Delhi Case Study: Formal Serviced Land Development

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DELHI CASE STUDY

FORMAL SERVICED LAND DEVELOPMENT

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Preface

The purpose of this case study is to increase AID's understanding of role of the principal institutional actors involved in the delivery of formal serviced land in and around Delhi. This study forms one part of the background research required to develop a program to support the development of serviced land for shelter. The shortage of serviced land was identified in AID's *Urban Strategy for India* as one of the main constraints on the improvement of the country's urban economy and environment. The objective of the program will be to mitigate the regulatory, financial, and institutional constraints against a more efficient supply of serviced land.

Measure and currency equivalents used in this report are as follows:

1 US$	=	17 Rupees (Rs.)
1 Rs.	=	.06 US$
mtr.	=	meter (39.37 inches or 3.28 feet)
sq. mtr.	=	square meter (10.76 square feet or 1.195 square yards)
hectare	=	hectare (10,000 square meters or 2.47 acres)
acre	=	acre (.4048 hectares)

Abbreviations and acronyms used in this study are as follows:

DDA:	Delhi Development Authority
DMC:	Delhi Municipal Corporation
HUDA:	Haryana Urban Development Authority
AIHDA:	All India Housing Development Association
DIT:	Delhi Investment Trust
CHBS:	Cooperative Housing Building Societies
CGHS:	Cooperative Group Housing Societies
HUDCO:	Housing and Urban Development Corporation Limited

This study is based on the findings of a mission which visited Delhi during March and April of 1990. The mission was carried out by Charles J. Billand under a contract with PADCO of Washington D.C.. Technical direction and support were provided by USAID/India Office of Technology, Development & Enterprise, and USAID RHUDO/Asia. The cover pictures from left to right are: a DDA subdivision of 25 sq. mtr. plots marked and ready for allocation to lower income groups; a DDA subdivision of 25 sq. mtr. plots undergoing incremental expansion.

Executive Summary

1.1 Residential land in and around Delhi has gone through four phases of development. Prior to Independence in 1947, both the private and public sectors were active in residential land delivery. The public sector owned and controlled the British colonial capital of New Delhi. The private formal sector was active in the *old city* of Shahjahanabad to the north, while the informal sector was developing *unauthorized colonies* on the east bank of the River Yamuna. The Delhi Investment Trust (DIT), formed in 1937, was given power to acquire land around New Delhi for development and resale to control unregulated growth—but resale prices were beyond the means of the lower-income. They were priced out of the land ownership market and depended on private rental or government public housing. Labor camps disbursed on small left-over but centrally located government land provided housing for construction workers—but more importantly formed the *informal settlement* development pattern that has continued into today.

The walkway through this INFORMAL SETTLEMENT provides pedestrian access, storm water & sanitary sewerage networks, and outdoor living space to its residents. One of the largest 'Jhuggi' settlements in Delhi, it was cleared and its residents resettled some 14 years ago by DDA. Because the land was not quickly redeveloped, it was reoccupied by a new generation of squatter families.

1.2 The post-independent period of 1947 to 1957 saw Delhi's population grow to almost 1.5 million people. The demand for land placed severe stresses on the urban development process. The public sector concentrated on building housing for resettlement of refugees from newly partitioned Pakistan, and *government employee housing* to rent to the growing bureaucracy of government workers. In spite of these efforts, only 50% of the demand for resettlement and government worker housing was met (Mitra 1989). The public sector also encouraged the formation of middle and high-income private sector *housing cooperatives*—a building society model under which the co-op acquired, developed and distributed detached house plots to its membership. The formal and informal private sector's response to this demand was to concentrate on the delivery of land. Bonafide formal private sector developers acquired large tracts of farm land, subdivided with approval of DIT, and resold developed building plots in *authorized colonies*. The informal private sector followed this same process, except DIT approval was not obtained and standards were lower for these unauthorized colonies. Forced out of government public housing and the unauthorized colonies, the lower-income moved into the labor camps and expanded this small, compact and unobtrusive informal settlement type. By 1961, some 43,000 households were sheltered in informal settlements.

1.3 The third period began in 1957 and lasted until 1967, when land development was for the most part frozen in Delhi. The 1957 *Delhi Development Act* and *Delhi Municipal Act*, and

This informal commercial district forms the transition zone between formal sector development on the left and the INFORMAL SETTLEMENT on the right. Located on government owned land, plots in informal settlements are resold through a power of attorney—even though residents have been forcibly resettled by DDA to resettlement colonies.

the 1961 *Master Plan for Delhi* and *Scheme for Large-Scale Land Acquisition, Development, and Disposal of Land in Delhi*, placed all of the land within Delhi's urbanized limits under the control of the Delhi Development Authority (DDA), and established 99 year land leases as a new form of land tenure. All new land brought to market was to be acquired, developed and leased through the public sector. Under the terms of the *Land Acquisition Act*, notices for acquisition by eminent domain of some 27,500 hectares of undeveloped land were sent to owners in 1957. The public sector did not begin to supply developed land until 1963-64, and by 1967 had disbursed approximately 4,000 plots of which less than 17.5% were for lower-income households. As demand for land grew and supply shrunk, prices increased and speculation in the land market became more prevalent. Plots in government resettlement colonies for relocation of informal settlement squatters were resold through power of attorney to middle-income buyers, but cleared informal settlements were reoccupied before the public sector could redevelop the land. Public sector plans to regularize unauthorized colonies acted as a development catalyst. With the promise of municipal services and legal tenure, they became attractive first to middle-income and later to high-income as the demand/supply gap grew ever larger. In response to this market demand, the development of unauthorized colonies by the informal private sector expanded.

1.4 In 1976-77, a massive eviction and forced resettlement of informal settlement squatters took place. Approximately 148,000 plots in 16 government resettlement colonies were developed—with five located at the urban periphery. This action pushed development to the periphery of Delhi as roads and transportation services stimulated mostly unauthorized colony development on farm land. However, additional informal settlements continued to grow as another round of squatting took place on the cleared land awaiting redevelopment. By 1981, Delhi's population had grown to 5.7 million, and DDA's production continued to fall far short of demand— approximately 25% of demand for *public housing plots* and 50% for *public housing flats*. With the public sector unable to meet the demand, the development of unauthorized colonies flourished. By 1983, approximately 20% of Delhi households resided in unauthorized colonies, as repeated regularization by DDA sent signals to the market place that this was a secure investment.

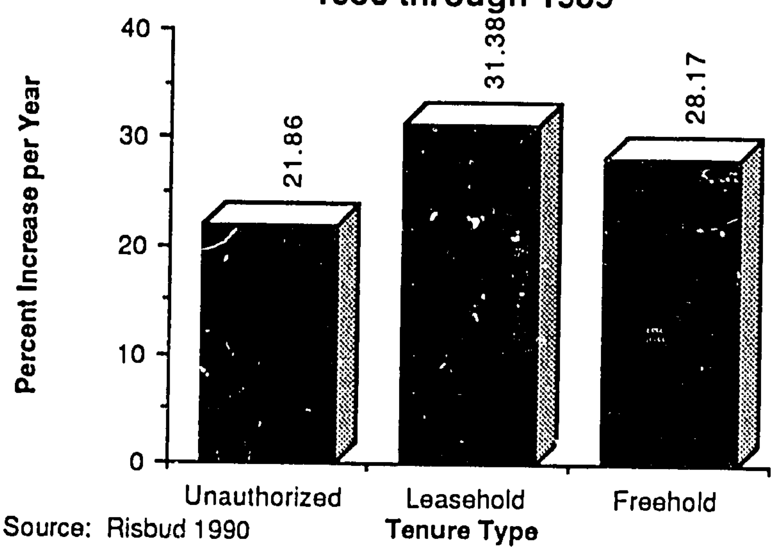
1.5 To assist with an understanding of the formal sector land delivery system in Delhi and throughout India, a settlement typology will be useful. The following chart provides a description of nine residential land types by sector, population served, development characteristics, and land tenure; see paragraphs 2.23 through 2.27 for an in-depth description:

Figure A: Settlement Typology

Type	Sector	Population Served	Development Character	Land Tenure
Informal Settlements	Private Informal	Lowest Income	Irregular, Illegal, Highest Density, Lacks All Facilities	None
Traditional Villages	Private Formal	Mixed Income	Irregular, Legal, Medium Density, Lacks Most Facilities	Freehold
Unauthorized Colonies	Private Informal becoming Formal becoming Informal	Low becoming Middle & High	Irregular, Illegal, Medium Density, Lacks Most Facilities	None becoming Leasehold becoming Power of Attorney
Public Housing Plots	Public becoming Private Informal	Low, Middle & High, with Low becoming Middle	Regular, Legal, Medium Density, Has Some Facilities	Leasehold becoming Power of Attorney
Government Employee Housing	Public	Middle & High	Regular, Legal, Low Density Has All Facilities	Government Owned
Public Housing Flats	Public becoming Private Informal	Low becoming Middle	Regular, Legal, Medium Density, Has Most facilities	Leasehold becoming Power of Attorney
Housing Cooperatives	Private Formal	Middle becoming High	Regular, Legal, Medium Density, Has Most Facilities	Leasehold to Cooperative
Authorized Colonies	Private Formal	Middle becoming High	Regular, Legal Medium Density, Has Most Facilities	Freehold
Old City Housing	Private Formal	Predominently Low Income Renters	Irregular, Legal, High Density, Lacks Most Facilities	Freehold

1.6 In spite of attempts by the public sector to control land prices, they have been on an upwards spiral since Independence. In recent years the rate of increase has accelerated due to the growing demand/supply gap. From information complied by DDA through the period 1952 through 1977, prices on freehold land in authorized colonies and on parcels developed prior to the land freeze have increased up to 60 times. Leasehold public housing plots developed by the public sector and resold informally through a power of attorney have increased from 4 times for plots allotted to lower-income households, to 25 time for plots auctioned to the high income. Plots in unauthorized colonies initially brought to market in the early fifties had increased by 10 to 15 times, and up to 100 times if regularized with legal tenure. More current land price information for the period 1980 through 1989, was collected and analyzed for various sub-market areas in West and South Delhi. Overall, prices have generally risen at an average annual rate of approximately 22% to 31% for all sub-market areas and across both formal and informal tenure types.

Figure B: Land Price Increases—South Delhi 1980 through 1989



Source: Risbud 1990

Among the more important conclusions of the West and South Delhi land sub-markets worth noting here are:

- Leasehold restrictions have not acted as a deterrent against price increases;
- Even though plot sizes were reduced to 21 sq. mtr. for the low-income, almost 90% were informally resold to middle-income households;
- Land acquisition and resale through illegal means has become widely recognized as a secure and sound investment by all income levels;
- Land use intensity exceeds design levels as larger plots are re-subdivided and dwellings expanded to generate rental income.

