the mortgage finance system is critical to the efficient use of urban land to provide housing and services for low-income groups. Security of title is a major prerequisite for the provision of such a housing finance system. These key questions must be considered:

6.5.1 Is there a present mortgage system or other means of providing loans with land and housing as security?

6.5.2 Are such loans short-term in nature (5 years or less) or longer in term? Is personal security always required?

6.5.3 What powers of enforcement does the lender have in law and practice?

6.6 Rent Control and Landlord-Tenant Rights

Rent control may have a strong effect upon the efficient use of urban land. Rent control often makes it impossible in practice to remove a tenant except under extreme conditions. Limits on rental income in some cases means buildings are not repaired but cannot be sold. Generally, rent control will make it difficult to redevelop the inner city areas and to develop a property tax system. It is important to examine whether rent control exists, to what areas rent control is limited, and the proportion of properties under rent control.

6.7 Land Reform, Land Banking and Land Readjustment

It may be important to note whether the government has used or is considering any innovative land development tools such as urban land reform (redistribution), land banking, or land readjustment. This subsection should briefly review the local experience with these tools, with emphasis on the degree to which they have functioned as planned.

6.8 Planning Law

Some nations or cities require the preparation of master or comprehensive plans for physical or economic development. Although these plans often are not implemented and lack legal force, it is important to take note of them:

6.8.1 Does a comprehensive planning law exist at the national and/or municipal level? Are there physical areas or types of development that are exempted from its control?

6.8.2 Are standards established that are flexible with regard to different types of regions and situations? Can exceptions be granted to these standards?

6.8.3 Is there effective compliance with the planning law? Is it tied to an adequate system of development controls setting priority areas for certain types of activity, especially use of arable land and designated industrial areas?

6.9 Zoning

If a zoning law exists, it should be described briefly. Are zoning regulations enforced? A zoning map and schedule should be included if available.

6.10 Environmental Protection and Land Use

It may be important to take note of land use laws or regulations that are designed to accomplish environmental protection goals. These may include:

- Land acquisition for preservation of open space or ecologically sensitive areas;

- Subdivision regulations that include provisions on erosion control, water pollution prevention, or other environmental issues;
- Zoning regulations limiting development on sensitive lands; and
- Special laws setting aside certain lands for their ecological or natural resource value.

Potential Recommendations Involving Land Transfer and Control

Channeling urban development into certain areas or in certain directions by:

- Establishing a realistic, flexible land use plan.
- Updating and streamlining land use control systems such as zoning regulations, subdivision regulations, and building permit procedures.
- Improving enforcement of land development controls.
- Channeling extensions of infrastructure in desired directions.
- Acquisition and servicing of land by the public sector (e.g. land readjustment) on a self-sustaining financial basis.
- Providing tax incentives for location in certain areas.

Controlling the density of future urban development (i.e., limiting "sprawl") by:

- Limiting new infrastructure extensions on peripheral land.
- Stricter enforcement of prohibitions on development in certain areas.
- Large-scale land preparation (site planning and servicing) for lower-income settlement (i.e. large-scale sites and services or at least preparation of land for squatters).

Encouraging "infill" development by:

- Expropriation of tracts for redevelopment by the public or private sector.

Protecting agricultural land by:

- Legally designating agricultural land to be protected and strict enforcement.

Preventing development on ecologically sensitive land

- Legally designating areas to be protected and strict enforcement.
- Diverting illegal settlements to other land through measures to increase land development for lower-income people.

Improving management of public land

- Inventorying public lands.
- Integrating public lands into overall land planning and policy framework.
- Establishing mechanisms to coordinate the land acquisition, holding, and disposal practices of public agencies.

- Land exchanges among public entities and between public and private owners.

Improving institutions involved in land planning and monitoring

- Technical assistance, training, and procedural/management reforms for institutions involved in planning, zoning, land registration, subdivisions, land taxation, and land management.
- Establishment of interagency coordination mechanisms.
- Creation of land development informations systems, including aerial photos, land registration data, etc.

7.0 Urban Land Taxation

Because land value is an important fraction of total national wealth in developing countries, land taxation policy may be one of the most effective means to implement general policies toward redistribution of income and wealth. Urban land taxation has been used to attempt to control land speculation. Taxation has also been an instrument for promoting efficient use of land and economic growth. In many countries there is room for raising urban land taxes and improving land tax collection without decreasing the incentives to allocate land efficiently. Urban land taxation issues which should be examined are:

7.1 Property Tax

The major tax upon urban land is the general property tax. There are a number of types of information that must be collected and considered in evaluating the effect of such a tax.

7.1.1 Tax Basis

Is the basis for the tax the current market values of land and buildings, site value of land, some estimate of rental value of buildings, or other such measures?

7.1.2 Assessment

Is there 100 percent assessment? How often is reassessment done? Is major emphasis in making assessments placed only upon commercial buildings or also upon high value residences? Is arable land or another category of use given special status with a low assessment?

7.1.3 Tax Rate

What is the effective tax rate? How does this differ for different areas and different categories of land and buildings (especially commercial vs. residential and high-income residental vs. low-income residential)?

7.1.4 Collection Rate

What is the collection rate in terms of both the percentage of assessed value and tax collection goal? How does this differ for low-income and high-income areas? What is the percentage of collection for commercial establishments and residences?

7.1.5 From Whom is the Tax Collected?

Is the property tax collected from owners, occupiers, or both? (A tax collected from both is easier to administer. A tax in which the owner has some specified liability has a stronger legal basis for collection.)

7.1.6 **Who Collects the Tax?**
What level of government is responsible for the collection of the property tax? Is this the same level of government that receives all or most of the revenue from the tax? (This is a major administrative problem if the two are not the same.)

7.1.7 **Proportion of Local Government Revenue**
What proportion of local government revenue comes from the general property tax (to be used for general purposes or for public services)?

7.2 **Betterment Tax**
Betterment taxes are levied on increases in land value resulting from specific public projects. The area of application of a betterment tax is determined separately for each project.

7.2.1 Does such a betterment tax exist in legislation? To what types of projects does it apply? Is it actually used in practice?

7.2.2 Does the tax recapture a sufficient proportion of the costs of the public service concerned? What is the mechanism for allocating betterment tax liability and collecting the tax?

7.2.3 Are there user charges for water of other services that take the place of a betterment tax and recapture value for the public?

7.3 **Vacant Land Tax**
This is a "penalty tax" on vacant urban land which could be developed. It is usually a certain percentage of land value (perhaps 2-5 percent).

7.3.1 Is there a vacant land tax? Is it effectively administered? How often are values changed? Is it a graduated tax?

7.3.2 What is the definition of vacant land for these purposes? (Such taxes are appealing in theory but hard to administer due to need for constant reevaluation of property and problems of definition of "vacant".)

7.4 **Capital Gains Tax Upon Sale of Property**
Such a tax is generally based upon either a certain percentage of the sales price or a percentage of the increase in value over the period since purchase. If based upon the sales price, it requires little or no assessment and thus not a large amount of administrative capability. The tax's application in practice should be examined.

7.5 **Low Rates of Taxation for Land Used for Specific Purposes**
Special low tax rates may be applied to land as an incentive to preserve or foster certain uses, such as agriculture.

7.5.1 What is the differential between the tax rates on desired use(s) and "regular" uses? Is that rate differential or enforcement effective enough to achieve the required effect?

7.5.2 What are the specific restrictions that are administered?

7.6 Effec eness of the General Land Tax System

7.6.1 Is the tax base clearly defined and property accurately assessed by competent and impartial officials?

7.6.2 Is the tax system fair with regard to low-income persons?

7.6.3 Are there distorting factors, such as rent control, which make the assessment and collection process much more difficult?

Potential Recommendations Involving Land Taxation

- Providing tax incentives to channel development in certain directions.
- Providing tax incentives for higher-density redevelopment of built-up land.
- Placing special taxes on vacant land to encourage infill development and discourage speculation.
- Giving tax breaks for agricultural uses to preserve land from development.
- Recovering windfall land value increases due to public projects through imposition of betterment levies.

8.0 Availability of Urban Land

Land for urban development is available in practically every city. Why then is a lack of urban land frequently identified as a constraint on urban development? The answers include:

- The land is available, but is consists of diverse sites spread throughout the urban fabric. The lack of large sites makes it appear scarce.