1.7 Dehli is expected to grow almost twice as fast over the next twenty years as it did during the last twenty years. It is highly unlikely that without a major overhaul of the mechanics of the public sector land delivery process, additional land will be available at the urban periphery to absorb this new development. Much of the close-in land has already been acquired, subdivided and resold in unauthorized colonies. With the expansion of municipal services to the periphery and development in the adjoining states of Haryana and Uttar Pradesh, informal settlement growth has followed to the urban edge. Therefore, an alternative to be explored will be infill development and adaptive reuse of existing land uses within the existing confines of the built-up urban area.

1.8 The Government of India gave serious consideration to a policy for guiding land development as early as 1937. Through the years these policy considerations have been driven by an underlying principal that land as a public resource is to be used to achieve optimal social use, reasonable prices, prevent concentration of ownership and safeguard the interests of the poor, and encourage private sector land development and construction. Initially implementation of these policies stressed public sector domination of the land delivery process. Over the years it has become obvious that the public sector is unable to fully achieve these goals. Recent policy shifts at the highest levels have advocated an increased role for the private sectors in the land delivery process—with the public sector acting as facilitator. However, this policy redirection has not found its way down to the Delhi Administration, DDA and DMC implementation agencies. To be fair, at this stage the role of public sector facilitation in the land delivery process is still a policy concept, without specific implementation definitions.

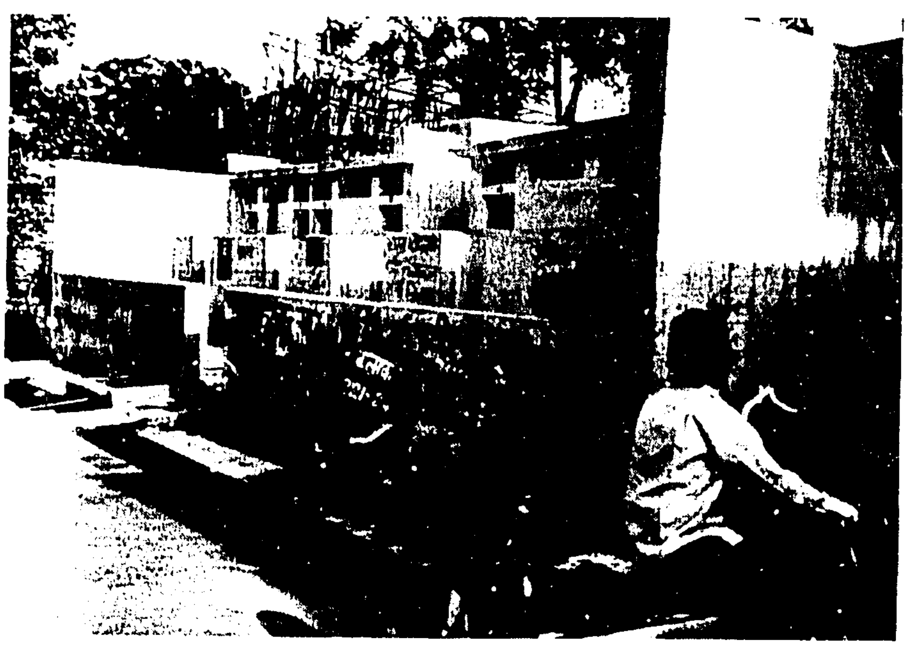
1.9 A synopsis of the most significant regulations impacting on the land delivery process and their consequences are as follows:

Figure C: Significant Regulations

Regulation	Control over Land Development	Consequences
Land Acquisition Act of 1894	Implemented compulsory acquisition of private property for public purpose; allowed state to acquire, develop & dispose of land for public purpose; established process for notification of taking, setting price, and reasons for exemptions.	Delays caused by requirements for setting land values.
Delhi Development Act of 1957	Established Delhi Development Authority (DDA) to plan & implement Interim General Plan for Delhi, and subsequently the Delhi Master Plan.	Lack of authority over providing trunk off-site infrastr-ucture; dual authority with DMC over building codes.
Delhi Municipal Act of 1957	Established Delhi Municipal Corporation (DMC) responsible for 1) provision of off-site water, sewer, roads & bridges, and 2) maintenance of both off-site & on-site infrastructure.	Lack of coordin-ation with acqui-sition, develo-ment & disposal of land; dual authority with DDA over building codes.
Delhi Master Plan of 1962	Established land uses, subdivision standards and approval of land subdivisions; projected population growth and developed land use strategies to meet demand.	Lack of enforce-ment of subdivi-sion approvals; lack of ability to mix land uses
Scheme for Large-Scale Acquisition, Development & Disposal of Land in Delhi of 1961.	Provided powers to DDA to implement Delhi Master Plan; authority for land acquisition construction of on-site infrastructure and housing,sale of serviced land and flats to individuals, and raw land to co-ops; estab-lished 99 year leasehold of land & flats; established revolving fund through reuse of proceeds from sale of land.	Froze land supply; created dual freehold & leasehold land markets; insti-tutionalized dua goals of land & housing supply.
Urban Land (Ceiling & Regulation)	Placed 500 Sq. Mtr. ceiling on individual land holdings in and within 5 kilometers of Delhi; fixed compensation at maximum of 10 Rs. per Sq. Mtr.	Froze land supply; exempted larger land holders, inequitable compensation.

1.10 Among the more important consequences of these acts are the following: The lack of citizen participation in the formulation of such a large-scale development process created a structural weakness in that the general public was not committed to implementation. The reliance of DDA on funding from the revolving development fund focused its delivery of serviced land on the higher-income market capable of acquiring land at auction—at the expense of target group and planning priorities. The authority to both build housing and deliver serviced land caused inter-institutional goal conflicts and competition over resources—with housing supply given priority over land supply. With both DDA and DMC having control over approving subdivision and building codes, confusion over which public sector entity to seek approvals from contributed to the lack of private sector compliance. Finally, DDA was charged with responsibility for both planning and development for Delhi. The focus on planning activities has decreased over the years to the point where DDA's proposed Delhi Master Plan for the period 1981 through 2001 has still not been completed.

1.11 The systems for allocation and disposal of formal serviced land in Delhi are in the hands of DDA and the private sector housing cooperatives. By 1982, of the 12,140 hectares of residential land notified in the period 1957 to 1962 for acquisition by eminent domain, DDA had acquired only 7,256 hectares—or approximately 60%. And of the land acquired, approximately 4% had been distributed— over a twenty-five year



As a part of its slum upgrading program for **INFORMAL SETTLEMENTS,** *DDA provides public facilities for toilets and showering similar to the one pictured here. In the newer ones, a clinic with facilities for a visiting doctor is also provided within the structure.*

period. Residential plots were auctioned to high-income households; and allocated by lottery to middle-income households at a no-loss no-profit basis, and low-income households at a subsidized price. The distribution ratio was to be 50% low, 30% middle and 20% high-income. However, because DDA was dependent on generating revolving fund income through the sale of land, actual proportions were substantially skewed to plots auctioned to high-income households.

1.12 In addition to plots distributed to individuals, DDA allotted raw land to housing cooperatives. As the only alternative source of land, demand for cooperative memberships was substantial but limited to the more educated, professional high-income market. Prior to the 1961 land freeze, housing co-ops were structured as building societies for land acquisition, development and distribution of serviced plots to the members. After 1961, co-ops were organized as group building societies with density restrictions that required 4 and later 8 story construction. Through 1983, more than 2,000 housing cooperatives had been registered. By 1989, approximately 518 had been allocated some 2,300 hectares of land—and approximately half of those with land have commenced construction activities. When compared to the public sector's effort over a twenty-five year period, it would appear that the

This commercial street in a DDA developed settlement of **PUBLIC HOUSING PLOTS** *for lower income groups, shows a number of interesting characteristics: the contrast in the amount of investment in incremental build-out; the combining of back to back plots for construction of a multi-story rental apartment; and mixed use commercial & residential land development.*

private sector cooperatives are able to deliver serviced land at a substantially faster pace.

1.13 The overall conclusion regarding sources of funds for land development and the methods of allocation are that supplies are in many cases inadequate— and the allocation systems are fragmented. Finances in general are a constraint, and impact most seriously on the provision of off-site trunk infrastructure. The source of funds on which DDA depends are its own internally generated revolving fund, supplemented with short term central government project related borrowings with interest rates in the case of its latest development at 4%. The revolving fund was initially capitalized with a central government grant and appears to have a substantial surplus. However other indicators suggest that cost recovery may not equal the outlays that DDA pays for land acquisition and development. DMC is responsible for provision of off-site infrastructure and social facilities. It is dependent on capital improvement funds from central government planning grants which are coordinated through the Delhi Administration; and rebates from land purchasers for a proportionate—but not fully cost recoverable—share of the off-site infrastructure costs. It is in the Delhi Administration's coordination of DDA projects with DMC off-site infrastructure where the most serious problems have occurred—instances where occupancy permits have been substantially delayed because off-site sewer or water were not available to service the completed dwellings.

1.14 The private sector housing cooperatives are dependent on funds provided by their membership and from borrowings from cooperative housing finance societies. Typically, a housing co-op member would expect to contribute from 40% to 60% of the total development cost (TDC) of the dwelling unit. The balance would be provided in the form of a long term mortgage loan at a 13% fixed rate of interest and repayable over 20 years. Loan funds are usually disbursed on a matching basis: as the members collect 25% of their share of the TDC, the lender will disburse 25% of the loan proceeds and so on until project finances are completed. Each housing cooperative finance society is organized as a cooperative of cooperatives. Equity capital is divided between a central government contribution and contributions from the borrower housing co-ops. Dividends of 8% per annum are paid to both. Loan funds are raised through three sources:

- Long term government guaranteed bonds from the India Life

Insurance and General Insurance Corporations

- Loan linked savings deposits from member co-ops awaiting allotment of land
- Project linked loans from HUDCO.

Interest rates paid on borrowed funds range from 9% to 12.5% depending on source and age. Interest earned from loans to cooperative borrowers is at the rate of 13% per year. Fund reflows from quarterly borrower loan repayments and interest from invested reserves are used to pay equity dividends, retire outstanding loans with interest, cover operating expenses and fund mandated reserve accounts.