- Records about urban land holdings have not been kept up-to-date, so that the actual status of land is unknown. This is frequently the case with public land inventories.

- The land is being held off the market by owners in hope of greater financial gain. Higher prices in themselves do not limit the availability of land, they only make urban land more difficult to develop without subsidy.

- Land is being used for other purposes (such as agriculture or military use) and is by law or choice unavailable for urban development.

- The land may be physically unsuitable for development (it may be swampy, arid, or very steep) and require large investments to make development possible.

- Land is available, but it is not serviced with water, electricity, streets, or other needed infrastructure.

In addition, if one is concerned specifically with lower-income shelter, two factors limit the availability of land for this purpose:

- **Price** - Land in certain areas is too expensive to be affordable to lower-income households. For this reason, illegal subdivisions and legal sites and services projects tend to be located near the city periphery, where land is less costly.

- **Location/Access** - Residential land must be located close enough to employment areas and markets, or be sufficiently served by public transport, to make travel to work and shopping affordable and relatively convenient. Numerous lower-income shelter projects have failed because they have been located on remote sites.

Clearly, urban land "availability" is a much more complicated issue than simply the existence of vacant land in or near a city. To answer the question of how much land is available for urban development, one must inquire:

- For what purpose and for whom is the land supposed to be available?
- At what price must it be available?
- Where should the land be?

- What physical characteristics must the land have?
- What tenure status should the land have?
- Is the land capable of being serviced with adequate infrastructure?

The main purpose of estimating the amount of land available for urban development is to determine whether this land can accommodate projected growth in the city's population given current policies and development patterns. If available land is insufficient, then policy changes are needed.

An investigation of urban land availability should contain the components listed below. Methodologically, this analysis relies on aerial photo analysis (see Chapter IV). It is assumed that relatively recent aerial photos of the city will be available; if not, more time and expense will be required.

8.1 Undeveloped Land Available for Urban Uses

A rough estimate should be presented of the total amount of undeveloped land in ("infill land") and around ("peripheral land") the city which may be available for horizontal urban expansion. This figure can be estimated using simple techniques (see Chapter IV); it should be regarded as an order of magnitude estimate. For cities with abundant peripheral land, some reasonable boundary (e.g. a certain distance) must be chosen for this calculation. A map showing the principal undeveloped tracts may be prepared.

8.2 Availability of Undeveloped Land According to Key Criteria

It is also important to present rough, order-of-magnitude estimates of the amounts of undeveloped land which may be considered "available" according to certain criteria:

8.2.1 Price - An estimate of the amount of land available whose price is affordable for lower-income shelter development. This may be calculated using the disaggregated land values from 3.0 and a price criterion from the Bertaud Model exercise in 4.0.

8.2.2 Accessibility - An estimate of the amount of undeveloped land located within a reasonable travel time of major employment centers (which may be identified from data in 1.0).

8.2.3 Physical Suitability - An estimate of the amount of undeveloped land physically suited for urban use according to generally accepted engineering and environmental standards.

8.2.4 Infrastructure - An estimate of the amount of undeveloped land with easy access to existing or planned roads and water lines.

8.2.5 **Ownership** - An estimate of the amount of undeveloped land excluding tracts whose owners clearly are not likely to sell, lease, or make the land available for other uses in the foreseeable future. It is recognized that this estimate is especially difficult to make under any circumstances, let alone within the time limits available for data collection, and that the figures may be incomplete.

8.2.6 **Zoning or Other Use Restrictions** - An estimate of the amount of undeveloped land on which lower-income residential development is not prohibited by zoning or other land use control regulations.

For each of the above estimates, it is desirable, if time permits, to prepare a map showing the major available areas.

8.3 **Land Available Through Densification**

To complete the estimation of land available for urban development, it is necessary to include already urbanized land which may be developed at a higher density than its current use. This is important for land policy formulation because it identifies the extent to which future urban growth can be accommodated more or less within the existing urban boundary rather than through greater peripheral expansion. In some cities it may be efficient to limit the amount of lower-density horizontal expansion and opt instead for densification in order to economize on new infrastructure networks and save agricultural land. However, one should be careful in prescribing this approach everywhere. Preventing or limiting new peripheral development may raise overall land prices to the point that affordability for lower-income people is compromised.

This analysis should first present an estimate of the current gross density of the total urbanized area of the city, based on population data from 1.0 and area data from 8.1. This figure should then be compared with other higher urban density standards in the same country or elsewhere. Finally, a range of alternative estimates of the numbers of people that could be accommodated at the higher standard should be presented.

9.0 Urban Land Needs

The estimation of future urban land needs is essentially concerned with determining whether available land can accommodate future population growth. The point of this exercise is to find out whether significant changes may be needed in land policy, planning, or development control in order to make certain types of land more available or to alter urban growth patterns to use already available land more efficiently.

It is suggested that the projection period be no longer than 10 to 15 years ahead. In some cases, it may be useful to distinguish between short-run needs (say up to five years ahead) and longer-run needs (five to fifteen years ahead). The methodology for making these estimates is discussed in Chapter IV of this paper. The urban land needs projections, along with the data used to make them, may be presented in the format of Table 3. Projections should be made of two categories of urban land needs:

9.1 Land Needed to Accommodate Total Population Growth

9.2. Land Needed to Provide Shelter for Growth of the Lower-Income Population

Figures should be accompanied by a text briefly discussing the assumptions behind the calculations, the methodology, the results, and the limitations of the analysis.

Potential Recommendations Involving Land Needs

Increasing the availability of land for lower-income shelter by:

- Adjusting land development standards to improve affordability.
- Reforming development regulations and permit-granting procedures to encourage the private sector to develop sites and services projects on a large scale.
- Land acquisition and development by the public sector (on a financially self-sustaining basis) on a large scale.
- Measures to increase the availability of legal land tenure for lower-income people (see 6.0).

Using already available land more efficiently by:

- Placing special taxes on vacant land to encourage development.
- Expropriation of tracts for redevelopment by the public or private sector.

Improving the public sector's ability to acquire and develop land by:

- Broadening or streamlining eminent domain powers.
- Improving land registration and cadastre.
- Institutional improvements in land development and management agencies.
- Instituting programs for releasing selected public tracts for development, possibly by private entities.

TABLE 3

ESTIMATION OF FUTURE URBAN LAND NEEDS

Total Population Growth To Be Accommodated (Time Period) A	Population Capable of Being Accommodated by Densification[1] B	Population To Be Accommodated on Undeveloped Land C = A minus B	Density Standard[2] D	Land Needed E = C/D	Land Available[1] F	Surplus/ Deficit G
1. Land Needed for Total Population Growth						
2. Land Needed for Shelter for Lower-Income Population						

1 Obtain from Section 9.0 of assessment.

2 For total urban land, this should be a metropolitan gross density; for low-income residential land, this should be gross residential density.

10.0 Summary of Options for Governmental Response

The urban land study may conclude with a summary of recommendations on governmental actions that should be considered. The following is a checklist of objectives related to urban land and possible governmental responses.

10.1 Increasing the availability of land for lower-income shelter

- Adjusting land development standards to improve affordability.
- Reforming development regulations and permit-granting procedures to encourage the private sector to develop sites and services projects on a large scale.
- Land acquisition and development by the public sector (on a financially self-sustaining basis) on a large scale.

10.2 Providing legal tenure to lower-income urban dwellers

- Revising physical and legal criteria for granting tenure to make it easier for lower-income people to be eligible.
- Establishment or improvement of land registration and cadastre programs.
- Establishment of tenure "regularization" programs for illegal settlements.

10.3 Channeling urban development into certain areas or in certain directions

- Establishing a realistic, flexible land use plan.
- Updating and streamlining land use control systems such as zoning regulations, subdivision regulations, and building permit procedures.
- Improving enforcement of land development controls.
- Channeling extensions of infrastructure in desired directions.
- Acquisition and servicing of land by the public sector (e.g. land readjustment) on a self-sustaining financial basis.
- Providing tax incentives for location in certain areas.