1.15 A comparison of key roles and linkages for carrying out formal sector land delivery both in and around Delhi provides an interesting comparison. In Delhi, land delivery is by the public sector, but in the neighboring state of Haryana it is shared by the public and private sectors. The following chart provides selected concise comparisons:

Figure D: Selected Roles & Linkages

Activity	In Delhi	In Haryana
Land Acquisition.	DDA responsible for all land acquisition; Co-ops depend on DDA for land.	Both HUDA & private developers provide land; individual buyers depend on HUDA & private developers.
Provision of On-Site Infrastructure.	DDA responsible for on-site works in Public Housing Plots; Co-ops responsible for on-site works for members.	HUDA & developers provide on-site works for plots; individuals depend on HUDA and developers.
Provision of Off-Site Infrastructure.	DMC responsible for off-site works; DDA & Co-ops depend on DMC for off-site service.	Local govn't provides off-site works; HUDA & developers depend on local govn't.
Distribution of Serviced Land.	DDA responsible for distributing plots & raw land; individuals depend on DDA & Co-ops for distribution.	HUDA & developers share distribution. Individuals depend on HUDA & developers.

1.16 The major constraints impacting the public sectors ability to deliver land are acquisition legal constraints, inefficient administration, coordination of off-site infrastructure, and lack of a land information system. The Land Acquisition Act requires that the price paid for land is established at the time of notification of eminent domain taking. Since there is a substantial delay between notification and taking, land prices have risen and it has become the norm for owners to seek court intervention to increase the price, which further delays the process. Within DDA administrative inefficiencies have resulted in delays in carrying out construction; confusing and time consuming land distribution procedures; land supply and pricing tied to generating revenues for the revolving fund; land supply skewed to special interest groups; and resale restrictions driving property transfers into the informal sector through power of attorney transactions. The coordination by Delhi Administration of DDA project activities and the provision of off-site infrastructure by DMC has proven to be a major and ongoing bottleneck with sometimes serious consequences. The lack of a land information system means that little is known about the public sector's raw land inventory; property dealers are better able to manipulate prices because actual property transfer information is unavailable to buyers and sellers; and public sector enforcement of land use and building codes, and the collection of municipal revenues are inequitable and many times unenforceable.

1.17 The major hurdles faced by the private sector are access to land, lack of off-site infrastructure, delays in obtaining sanctions, and availability of financing. With the exception of certain areas of Haryana, private sector land developers are frozen out of the market. The demand for land by housing co-ops in Delhi far exceeds the supply. As with the public sector, the private sector is hampered by the lack of coordination in the delivery of off-site infrastructure. Obtaining approvals in Delhi is a cumbersome process with five agencies empowered to approve land development activities, with sequential rather than simultaneous processing. The lack of private sector financing is a two fold hurdle. First, it is difficult for developers to obtain short term bridge financing to cover land development cash flow shortages. Second, there is insufficient long term financing for individual buyers, and the majority of purchases are on a self-financing basis.

1.18 There were two examples of public/private sector joint ventures worth further examination. The first is the activities taking place in the town of Gurgaon in Haryana. In this case both the public and private sectors have participated in the formal sector land delivery process. Overall, the results have been that the private sector was able to deliver three times more serviced land in about half the time of the public sector. On the other hand, profit taking and higher prices paid for raw land by the private sector has increased the price for their serviced land by

'160% over public sector delivered land. Neither sector was able to provide serviced land for housing affordable by lower-income households. Most plots were subsequently resold to middle-income households. Because the public sector was not obligated to obtain approvals prior to development, it tended to overlook the provision of lower-income plots, on-site infrastructure, and land for social facilities. Unlike the private sector which depended on its customers for funding, the public sector was constrained by budget allocations and bureaucratic hurdles. The following provides a synposis of the more important public/private comparisons:

Figure E: Haryana Public/Private Sector Comparison

Activity	Public Sector	Private Sector
Activity Commenced	1977	1981
Total Land Area	1,458 hectares	1,466 hectares
Land Delivered by 1986	300 hectares	1,000 hectares
Percent Delivered	21%	68%
Time from Acquisition to Delivery	10 Years	5 Years
Land Under Dispute with Seller	186 hectares	0 hectares
Estimated Gross Return	47%	152%

1.19 The second example is a feasibility study for a private/public joint venture proffered by the All India Housing Development Association (AIHDA), and financed by a private sector developer. In essence, the study calls for land development to be treated similar to private/public industrial development joint ventures. A corporation would be formed which combined public and private sector equity capital with shares to be sold to the general public. Policy would be controlled by the public sector and operations by the private sector in hopes that the shortcomings of one sector would be off-set by the strengths of the other. At first analysis it would appear that socially oriented policies combined with profit oriented management would be fertile ground for conflict. And, the proposed public sector's role as facilitator of land assembly and coordinator of off-site infrastructure is one which has already proven to be a land delivery constraint.

Land Resources In and Around Delhi

2.1 In analyzing the land resources in and around Delhi, we shall first review them within their historical context (Mitra 1989). Out of this historical perspective, we will develop a typology of residential land sub-systems. Based on this typology, we will examine the price structure for land and the availability of land for future development.

i) The Historical Context for Residential Land

2.2 Since Independence in 1947, land in and around Delhi has gone through four distinct periods: pre-Independence (prior to 1947), post-Independence (1947-57), freezing of development (1957-67), and, planned development and peripheral growth (1967 onwards).

Pre-Independence (prior to 1947)

2.3 When Delhi became the capital city of India in 1947, both the public and private sectors were already active in the land development process. The public sector owned and controlled the British colonial capital of New Delhi. It consisted of imposing public buildings, low density bungalows and government employees' housing, wide avenues with large open spaces and shopping areas, and social facilities for health, education and recreation. The private sector was active in the area north of New Delhi– the old city of Shahjahanabad and its extensions. This area was characterized by narrow streets, mixed land uses, high densities and inadequate social facilities. Land development was not controlled by the public sector. The private sector was also focused its activities on the east bank of the River Yamuna, acquiring agricultural land for illegal subdivision and resale to lower-income groups in unauthorized colonies.

2.4 Due to a rapidly expanding population, the Delhi Improvement Trust (DIT) was created in 1937 to control irregular land development outside of New Delhi. Along with subdivision approval, its purpose was to acquire land on an ad-hoc basis for resale as residential and commercial plots, and to build subsidized public housing for rental. But high acquisition and development costs limited the re-purchase of land to middle and upper-income groups. Lower-income groups were priced out of private land ownership and depended on either rental housing in subsidized government tenements or the old city of Shahjahanabad, or east bank unauthorized colonies. Labor camps for construction workers formed because of the massive construction efforts to build New Delhi that went on for more than a decade. Many of these camps continued on after completion of construction as they attracted poor settlers other than construction workers, and were located on left over government owned land in centrally located areas of the city.

Post-Independence (1947-57)

2.5 The post-independent period of 1947-57 saw Delhi's population double to more than 1.4 million, as the city became a center for government, commerce and trade, and a focus for resettlement of refugees from Pakistan. Among the more important impacts of this unmitigated growth was the high demand for land and severe stresses on the urban development process. In general the public sector responded to this demand by concentrating on building housing—while the private sector, left to its own, concentrated on land development and the delivery of plots for sale. With few notable exceptions, this public/private pattern has continued into contemporary times.

During the early stages of development of an* UNAUTHORIZED COLONY*, the boundary wall and one room pictured at the left represent the minimum investment. At this level of build-out, the owner has established occupancy, but has not committed substantial resources in case DDA should decide to demolish the illegally constructed structures.

2.6 While undertaking the massive construction for ministries, embassies and government departments, the public sector also gave high priority to refugee resettlement and government employees' housing—the two sectors with the most obvious housing problems. The newly formed Ministry of Rehabilitation constructed twenty fully subsidized colonies for resettlement of some 65,000 refugees within four to six kilometers of Delhi's developed area. In addition, some 21,000 low and medium density two story rental dwellings were constructed on land either already owned or newly acquired by the public sector to the south of New Delhi. In spite of these efforts, only about 50% of the demand for housing by these two groups was met (Mitra 1989).

2.7 The public sector also encouraged the formation of private sector housing cooperatives. With a plot size ceiling of up to 2,000 square yards per individual member, undeveloped land was leased to cooperatives under the condition that the development would be completed within three years. Most of the cooperatives had average individual plot sizes which were in excess of 400 square yards—automatically excluding the lower-income. By 1961, 303 housing cooperatives were registered and were allocated approximately 1,500 hectares of land (Verma 1990). A ban on additional registrations was imposed in 1961—evidentially

During the later stages of development of the UNAUTHORIZED COLONY *shown on the right, the owners have invested substantially in incremental build-out because they know it is only a matter of time before DDA will regularized the settlement and grant legal land tenure.*

due to speculative resale of land. The demand for cooperatively owned land far exceeded the supply.

2.8 Unlike the public sector, the private sector's response to this demand was to concentrated on the land delivery process. The conversion of vacant land to residential use in developed areas was eventually taken over by large scale acquisition, subdivision and resale of agricultural lands. Bonafide formal private sector land developers and real estate companies (colonizers) acquired land from farmers, subdivided it according to standards set by the DIT, and resold it at market rate prices. The colonies were located close to government employees housing, and included standard infrastructure, schools, shopping and parks.

2.9 Very little initial investment was required as the sale transaction between the farmer and colonizer was not completed until the buyers had paid a sufficient amount of the purchase price in installments. In the early stages, colonizers' profits were in the range of 30% to 100%, but increased to 600% as reserved plots in better locations were brought to market in the later stages of development of the colony. By 1961 some 30,000 plots were developed (Mitra 1989). The initial prices negotiated for the farm land, the development costs resulting from DTI's subdivision standards, and the profit taking of the colonizers restricted the access to land ownership in these colonies to higher-income groups.

2.10 Another form of private but informal sector, activity was the development of land in unauthorized colonies. This development model was similar to that used for the upper-income authorized colonies, except that the land subdivision was not approved by DIT. In spite of profit taking on the order of 130% to 150% by developers (Mitra 1989), unauthorized colonies offered private land ownership to lower-income groups due to the ignoring of DIT's subdivision standards and attractive installment terms offered to buyers. The sale of the land was legally recognized under the Transfer of Property Act of 1882, but the subdivision was illegal and therefor not initially eligible for extension of municipal services. By 1961, there were some 110 unauthorized colonies with a population of over 200,000 people (Mitra 1989). The government had neither the resources nor the will to prevent it from happening.

2.11 A final form of private sector informal activity was the illegal occupation of government owned land and the construction of dwellings by the lowest-income homogeneous social and ethnic groups. Forced out of the unauthorized colonies and the rental market due to income constraints, these groups turned to squatting. Small, compact and unobtrusive settlements were carefully located on vacant unused government land, and occupied according to a clear set of territorial rights respected both within and between communities. By 1961, almost 43,000 households had taken advantage of this form of land tenure (Mitra 1989).

Freezing of Development (1957-67)

2.12 The Master Plan for Delhi, adopted in 1961, was intended to guide urban growth through 1981. It proposed to build more government employees' housing, make developed land available to all income groups, and to relocate and integrate squatter settlements into a planned urban community. The most important implementation measures affecting land supply were: 1) the public acquisition of vacant land within the Plan's urbanized limits; and 2) restricting the sale of property to individuals and groups through leasehold of the land for a period of 99 years.

The **GOVERNMENT EMPLOYEE HOUSING** *shown on the right is developed and owned by the public sector and leased to its employees. It is characterized by low density and the provision of many amenities. The older two story apartments shown here provide not only recreation facilities, but also parking garages.*

2.13 This action resulted in three important constraints on the supply of land within the Delhi Master Plan boundaries. First, it excluded the private formal sector from the land delivery process. All new land brought to market was to be acquired, developed and disbursed by the public sector. Second, it institutionalized a land market tenure system with freehold and leasehold tenure, by excluding freehold plots already developed and under private sector ownership. And thirdly, due to bureaucratic hurdles it in effect froze all further land transactions.

2.14 Legal notices for public sector acquisition of some 27,500 hectors of land went out in 1957. The public sector did not begin to supply developed land until 1963-64. By 1967, only 4,000 plots had been distributed of which less than 17.5 % were for lower-income groups. The public sector also constructed approximately 7,500 rental dwellings for government employees and the lower-income (Mitra 1989). Meanwhile, Dehli's population continued to increase at a rapid rate.

2.15 As demand for land increased and the supply sharply decreased, land speculation increased and prices rose dramatically. The formal private sector colonizers made huge profits from the sale of reserved plots which were previously withheld from the market in pre-freeze authorized colonies. Opportunities for private ownership of land became inaccessible not only for the lower-income, but also for the middle-income as they also were priced out of the market during this period.

2.16 In addition to public acquisition and leasehold restrictions, the public sector planned to resettle the squatters into new consolidated sites and services areas, and to regularize the unauthorized colonies. Initially, new resettlement plots were planned at 80 sq. yd. each with sanitary core and base, and transferred on the basis of a 99 year lease. However, some beneficiaries resold their plots through a process of power of attorney (seller passes right to the allotted plot by giving power of attorney to buyer in return for payment of a fee). In spite of substantial subsidies, others could not afford the monthly installments. Eventually plot sizes were reduced to 25 sq. yd. While this helped to reduce the magnitude of the problem, plot resales and monthly payment arrearages continued. In addition, the time gap between clearance of a squatter settlement and redevelopment into an alternative use was lengthy. By the time redevelopment plans were ready, the site was generally reoccupied by a subsequent group of squatters.

2.17 The regularization of unauthorized colonies was conditioned on compliance with DMC redevelopment plans and payment of development charges by the plot holders. With the promise of municipal services and legal tenure, unauthorized colonies became attractive first to the middle-income market who could no longer afford the authorized colonies, and eventually to the upper-income as the demand/supply gap grew ever larger. By 1967, land prices in unauthorized colonies rose ten to twenty times, often equaling the market prices for freehold plots in middle-income authorized colonies. In addition the informal private sector continued to respond to the demand as continued formation of new unauthorized colonies took place. By 1967, all 101 pre-1961 unauthorized colonies were regularized, as were an additional 33 which were formed after the 1961 cut off date (Mitra 1989).

Planned Development and Peripheral Growth (1976 onwards)

2.18 By 1981 the population of Delhi had grown to 5.7 million, as the attraction of employment expansion caused by the continued growth of industry, commerce and government was fueled by the availability of superior health and education facilities. DDA's production of plots and dwellings continued to fall far short of the demand. By 1981, DDA had provided 33,000 plots (about 25% of demand), and 112,600 flats (approximately 50% of demand). In addition, its reliance on a cross subsidy development approach to meet funding requirements focused its effort on the middle and upper-income market. Through 1971, only 3% of all the land allocated by DDA was for low-income beneficiaries. During the period 1971 - 1981, the situation improved as 42% of the plot sales were to low-income (Mitra 1989).

2.19 With the public sector unable to meet the demand, the supply of land continued to be delivered by the informal private sector. By 1983, there were over 700 additional unauthorized colonies occupying 4,500 hectors of land with a population estimated at 1.2 million (Mitra 1989). Repeated regularization of unauthorized colonies by DDA since 1961 had demonstrated to the market that purchase in an unauthorized colony was a secure investment as it would only be a matter of time until regularization and freehold tenure would substantially increase land values.

2.20 For the lowest-income, squatter settlements continued to be the only viable form of housing tenure available. In spite of resettlement efforts by the DDA, by 1973 the squatter population had grown again to approximately 150,000 families. In 1976-77, a massive eviction and forced relocation effort was undertaken by DDA. Approximately 16 new resettlement colonies containing about 148,000 plots were developed. Of these, five were located beyond the planning boundaries at the periphery of the urban area. The exercise proved to be expensive as much of the land required filling, extension of utilities and subsidized transportation services. As soon as political conditions allowed, a number of families returned to their former, as yet undeveloped, squatter settlements—starting another round of squatting. By 1981, there were again about 113,000 squatter families (Mitra 1989).

2.21 Development at the periphery of Delhi began in earnest in 1976 with public sector land development initiatives for the five squatter resettlement communities. The adjoining state of Uttar Pradesh initiated a planned industrial development to accommodate a 400,000 population at the south-east border of Delhi. The DDA initiated a large scale housing project for 850,000 people within the north-west periphery of the city. The formal private sector went back into business in the late seventies, developing large scale authorized colonies for the middle and upper-income market in the adjoining state of Haryana.

2.22 The extension of municipal services and transportation to the resettlement communities by the public sector stimulated additional large scale public and formal private sector development activities. It also stimulate the growth of squatter settlements at the south-eastern boundary of the city. The result of this peripheral growth is that much of the agricultural land proposed for expansion of urban Delhi is being consumed through illegal subdivision and sale into another generation of newly forming unauthorized colonies.

ii) Typology of Residential Land Sub-systems

2.23 As the foregoing historical context demonstrates, the supply of residential land in Delhi has evolved into a distinct sub-system pattern of uses. For purposes of our case study analysis, and for subsequent research and analysis activities on the delivery of serviced land, it will be useful to develop a common typology definition of these uses. A review of the reference material available for this exercise provides some meaningful examples, and it is from these examples that this typology is developed.

2.24 The nomenclature used in the Settlement Typology, Figure A—paragraph 1.5, describes not only the key characteristics of each land use type, but also important trends within each category. For instance there are three main sectors: public sector land developed by the DDA; private formal sector land delivered by bonafide land developers and cooperative societies; and private informal sector land consisting of unauthorized colonies and informal settlements. Certain shifts in sectors are noted such as the unauthorized colonies moving from the informal private sector to the formal private sector as they are regularized by the public sector—and back to the informal sector as plots are resold under power of attorney. There are also three main population groups: low, middle and high. Trends are also noted here as certain income groups are forced out of certain land markets by the upward spiral in land prices.

2.25 Development characteristics among the land use types are the most complex. Regular and irregular connotes the

The major private sector actor in land development in Delhi is housing cooperatives. Pictured on the right is a Cooperative Group Housing Society which acquired raw land from DDA and developed the on-site infrastructure and buildings with funds provided from its members and a long term mortgage loan from the Delhi Co-operative Housing Finance Society Limited.

physical layout of the land. Irregular would mean narrow haphazard traffic patterns, mixed uses and building types, while regular means a planned community. Legal and illegal refer to obtaining the proper public sector approvals to subdivide and sell the land. Density describes the number of people per square hectare. Facilities refers to the availability of physical infrastructure such as water, sewer, paved roads, power. It would also include social infrastructure to support education, health and recreation needs.

2.26 Land tenure describes the four market land system in Delhi. None refers of course to the absence of security of tenure. Freehold is land held in private ownership. This is the most desirable and costly, as there are no restrictions on resale. Leasehold is land sold by the DDA to be held by the owner through a 99 year lease. The lease prohibits resale for the initial 10 years and requires payment of 1/2 the appreciation in value upon resale. Leases are, however, traded before the ten years and without payment of rebates through the system of power of attorney. Ownership in cooperatives is vested through a membership certificate in the corporation. Membership certificates are also freely traded. Important trends noted are: 1) no land tenure in unauthorized colonies becoming freehold prior to 1972, and leasehold thereafter due to regularization by the public sector; and 2) the sale of leaseholds in Public Housing Plots and Public Housing Flats through power of attorney. The reader should note that these trends in land markets are paralleled by similar trends in populations' served. Increased trading activity in Unauthorized Colonies and Public Housing resulting from rising prices forces low and in some cases middle-income groups out of these markets.

2.27 Informal Settlements are squatter settlements on government owned land. Traditional Villages are former agricultural settlements overtaken by urbanization. Unauthorized Colonies are illegally subdivided land sold to individual buyers. Public Housing Plots are DDA land subdivisions in which the plots are auctioned to high-income households; and allotted by lottery on a no-loss no-profit price basis to middle-income, and a subsidized price to lower-income. Government employee housing is dwellings owned by the government and leased on a short term basis to employees. Public Housing Flats are multi-story apartment buildings allotted to lower-income households by lottery at a subsidized price. Housing Cooperatives are multi-story apartment buildings on land leased to the cooperative with occupancy by members through membership certificates. Authorized Colonies are land subdivisions approved by authorizing authorities and sold with freehold tenure to individuals. Old City Housing is the inner-city area which was formerly called Shahjahanabad.

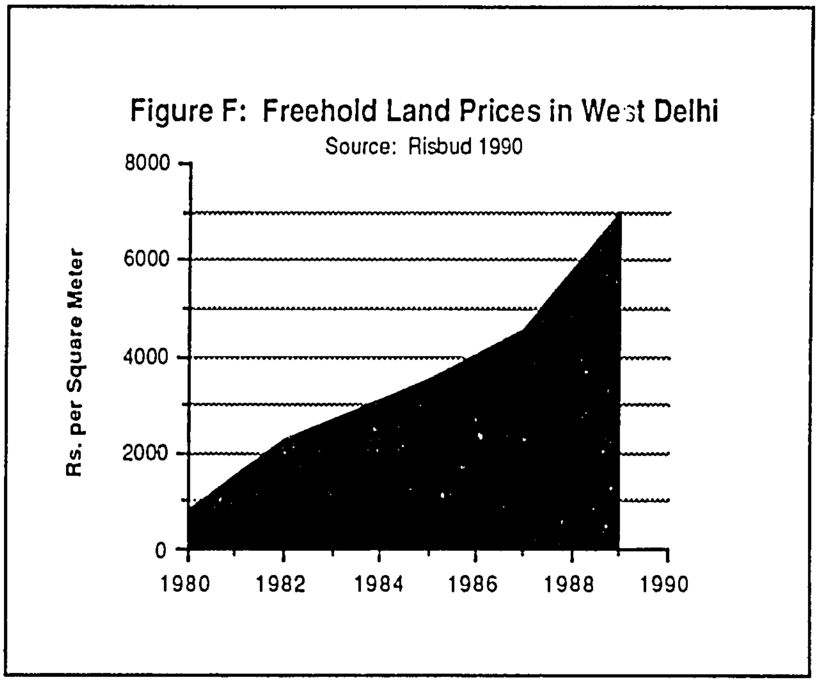
iii) Price Structure for Land

2.28 During the pre-Independence and post-Independence periods (prior to 1957), the private formal and informal sectors were developing land for sale in both authorized and unauthorized colonies. The public sector concentrated on constructing housing. From the freezing of development period (1957 onwards), the private formal sector was mostly shut out of the land delivery process due to the public acquisition, development and distribution process. The private informal sector continued to bring illegally subdivided land to market. And the public sector produced a limited supply of plotted land in government colonies for allocation to low and middle-income groups, and for auction to high income groups.