10.4 Controlling the density of future urban development (i.e. limiting "sprawl")

- Limiting new infrastructure extensions on peripheral land.
- Stricter enforcement of prohibitions on development in certain areas.
- Large-scale land preparation (site planning and servicing) for lower-income settlement (i.e. large-scale sites and services or at least preparation of land for squatters).
- Providing tax incentives for higher-density redevelopment of built-up land.

10.5 Encouraging infill development or discouraging the holding of vacant urban land

- Placing special taxes on undeveloped land.
- Expropriation of tracts for redevelopment by the public or private sector.

10.6 Preventing urbanization of agricultural land

- Legally designating agricultural land to be protected and strict enforcement.
- Giving tax breaks for agricultural uses.

10.7 Preventing development on ecologically sensitive land

- Legally designating areas to be protected and strict enforcement.
- Diverting illegal settlements to other land through measures in 11.1.

10.8 Controlling or encouraging the location of specific uses within the city

- Providing tax incentives for location decisions by private entities.
- Strict enforcement of zoning.

10.9 Improving the public sector's ability to acquire land

- Improving land registration and cadastre.
- Enacting new laws broadening or streamlining eminent domain powers.

10.10 Improving management of public land

- Inventorying public lands.
- Integrating public lands into overall land planning and policy framework.
- Releasing selected tracts for development to promote efficient urban growth.
- Establishing mechanisms to coordinate the land acquisition, holding, and disposal practices of public agencies.
- Land exchanges among public entities and between public and private owners.

10.11 Recovering windfall land value increases due to public projects

- Imposition of betterment levies.

10.12 Improving land use planning and monitoring

- Institutional development of agencies responsible for planning, zoning, land registration, subdivisions, land taxation, and land management through technical assistance, training, and procedural/management reforms.
- Establishment of interagency coordination mechanisms.
- Creation of land development information systems, including aerial photos, land registration data, etc.

CHAPTER IV

SELECTED ANALYSIS METHODS

Guidelines such as these cannot, obviously, prescribe analytical methods to be used by technical staff. In the first place, analytical approaches must be tailored to the local situation, data availability, and the level of effort. Second, it would be impractical to compile a "manual" of urban land analysis techniques; such a compendium would necessarily be very long and unwieldy.

Nevertheless, it was felt that some methodological guidance would be useful on three of the topics described in Chapter III: land use standards and affordability, land availability, and land needs. Each of these topics requires at least a modicum of quantitative analysis. The discussions below are meant to provide AID staff and others with a notion of the technical work involved in coming to grips with these issues. Of course, techniques other than those suggested below may be applied in practice.

1. **Land Use Standards and Affordability of Low-Cost Shelter**
   The PADCO/Bertaud Model may be used to examine how different land development standards--plot size, circulation areas (or street dimensions), densities, and others--affect the total price of low-cost shelter. The PADCO/Bertaud Model has been used in many countries by a variety of international and local agencies to rapidly examine the trade-offs between physical parameters and costs of shelter projects.11 A simple exercise using the model's Affordability Module is suggested. This Module is designed to analyze the physical standards versus cost trade-offs for one particular type of unit at a time. The steps to be followed are:

   1.1 Choose one or two "typical" low-cost shelter solutions whose costs are to be analyzed. These may include a sites and services plot, a plot with core unit, or a plot with a basic dwelling structure.

   1.2 For each solution, obtain basic data which are needed as inputs for the model:
   - Areas of plot and dwelling unit;
   - Land price;
   - Costs of infrastructure and unit construction (per M2);
   - Site preparation and other costs (per M2); and
   - Financing terms.

11For a complete description of the workings of the model, see: World Bank, The Bertaud Model: A Model for the Analysis of Alternatives for Low-Income Shelter in the Developing World, Urban Development Department, Technical Paper No. 2, Washington, DC. 1981.

1.3 Select alternative values for the land use standards whose affordability impact are to be tested. For example, a range of plot sizes, densities, and open space allowances may be considered. The values chosen should be based on actual regulations, previous projects, or common usage locally.

1.4 Perform the sensitivity analysis calculations using the PADCO/Bertaud Model. The Model can be used with a portable micro-computer or a small handheld programmable calculator.12 The resulting prices should be tabulated as shown in Table 2.