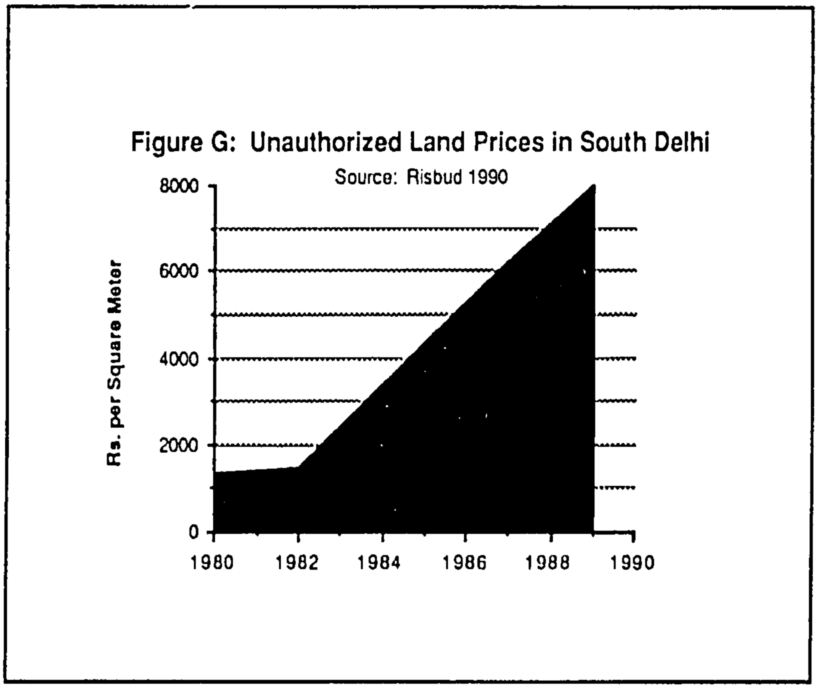
2.29. In spite of attempts by the public sector to control price increases, land costs in Delhi have been on a constant upwards spiral since Independence. In recent years, the rate of increase has accelerated due to the increasing gap between supply and demand. In spite of a long history of national, state and local government policy objectives and implementation strategies to control land costs, very little is actually known about land markets. This is mostly due to the difficulty in collecting data concerning sales. Recorded sales are consistently undervalued to escape the payment of appreciation recapture and capital gains taxes. Buyers and sellers are usually reluctant to discuss sales prices because many of the transactions are accomplished informally through the use of power of attorney. And information collected from land dealers tends to be quantified on the high side to maintain the demand momentum for land.

2.30 From information complied by DDA (Acharya 1987), through the period 1952 through 1977 prices for freehold land in authorized colonies and developed parcels under ownership prior to the land freeze increased up to 60 times (10 - 600 Rs. per sq. mtr. for middle-income and 20 to 1200 Rs. per sq. mtr. for high-income) over their original price. Leasehold plots developed by the public sector during the late sixties, with restrictions on resale in the first ten years and a 50% rebate to the government on appreciation of value increased from 4 times (29 - 125 Rs. per sq. mtr.) original price for plots allocated to low-income groups, 10 times (31 to 300 Rs. per sq. mtr.) for plots allocated to middle-income and 25 times (49 - 1200 Rs. per sq. mtr.) for auctioned plots. Plots in unauthorized colonies brought to market beginning in the late fifties increased by 10 to 15 times if they were not regularized by the public sector, and up to 100 times (5 - 500 Rs. per sq. mtr.) original price if they were regularized.

2.31 More current information on land prices was collected and analyzed for various sub-market areas in South and West Delhi (Risbud 1989). The information was collected mostly from land dealers, and the reader should be cautioned that it tends to be estimated on the high side. However, valid comparisons can be derived both across time and tenure types.



2.32 The graph in Figure F compares prices on sampled freehold property sales of 250 to 900 sq. mtr. in size, in the Punjabi Bagh locality of West Delhi over the period from 1980 through 1989. These are properties where resale was unrestricted. In 1980, plots were selling for approximately 750 Rs. per sq. mtr.. By 1989, average resale prices had risen to almost 7,000 Rs. per sq. mtr., a price rise of approximately 28.17% per year.



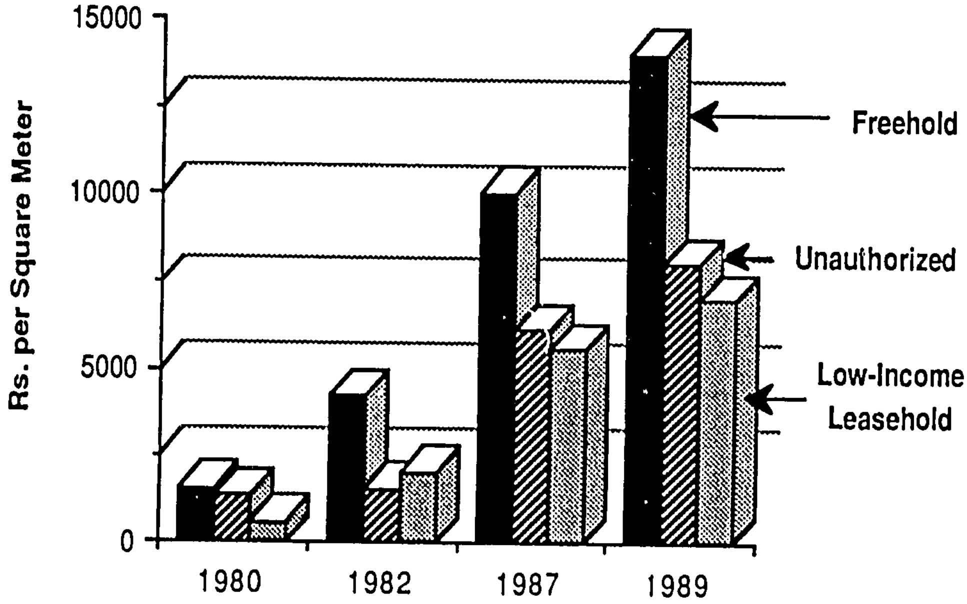
2.33 The second graph, Figure G, compares prices on sampled property sales of 50 to 500 sq. mtr. in size, in an unauthorized colony in the

Govindpuri locality of South Delhi over the same 1980 through 1989 period. Sales were accomplished through the use of power of attorney as initially the land was illegally subdivided and structures were subject to demolition by the government, and after regularization sales were subject to leasehold resale restrictions. In 1980, prices in this sub-market area were on average 1350 Rs. per sq. mtr., somewhat higher than freehold prices in the West Delhi sub-market. By 1989, the average price had risen to almost 8,000 Rs. per sq. mtr., an average increase of approximately 21.86% per year.

2.34 There are two observations worth noting. First, in the initial years prices remained stable due to the risk of investing in illegally subdivided property. However, once the colony began the process of consolidation through house construction and commercial development, prices increased because it was only a matter of time until the colony became regularized and therefore legal. Second, the leasehold resale restriction did nothing to deter the rise in prices. It would appear that whether land is owned freehold or through power of attorney, there is little impact on the appreciation in value over time.

Figure H: Comparison of Land Prices in West Delhi

Source: Risbud 1990



2.35 Figure H compares three types of tenure for the same South Delhi market area: freehold plots of 200 to 300 sq. mtr. in the Greater Kailash-I locality; unauthorized plots of 50 to 500 sq. mtr. in the Govindpuri locality; and leasehold plots of 80 sq. mtr. allocated to the low-income group (LIG) by lottery in Dakshinpuri. The LIG plots are subject to leasehold resale restrictions. In 1980, prices ranged from 600 Rs. per sq. mtr. for the LIG plots, to 1350 Rs. per sq. mtr. for the unauthorized plots, to 1500 Rs. per sq. mtr. for freehold plots. By 1989 prices for all three had increased substantially:

- 28.71% per year for the freehold,
- 21.86% per year for the unauthorized, and
- 31.38% per year for the LIG plots.

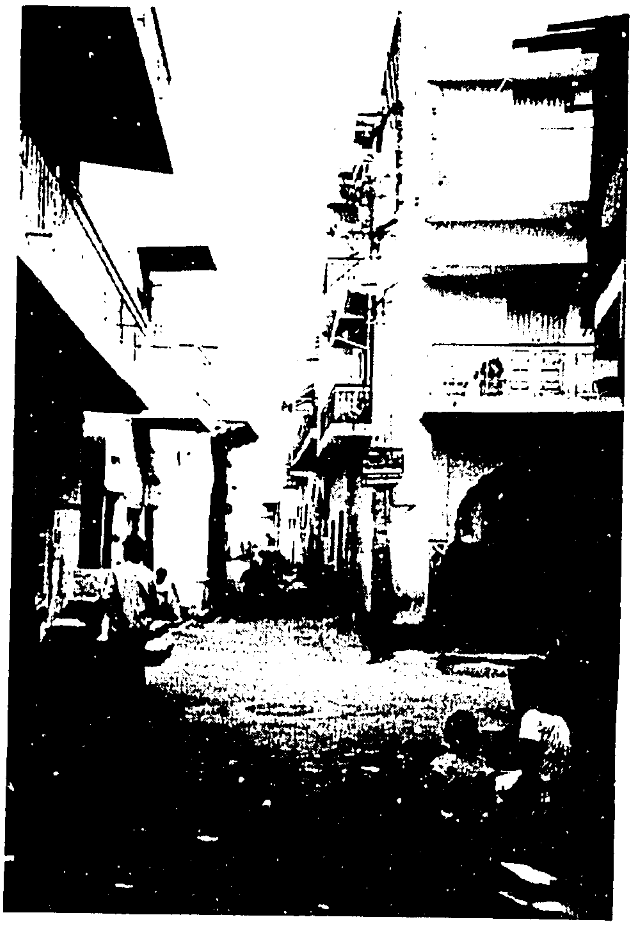
Another meaningful observation is that the proportions had changed. Freehold and unauthorized plots were initially double the price of LIG plots. By 1989, LIG plots had maintained its price relative to freehold prices, but had almost equaled the price of unauthorized plots. The lower-income were selling out to the middle-income.