1.5 Based on information available from local housing specialists, make a reasonable assumption about the percentage of monthly income lower-income households may be expected to devote to housing (generally 20-30 percent). Using this percentage, calculate average monthly housing payments for each percentile grouping of the urban income distribution. Then compare these "ability to pay" figures with the shelter solution prices calculated in 1.4 above to determine the target population to which each solution is affordable.

1.6 Prepare a summary of the results, focusing on the following questions:

- Do variations in land use standards have significant effects on the total prices of the shelter solutions? Which standards seem to have the most impact?
- How affordable to lower-income households are the various solutions?
- Does lowering any of the land use standards seem to significantly improve affordability?

2. Availability of Urban Land

The most effective way of quickly estimating the amount of land available for urban development in a city is through examination of aerial photographs. The work program outlined here assumes that recent aerial photos of the city are readily available. If not, there are two options: 1) provide additional funds and extend the time for the study to enable new aerial photos to be taken;13 or 2) set aside the estimation of urban land availability and concentrate the Assessment on other issues (it may still be possible to make a rough estimate of urban land availability using population data, maps, rapid field visits, and old aerial photos (if available).

12The PADCO/Bertaud model operates on IBM, Apple, or HP 85/86/87 micro-computers; the SHARP PC 1250A Pocket Computer; and TI 59 or HP41CV programmable calculators.

13Financial requirements for new photos range from about $20,000 to $100,000 depending on the size of the city and local circumstances; time requirements are around two to six months depending on local capabilities and time need to obtain permission to take photos.

The first step of the analysis is to prepare an estimate of the amount of undeveloped land in and around the city which may be available for horizontal urban expansion. The work will require aerial photos of the city at 1:10,000 or 1:20,000 scale and maps showing the street system and the official city boundary (if one exists). The procedure consists of identifying the undeveloped land within the built-up area of the city (infill land) and on the outskirts (peripheral land) and, using a planimeter, determining the total undeveloped area. Parks and playgrounds should not be counted as available land. Where an official city boundary exists, vacant land beyond it should be tabulated, since urban boundaries usually expand. However, a reasonable limit on the area to be tabulated must be established. A certain radius from the city's center reflecting maximum "reasonable" travel time is recommended. The analyst should exercise judgment in determining what areas may be considered "developed" or "undeveloped". It is not necessary to spend a lot of time accounting for and measuring every vacant parcel. The idea here is to make an order-of-magnitude estimate.

The second part of the analysis breaks down the global estimate of available land into several subcategories. The purpose of this exercise is to answer the question, "What kind of land is available, especially for low-income shelter development?" Available land meeting (or not meeting) each of the criteria may be mapped on a clear overlay and its area calculated with a planimeter.

Price - Using disaggregated land values from Part 3.0, Chapter III, prices should be assigned to the undeveloped lands. Additional consultations with local officials and real estate agents may be necessary. Next, a maximum land price for lower-income shelter development, which can be obtained from an affordability analysis such as that suggested in Part 4.0, Chapter III, should be established. Finally, the area of available land within the affordable price range should be calculated.

Accessibility - Data from transportation studies may be used to determine approximate travel times from major employment centers to various parts of the city. A rough estimate should be made of the proportion of all available land that lies within a "reasonable" travel time (based on access to major roads and availability of public transit routes) of employment centers.

Physical Suitability - Data on city topography plus general information on soils and flooding should be used to estimate the amount of available land that may be too steep, too unstable, or too low-lying for urban uses.

Infrastructure - An overlay may be prepared showing the existing and planned water supply system. Water supply can be used as the key indicator for infrastructure availability. Undeveloped land may be considered "accessible" to water supply if it is located adjacent to or within one kilometer of an area

already served or which will be served. Data on water line capacity should be used to supplement these criteria. The undeveloped lands that are or will be accessible to water supply may be mapped and their areas calculated.

Ownership - The team should attempt to identify the tracts of undeveloped land whose owners are clearly not likely to sell, lease, or make the land available for other uses in the foreseeable future. This should be done through consultations with knowledgeable agencies and individuals. Categories of land that may be included here include military areas and church properties.

Legal Restrictions - An overlay may be prepared showing zoning and other legal land use designations which prohibit certain types of development. This should be used to estimate the area of undeveloped land on which lower-income residential development is not prohibited by law (recognizing that these restrictions apply in the short to medium run but are subject to change).