2.36 There are a number of other important conclusions derived by the study concerning the impact of continued price increases. Even though LIG plot sizes have been reduced to 26 sq. mtr., almost 90% are resold under power of attorney to middle-income households. Resale prices are as much as 40 time higher than the allotted price. Corner plots and plots on larger streets command even higher prices due to the potential for commercial redevelopment. Land acquisition and resale through illegal means has become recognized as a good investment by low-income levels. There is a market for ration cards obtained by erecting false houses on vacant government land— the first step towards informal settlement regularization. The gap in supply and demand has produced more intensive land uses, straining already inadequate public facilities. For instance, 21 sq. mtr. plots have 3 and 4 story buildings with 100% lot coverage. 80 sq. mtr. plots are subdivided and resold. LIG and middle-income plot allottees are contacted in advance and offered a premium by dealers for resale of the plot by power of attorney after allocation. Many of these plots are held off the market until prices rise.

iv) Availability of Land for Future Development

2.37 In preparing the proposed Delhi Master Plan for the period 1981 to 2001, the planners have looked to the expansion of the current boundaries for the additional land required to support continued growth. The Plan estimates that population expansion for Delhi to the year 2001 will be an additional 6.4 million people. Since the actual increase for the period 1961 through 1980 was 3.4 million, Delhi is expected to grow almost twice as fast during the next twenty years. This rapid expansion combined with the freezing of vacant land by the DDA, has resulted in the consumption of most of the land within the boundaries of the Delhi Master Plan for residential and commercial uses. Therefore the proposed plan calls for acquisition of 20,000 hectares of additional land around the periphery of urbanized Delhi (DUAC 1986).

Pictured at right is a **TRADITIONAL VILLAGE.** *Typically these are farming settlements that have been overtaken by urban development. They are characterized by freehold land tenure and changing land uses as the community moves from a rural economy into an urban economy.*



2.38 The problem is that much of the close-in land at the periphery has already been consumed by developers. Due to soaring land prices, the lower and middle-incomes have been priced out of the land market within the Delhi's boundaries for some time now. From 1967 onwards, the push for land developers has been outside the boundaries of Delhi. In response to a growing low and middle-income market demand, much of the surrounding agricultural land has already been acquired, illegally subdivided and sold in plots. According to interview sources, estimates are that of the 20,000 hectares to be acquired by DDA, as much as 25% may already have been developed as unauthorized colonies. In addition, by the time DDA has acquired the land and extended trunk infrastructure to allow development, a substantial portion more will already be illegally subdivided.

2.39 In 1967, DDA pushed Delhi's expansion to the boundaries through the extension of municipal services and transportation to new resettlement communities at the Delhi boundaries, and the development of ROHINI, a large scale housing project for 850,000 people within the north-west periphery of the city. This initiated the growth of informal settlements at the periphery. It also served as the signal for the formal private sector to return to developing large scale authorized colonies for middle and high-income markets in the adjoining state of Haryana. By 1986, the historical town of Gurgaon located approximately 32 kilometers south-west of Delhi had over 2,900 hectares of land under development—about half each by the private formal and public sectors. And the Uttar Pradesh public sector initiated a planned industrial development to accommodate a 400,000 population at the south-east border of Delhi.

2.40 It is highly unlikely that—without a major overhaul of the mechanics of the public sector land delivery process—additional land at the periphery of Delhi will be available to absorb the projected increase in population. Therefore, an alternative to be explored is infill and adaptive reuse of existing land uses within the confines of the existing built-up urban area. There are substantial numbers of small sites frozen under the Land Ceiling Act that can be developed under an infill housing strategy. Much of the area developed by DDA is at building coverage rates of only 50%. Creative redesign and replanning of community facilities can provide an additional 10% of land for housing. Relocation of existing uses such as the Delhi Textile Mills or the original single story government employee housing complexes, and conversion to higher density housing will reduce industrial environment hazards and maximize the investment in existing infrastructure.

Summary of Policies and Regulations Affecting Urban Land Delivery in Delhi

3.1 The Government of India gave serious consideration to a policy for guiding the land development process in Delhi as early as 1937. These early policy considerations were based on the principle of *a public sector land banking authority formed to acquire land—and through the sale of the acquired land—to produce value increment revenues to finance land development activities to put the land back on the market ready for construction of above ground improvements.* This initial policy stayed mostly intact and carried itself down through the years with a number of subsequent policy refinements which were hoped to buttress the underlying principle.

3.2 Subsequent policy refinements in the early sixties were based on the following objectives (Ribiero 1981):

- *Achieving an optimal social use of urban land*
- *Making land available in adequate quantity, at the right time and for reasonable prices to both the public sector and private individuals*
- *Encouraging cooperative community efforts and bonafide individual builders in the field of land development and housing construction*
- *Preventing the concentration of land ownership in few private hands and safeguarding the interests of the poor and under-privileged sections of urban society.*
- *Controlling urban land values.*

3.3 When it became apparent that these policy objectives were not close to being achieved, further policies were added during the seventies to correct the resulting deficiencies. These were mostly centered on the principle of *curbing the speculation in land values* which were perceived as the main reason for the up-wards spiral in land costs. With land costs continuing to increase due to the gap between supply and demand, land development policies are currently undergoing scrutiny at the highest levels with considerations being given to more reliance on the private formal sector for the delivery of urban land for residential development. However, this change in policy perception has not as yet reached the implementation level.

3.4 To be effected, policy concepts are developed into laws and regulations are promulgated for implementation. The laws and regulations impacting the delivery of urban land in Delhi and their consequences are as follows:

Figure I: Land Development Laws & Regulations

Law/ Regulation	Control over Land Development	Consequences Inconsistencies
Constitution of India	Guaranteed the right to acquire, hold & dispose of property; allowed state to impose restrictions on property; allowed for compulsory land acquisition by state.	Confusion over statement of public purpose for land taking.
Land Acquisition Act of 1894	Inplemented compulsory taking of private property for public purpose; allowed state to acquire, develop & dispose of land for public purpose; established process for notification of taking, setting of price, and reasons for exemptions.	Delays caused by requirements setting land values.
Improvement Trust Act of 1937	Established Delhi Improvement Trust (DIT) for acquisition of land, development & construction of housing.	Land holdings acquired & withheld from market.
Slum Areas Improvements & Clearance Act of 1956	Granted power to DDA to relocate informal settlements to new resettlement colonies; allows demolition of strucutres located on land in unauthorized colonies.	Inconsistant enforcement; delays in reuse of cleared land.
Delhi Development Act of 1957	Established DDA to implement Interim General Plan of Delhi, and subsequent planning & Implementation for Delhi Master Plan.	Lack of authority over provision of off-site; inconsistant planning; dual authority over building codes.
Delhi Municipal Act of 1957	Established DMC, responsible for 1) provision of off-site infrastructure, & 2) maintenance of both on-site & off-site infrastructure.	Lack of coordination with acquisition, development & disposal of land; dual authority over building codes.
Delhi Rent Control Act of 1958	Fixed rents at 10% of construction cost; set value for property tax as function of rents.	Undervalues property tax revenues; inconsistant collection enforcement.

Law Regulation	Control over Land Development	Consequences Inconsistencies
Delhi Master Plan of 1962	Established land uses, subdivision standards & approval process; projected population growth & developed land use strategies.	Lack of enforcement of subdivision approvals, lack of ability to mix land uses.
Scheme for Large-Scale Acquisition, Development, & Disposal of Land in Delhi of 1961	Provided powers to DDA to implement Master Plan; authority for land acquisition, construction of on-site infrastructure & housing, sale of land to Co-ops, and plots & flats to individuals; established transfer of land & flats by 99 year leases; established revolving development fund through reuse of proceeds from sale of land.	Froze land supply; created dual land market of freehold & leasehold; institutionalized dual goals of land & housing supply.
Delhi Cooperative Societies Act of 1972	Recognized 4 types of housing Co-ops; established organizational requirements; established authority to guide & supervise.	Delays caused by lack of off-site infrastructure, & approvals; misued by speculators.
Urban Land (Ceiling & Regulation) Act of 1976	Placed ceiling on individual land holdings in & around Delhi; fixed compensation at maximum of 10 Rs. per Sq. Mtr.	Froze land supply; exempted larger land holders; inequitable compensation.

Of these ten Acts and Regulations, the overriding impacts on the land delivery process result from the Land Acquisition Act, the Delhi Municipal Corporation Act, the Delhi Development Act, the Delhi Rent Control Act, and the Urban Land (Ceiling and Regulation) Act. It is worthwhile to examine these in further detail.

3.5 While the Land Acquisition Act provided the public sector with authority for compulsory acquisition of land for public purpose, it also required a cumbersome, expensive and time consuming process. Procedures required under the act most often end in legal disputes taking normally three to four years to resolve—and in some cases up to twenty years. Until 1984, the Act's definition of public purpose was unclear. This was amended to include planned development of land from public funds, land for housing the poor, and for any housing or slum clearance scheme.

3.6 Compensation is based on market value at the time of notification. DDA sent out the initial notification for some 27,500 hectares of land in 1957. By the time DDA was able to begin the acquisition process, actual prices at the time of taking were substantially in excess of the proposed compensation. As a consequence, it was to the owners benefit to seek legal relief in the courts to increase compensation. When added to the bureaucratic delays encountered under such a massive undertaking, the supply of land diminished to a trickle.

3.7 The Delhi Development Corporation Act established the DDA, and the Scheme for Large-Scale Acquisition, Development, and Disposal of Land in Delhi provided the implementation powers. One of the underlying weaknesses of such a large scale development plan was the lack of citizen participation in the planning process, and the outgrowth of planning standards which were unrealistic vis-a-vis the impact on costs and affordability (Acharya 1987). A second consequence was the impact of the revolving funding concept. After the initial capital was provided by the central government, additional funding would be generated through the sale of land. This focused land development activities on income generating opportunities, at the expense of land delivery for the lower-income markets.

DDA constructs* PUBLIC HOUSING FLATS *not only for the lower income but also for the middle income. Pictured at the left are middle income flats which were auctioned to the original owners with tenure granted through a 99 year leasehold. The flats are subsequently resold informally through a power of attorney.