After all these sub-estimates have been made, a summary of their combined effect should be prepared. Ideally, this can be done by synthesizing all the overlays. This will produce an overall picture of land availability across the city and identify key bottlenecks in land supply.

The third and final major part of the land availability analysis is to estimate the additional "absorption capacity" of the city's already developed land. The first step is to calculate the gross density of the developed area of the city (total area within the city boundary minus undeveloped land within the city boundary divided by total city population). Next, this actual gross density should be compared with other urban density standards in the same country or elsewhere to determine the scope for possible densification. Table 4 gives some examples of urban density standards for Egypt. Finally, a table should be prepared giving a range of alternative estimates of the numbers of people that could be accommodated in the city at the higher density standards.

TABLE 4

DENSITY STANDARDS FOR EGYPTIAN URBAN AREAS
(Gross persons/hectare)

High	400
Medium/high	280
National average	140
Medium/low	92
Low	34

Source: PADCO, Egypt National Urban Policy Study

3. Urban Land Needs

The procedure for estimating urban land needs is mainly self-explanatory from the description in Chapter III, Part 9.0 of this document. Two aspects are worthy of brief elaboration. First, the city population projections on which the land needs estimates are based should be taken from already available sources, if possible. Often such projections are made by the national census bureau or international agencies (especially the United Nations). The projection period should not exceed 10 to 15 years. If the projections are of the number of households, care should be taken that the correct assumptions are made regarding future average household size (average household size is declining in some cities). A short projection period simplifies forecasting of the size of the lower-income population of the city because in the short run it is safe to assume no change in the income distribution. To project the number of lower-income people over a short period, one may simply take the number of people or households currently below a certain income level (e.g. the World Bank's urban poverty criterion or, alternatively, the population below the median income or below the maximum eligibility income for sites and services projects) and project this group's growth using assumptions based on past population trends.

The second methodological point concerns density standards. Table 3 calls for two land needs estimates, one for the city's total population and another for shelter for the lower-income population. These are two fundamentally different concepts which require different notions of urban density. The first case is concerned with land needed for the entire spectrum of city activities: residence, industry, commerce, circulation, parks and recreation, public facilities, etc. The gross metropolitan density encompasses all these uses. The figures in Table 4 are of this type. The second case deals with land needed specifically for lower-income shelter, and the focus is at the community, neighborhood, or project level. Here one must apply the concept of gross residential density, which comprises usable land (lots), circulation space (streets and footpaths), commercial areas (markets and shops), public facilities, (schools, clinics, etc.), and open space (recreation areas, playgrounds, plazas). In lower-income areas of LDC cities, buildable land (lots) typically makes up from 50 to 70 percent of the gross residential area. Gross residential density standards for lower-income areas may be obtained in several ways. One is to identify relatively homogenous residential areas on aerial photos, count the number of dwellings in a typical hectare, and multiply this by known occupancy rates from census information or household surveys. Another method is to use densities for known zones of the city, such as census tracts, whose populations and areas are obtainable from published sources. A third source of lower-income residential density standards is previous shelter projects developed in the city by AID or the World Bank.

CHAPTER V

SUGGESTIONS FOR PLANNING AND CONDUCTING URBAN LAND STUDIES

AID should prepare specific terms of reference in consultation with host country officials. Specific issues of concern selected from the full agenda presented in Chapter III should be clearly identified as the priorities for the consultants' work. If it is known in advance that significant data gaps are likely to be encountered, the terms of reference should recognize this. AID staff should identify the politically sensitive aspects of the issues to be investigated.

An urban land analysis will usually be performed for one or two cities only, since individual cities present unique land development issues. However, occasionally it may be appropriate to cover several cities if they are geographically close or have common characterictics.

A typical urban land study or technical assistance team may include:

- An urban planner with knowledge of physical planning and development;
- A planner or urban economist familiar with land and housing markets; and possibly
- A specialist in legal and institutional issues related to urban land.