3.8 The Act and Scheme also established two goals: one for the construction of housing, and a second for the delivery of land. In many ways these two goals produce conflicts within a development agency. A third consequence was that land delivery took a lower priority to the construction of housing, which contributed to the land supply problem. Fourth, it was clear that DDA had the authority to acquire land, construct housing and infrastructure, and dispose of the land and buildings. What was missing was the authority and/or requirement for coordination with off-site trunk utilities, roads and power. This produced delays in the land delivery process as budgets and schedules for off-site works were uncorrelated with specific land development projects. Lastly, DDA and the DMC were both given authority over approval of building plans and specifications. As may be expected, each developed its own standards and regulations. Therefore, confusion over public sector approval expectations in the market place broke down the private sectors' willingness to comply.

3.9 The Delhi Municipal Corporation Act, among other things, established responsibility of DMC for the provision and maintenance of infrastructure and roads, and the approval of building by-laws. As we have previously discussed, there was a lack of clear authority for coordinating the budgeting, planning

Pictured at the right is a large scale DDA development of **PUBLIC HOUSING FLATS** *for lower income groups. These flats are allocated to lower income at subsidized prices with leasehold tenure. Many are resold by the allottee prior to initial occupancy.*

Shopping center land in the fore ground is often withheld from market by DDA to achieve the maximum possible return.

and executing of off-site trunk works with specific urban development schemes. This lead to delays in the land delivery process. A second constraint was the dual authority for setting and approving building bye-laws. In effect, this second constraint not only confused the private sector concerning approvals, but it also lead to conflicts between DDA and DMC over maintenance. Upon completion of on-site infrastructure works by DDA, authority for maintenance was to be turned over to DMC. In many cases there were delays in turnover caused by DMC's perception of long term maintenance problems resulting from differences in standards and construction defects.

3.10 The purpose of the Urban Land (Ceiling and Regulation) Act was to reduce land prices by placing a ceiling on individual land holdings and bring more land into the market place. In fact, it had the opposite effect by freezing the trading of these properties and increasing land prices (World Bank 1986). The Act required that land holders with property in excess of 500 sq. m. (for Delhi) register their property. Compensation was set according to a proportion of income earned but not to exceed 10 Rupees per sq. m— substantially below market rates. According to interview sources, the consequences have been that most of the large land holders were able to obtain exemptions, and those that did not have gone to court seeking just compensation. Therefore, trading has stopped until the issues are resolved, and little land has actually been acquired by the public sector under this act.

3.11 The Delhi Rent Control Act came into being as a protection against landlord abuses of lower-income renters. In fact, a 1989 study of the impact of the act indicates just the opposite (HSMI 1989). For reasons explained in the study, it is the landlords that use the provisions of the act to— in most cases— take possession of their properties from renters. Therefore, it appears that the normally drawn conclusion of rent control limiting the supply of newly constructed rental housing is not the case here, because the Act is not strongly enforced. The consequences of the Act on land development lies in the generation of property tax income to support public sector activities. Property values for tax purposes are set as a function of rents. Rents are determined by the rent control law as 10% of the construction cost. Therefore, property taxes as a municipal revenue generator are undervalued, and collections are given low priority (World Bank 1986).

Systems for Allocation and Disposal of Land for Shelter

4.1 The formal system for allocation and disposal of land for shelter in Delhi is composed of the public sector which is dominated by DDA, and the private sector consisting of cooperatives and developers of authorized colonies. For our purposes here, we will begin with the public sector system followed by the private sector cooperatives and lastly the authorized colony developers.

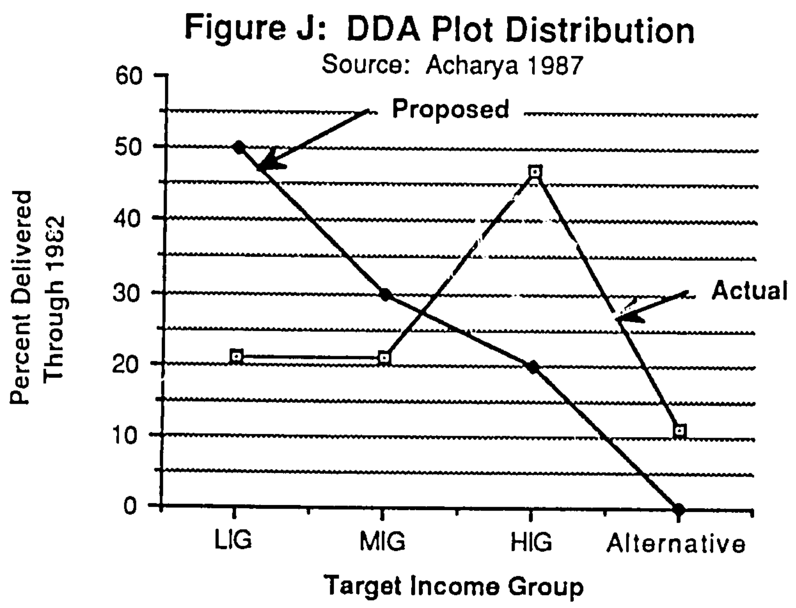
4.2 With the adoption of the Delhi Master Plan and its land acquisition, development and disposal Scheme for implementation, DDA had an acquisition potential of approximately 27,500 hectares of land within the urban planning limits. By 1971 it was increased to almost 31,000 hectares. Current estimates contained in the proposed Dehli Master Plan to the year 2001 call for an additional 20,000 hectares of land to be acquired.

4.3 Even before the Master Plan was adopted in 1962, notifications had been sent to owners of about 21,000 hectares. By 1977, the total amount notified had reached over 30,000 hectares (12,140 designated for residential development). Due to delays in the bureaucratic machinery and litigation on compensation, acquisition was a very slow process. Only slightly in excess of 18,000 hectares (7,256 for residential) had been acquired by 1982, or approximately 60% over a 20 year period (Acharya 1987).

4.4 While acquisition was delayed, development and distribution lagged even further. Distribution did not begin until 1963. Of the total 12,140 hectares designated for residential development, 60% had been developed. But only 4% had been distributed as serviced land (Acharya 1987). While additional data to the current period was not available for this study, it would appear that DDA has substantially improved its position of distributed land since 1982.

4.5 Distribution of the land was to be by auction to the highest bidder, with the exception of the following: individuals whose lands had been acquired; industrial uses to be relocated out of areas of non-conforming use; low and middle-income individuals; and to cooperative housing societies and cooperatives of industrial undertakings. For these groups the land was to be allotted at pre-determined prices on a first come first serve basis. The price was determined according to a formula which included acquisition, administration and both on-site and off-site infrastructure improvement costs. As demand for individual residential plots increased a system of lottery was implemented.

4.6 One of the objectives of the urban land policy for Delhi was to provide a substantial portion of developed land to the lower-income groups. The policy was quantified into a land distribution ratio of 50% low-income (LIG), 30% middle-income



(MIG), and 20% high-income (HIG). Figure J compares the actual percentage of land distributed by income group through 1982 against the proposed ratio (Acharya 1987). It shows that:
• instead of 20%, almost 50% of the land area went to the HIG through auctions;
• instead of 30%, only 21% was allocated to the MIG;
• instead of 50%, only 21% was allocated to the LIG.
The main reason for this distortion between actual and proposed was DDA's motivation to produce revolving funds by giving higher priority to the delivery of income generating land.

4.7 Private sector cooperative development of land has been encouraged from 1947 onwards. Prior to the land freeze in 1961, 303 Cooperative Housing Building Societies (CHBS) were registered and allotted approximately 1,500 hectares of land (Verma 1990). In 1961, allocation of public lands were discontinued—it is supposed that this was due to speculation. The Delhi Cooperative Societies Act of 1972 required that all further housing co-ops be registered as Cooperative Group Housing Societies (CGHS). In CHBS, after construction members owned their individual plots and densities were quite low. Whereas in CGHS, land and buildings were owned in common and densities were set at 60 flats per acre—requiring 8 story elevator buildings.

4.8 With the adoption of the Act, registrations were again opened in 1972 for a one year period and closed due to insufficient availability of land. During that period 161 CHBS co-ops were formed with approximately 21,500 members. When registrations were reopened for a one month period in 1979, 434 new CHBS co-ops were registered. In the 1983 registration, approximately 1400 additional CHBS societies were formed and registered. Through the end of 1989, approximately 518 CHBS have been allocated some 2,300 hectares of land. An additional approximate 1,500 have been registered and are awaiting an allocation of land. Of the 518 with land available, almost 350 or more than 50% have begun land development activities (DCHFSL 1990). When compared to the public sector's 4% delivery rate through 1982, it would appear that private sector cooperatives are inordinately more efficient at the production of serviced land.

4.9 In general, the land delivery process for cooperatives works like this. Raw land is allocated to a properly registered co-operative. Members are obligated to provide from 40% to 60% of the capital required to acquire the land, construct the on-site infrastructure, pay a pro-rata share of the off-site trunk infrastructure, and construct the dwellings. Generally, financing is provided from lending institutions on a matching basis. As the society raises 25% of its share of the capital, the lender provides 25% of its approved loan amount. This allows the society to hire its professional development team, acquire the land, prepare construction documents, pay approval fees, and start the construction of on-site improvements. The next matching disbursement occurs when the society has raised 50% of its share from the membership; and so on until the scheme is completed.

4.10 Prior to 1962, there was substantial formal private sector activity in the development of land for authorized colonies. One of the major consequences of the adoption in 1962 of the Delhi Master Plan and the Scheme for Large -Scale Acquisition, Development and Disbursement of Land was the freezing out of the private sector in the land delivery process. There was limited small scale development and construction activities on the DDA auctioned plots. However, development of authorized colonies did not restarted again until the late sixties when urbanization was pushed to the Delhi periphery by DDA. This allowed for private sector land acquisition and development in the adjoining states of Haryana and Uttar Pradesh.

4.11 In 1975, Haryana recognized a role for the private sector in land development through the adoption of the Haryana Development and Regulation of Urban Development Act of 1975. As an alternative to public sector controlled development taking place in Delhi, the purpose of this act was to channel private sector resources into land delivery to accelerate the urbanization process. The act included licensing of private developers, allocating 45% of the residential developed land to lower-income households, paying a pro-rata share of the cost of off-site trunk infrastructure, receiving a maximum 15% return on equity

All of the vacant land within the urban limits of Delhi is controlled by the DDA. Pictured at left is a large parcel of land awaiting disposal.

investment, and the ability to acquire land directly from land owners at negotiated market prices.

4.12 The act was first implemented in the town of Gurgaoh located approximately 32 kilometers from Delhi, but contiguous to the Delhi metropolitan area. Curgoah was strategically positioned as a growth node due to its proximity to south Delhi, its National Highway, rail and road links and the suitability of its land characteristics to support urban development.