It is recommended that urban land studies be carried out in four phases:

1. **Review of Reports and Data in the U.S.**
   The first step is to collect country and city-specific information available in the U.S. from AID, the World Bank, the United Nations, and others. The team should review the country's current AID program and projects and familiarize itself with present and past urban projects carried out there. The team should also review the World Bank's urban development programming in the country (if any). If possible, team members should meet with AID central and regional bureau staff as well as World Bank urban staff to discuss the local urban situation and obtain names of agencies and individuals to be contacted in the field.

2. **Field Visit**
   The principal task in the field is to collect data and background information. Team members should begin by interviewing appropriate AID Mission staff and preparing a program of visits to agencies and individuals involved in urban land issues. Table 5 presents likely sources of data needed. Data collection should be from existing sources. No primary data collection (i.e. formal surveys), except possibly aerial photography, should be undertaken. Time should be allowed at the end of field visit for discussions with AID staff to review the material collected and the principal urban land policy findings that have emerged.

TABLE 5

DATA SOURCES FOR URBAN LAND STUDIES

Data Requirements

Sources	Demographic data	Employment and income data	Housing/infrastructure data	Transportation data	Topography/aerial photos	City growth trends	City land use distribution	Ownership and control of land	Types of land markets	Urban land values	Land use standards	Land tenure	Land transfer and control	Land taxation
Census	●	●	●											
Household Surveys	●	●	●	●										
City Planning Department	●		●		●	●	●		●		●	●	●	
City Engineering Department			●	●	●						●			
City Public Works Department			●	●	●									
Building Permit Office			●			●	●						●	
City Economic Development Department		●				●								
Local Land Registration Office							●	●	●	●	●	●	●	
Municipal Finance Department														●
Local Assessment Office										●				●
Local Transportation Agency				●										
Public Utilities			●		●	●	●							
Subdivision Regulation Agency						●					●		●	
Ministry of Planning or Development	●	●	●		●									
Housing Ministry or Development Agency	●		●			●					●			
Ministry of Transportation				●										
Ministry of Public Works			●	●	●									
Ministry of Justice or Home Affairs												●	●	
Ministry of Finance														●
Real Estate Agents								●	●	●		●	●	●
Attorneys								●	●			●	●	●
Developers								●	●	●			●	●
Residents of Low-Income/Squatter Areas										●	●			
Universities and Research Centers	●	●	●				●		●					
Social/Community Workers	●	●						●	●	●		●	●	

Early during the field work the consultants should review with AID and host country officials the emerging results, data gaps, and newly-uncovered issues. If necessary, changes should be made in the focus of the study--and possibly in the scope of work--in response to these findings.

3. **Analysis and Report Preparation**
This phase of work is to be performed in the U.S. Suggested analysis methods appear in Chapter IV.

4. **Presentations to AID and Country Officials**
The team should submit a draft final report to AID for review. After the report has been cleared internally by AID, it will be submitted to the relevant host country agencies. If possible, the team leader will return to the field to make formal presentations and discuss the report's recommendations with country officials.

REFERENCES

ANGEL, Shlomo, Land for Housing the Poor: Recommendations for National and International Action, Paper prepared for the United Nations Center for Human Settlements, Nairobi, Kenya, November 1982.

CULLEN, Matthew and Sharon Woolery, editors, World Congress on Land Policy 1980 - Proceedings, Lincoln Institute of Land Policy, Lexington Books, DC, Heath and Company, 1982.

DUNKERLEY, Harold B., et.al., Urban Land Policy Issues and Opportunities. Volumes I and II, World Bank Staff Working Paper No. 283, May 1978; also published as Harold B. Dunkerley, Coordinating Editor, Urban Land Policy Issues and Opportunities, Oxford University Press, 1983.

KITAY, Michael G., Land Acquisition in Developing Countries: Public Sector Policies and Procedures, Lincoln Institute for Land Policy (scheduled for publication in the fall 1984).

RIVKIN/CARSON, Inc., Land Use Programming and the Intermediate-Sized City, Agency for International Development. Office of Urban Development, Washington, DC, October 1974.

UNITED NATIONS, Land for Human Settlements, U.N. Department of Economic and Social Affairs, New York, 1977.

UNITED NATIONS, Urban Land Policies and Land Use Control Measures, U.N. Department of Economic and Social Affairs, New York, 1973.

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