4.13 A development plan was prepared allocating land uses to residential, commercial, industrial, transportation, and public/open spaces. The first stage of residential land consisted of 3,364 hectares of which 1,466 hectares was designated for public sector acquisition and development, and 1,458 to the private sector. Construction of the on-site infrastructure—and maintenance for the first five years—was the responsibility of the developer. Off-site trunk infrastructure was provided by various public sector agencies, after approval of development plans and payment of pro-rata costs.

4.14 According to a study by Bansal in 1986, the public sector began acquisition of almost 27 hectares in 1966 and was for the

One of the recommended strategies to achieve higher density and more rational relationships between adjacent land uses is the development of industrial flats. Pictured at right is an industrial flat developed by DDA. The spaces including utility connections are leased to small scale production enterprises.

most part complete within two years. On-site infrastructure construction was accomplished over an eight year period. Beginning also in 1966, one private sector developer acquired and developed approximately 15 hectares of land. However acquisition and development was accomplished over a five year period. In either case, the percentage of the plots built out has not been significant: 23% for the public sector and 25% for the private sector. It appears that the main reason is the cost of construction combined with the lack of financing. However the land is actively traded, with some plots changing hands as many as five times.

4.15 Public sector activity has continued from 1966 to the present. Of the 1,458 hectares designated for acquisition, approximately 300 hectares, or 21%, had been developed and delivered through 1986. Private sector activity tapered off after the initial activity in the late sixties, but began again in earnest in 1981. Of the 1,466 hectares initially designated for private sector acquisition and development, about 1,000 hectares, or 68% had been delivered through 1986. Overall in Gurgoah, formal private sector delivery of serviced land has outpaced the public sector by better than a 3 to 1 margin.

4.16 The distribution of land to lower-income households by both sectors has been about the same—not up to the goals established in the development plan. Both sectors have tended to supply land for the middle and high-income groups, with lower-income plot distribution not exceeding 5%. The public sector tended to concentrate its on-site infrastructure for roads, at the expense of sewer, water and electricity. The private sector tended to spread its allocation of funds more evenly across the board. In some cases it has also undertaken the provision of off-site trunk infrastructure at an added cost to the purchasers, rather than wait for public sector construction. It would appear that the private sector tends to be more responsive to market needs for more fully developed land, whereas the public sector does not.

Sources of Funds for Land Development and Methods for Allocation

5.1 Sources of funds and methods for allocation are one area of this study where existing research is lacking, and therefore can be a more concentrated research effort in subsequent studies. From interviews and limited material available, a general conclusion can be drawn that supplies of funds in most cases appear to be inadequate; but more importantly the methods for allocation are fragmented. The overall impact is that finances in general are a constraint—but in particular for the provision of off-site trunk infrastructure, it is a major bottleneck with sometimes serious consequences.

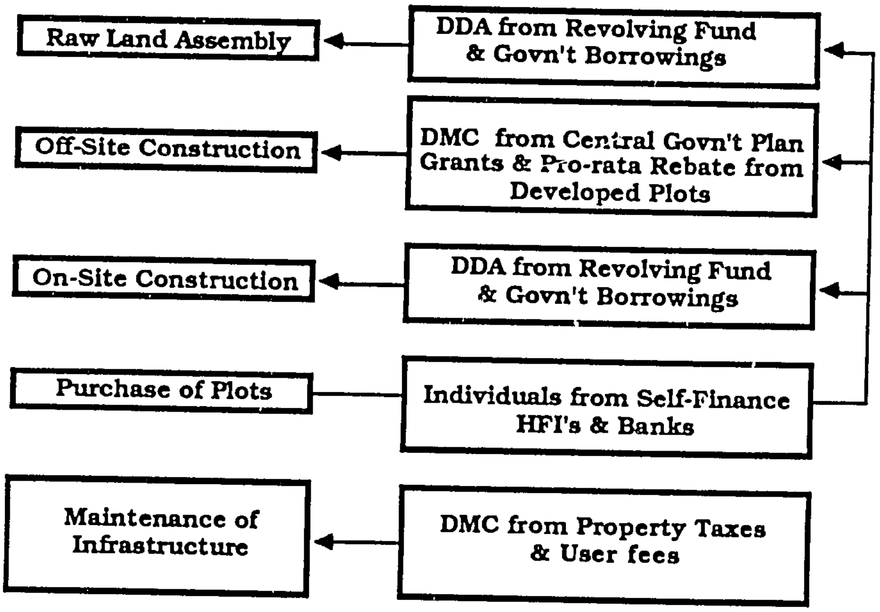
i) Public Sector Funding

5.2 The public sector actors in the serviced land delivery process for Delhi are DDA, DMC and the Delhi Administration. DDA is responsible for for land assembly, and in the case of plots supplied to individual buyers, the provision of on-site infrastructure. DMC is responsible for the provision of off-site trunk infrastructure and the maintenance of both off-site and on-site infrastructure. The Delhi Administration is responsible for coordinating the public sector's fiscal plans and programs for capital improvement and operating needs, and allotting the funds.

5.3 Figure K describes the public sector flow of funds. The sources of funds on which DDA is dependent are loans from the central government and its own internally generated source of funds—the revolving fund. The revolving fund was initially capitalized in 1972 with a central government grant of Rs. 50 million. The purpose of the fund is to provide DDA with an ongoing source of capital for land acquisition and construction of on-site infrastructure. The revolving fund acts as a cost recovery vehicle by receiving the funds generated from the sale of serviced land. It is difficult to ascertain if costs are fully recovered.

5.4 According to DDA, the current fund balance is Rs. 128.5 million. Therefore, one could assume that the current fund balance is the result of income exceeding expenses. However, other indicators suggest that this may not be the case. According

Figure K
Public Sector Flow of Funds
In Delhi



to DDA, it recently negotiated a central government loan for Rs. 80 million to carry out the first stage of development at its latest undertaking named PAPANKALA. These funds are repayable over a two year period at 4% interest. It has also held discussions over the last two years with HUDCO to obtain project related financing. According to sources interviewed, these were never successfully concluded as HUDCO requested that DDA standards be reduced to accommodate lower income groups. Finally there have been studies showing that arrearages in payments due from land purchasers are substantial. In the final analysis, DDA lacks the management controls over cost recovery to measure operating effectiveness as repayments into the fund are not segregated by project.

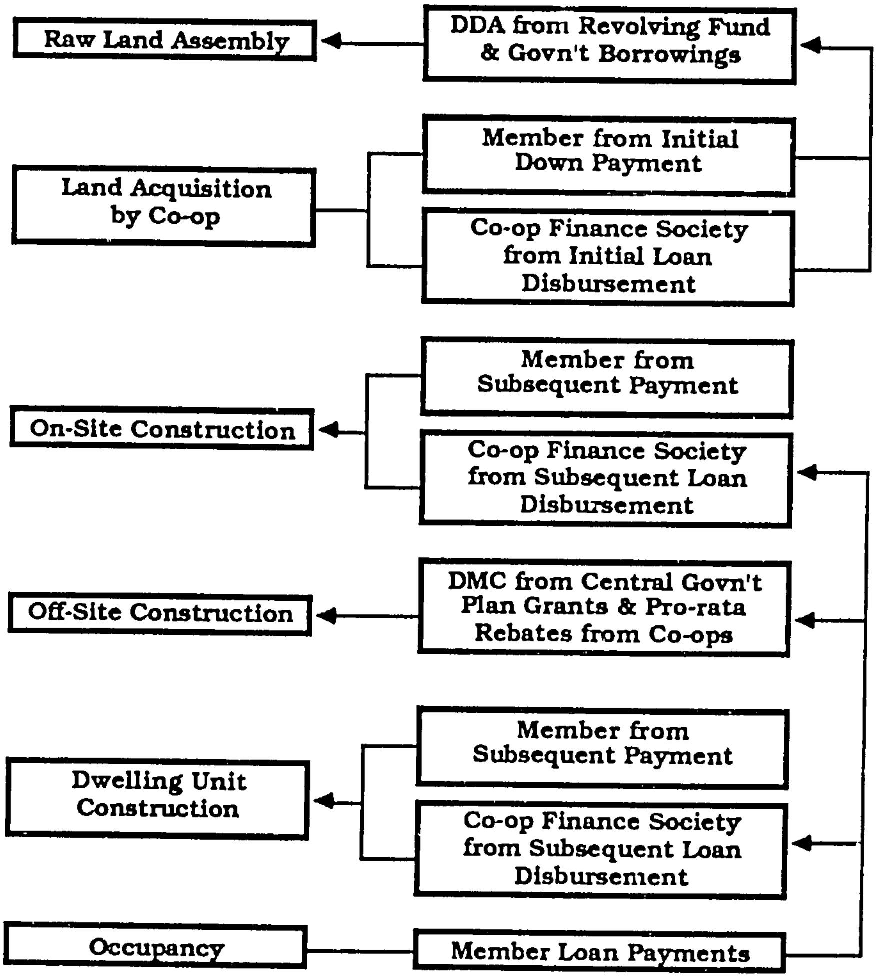
5.5 DMC is responsible for provision of off-site infrastructure and maintenance of both off-site and on-site infrastructure. Maintenance is funded through the municipal revenue sources of property taxes and electric/water user fees. Funds for capital projects such as off-site infrastructure, and the construction of schools, hospitals, and community centers are provided mostly by the Delhi Administration through the central government annual plan allocation process. A small portion of water and sewer construction funding is provided by end users through a payment based on a proportionate share of the cost. For Delhi, capital improvement projects are for the most part shown on the Delhi Master Plan. Each year DMC prepares its budget request and coordinates land development priorities with DDA through Delhi Administration. The budget request is negotiated with the central government Ministry of Planning. Likewise for five year plans, longer projections are made. Because Delhi is the capital, it has been designated as a Union rather than a State. Therefore, according to interview sources, it has been able to obtain a larger proportion of central government funds than if it were treated as a state. Central government revenue sharing for states is fixed by formula.

5.6 With an annual supply of resources and a master plan showing locations, it would appear that capital projects should be timely and in sufficient quantities to meet demand. In a number of instances, this has not been the case. For example, certain buildings at DDA's ROHINI development were kept vacant after completion because off-site water connections were not available. After initially agreeing, DMC subsequently diverted water supply to residents of an already occupied resettlement community suffering from ground water contamination problems. A second example was the default on loans by some 10 housing cooperatives. After completion, occupancy was not authorized because promised off-site services were not available, and the dwellings could not be connected to water supply and sewer distribution networks. While inadequate funding may be a contributing factor in some cases, according to sources interviewed the major reason for this lack of coordination between the two agencies was caused by conflicts over competing goals and objectives.

ii) Private Sector Funding

5.7 Figure L describes the private sector cooperative flow of funds for land development in Delhi. The cooperatives are dependent on DDA for allocation of raw land parcels, and on DMC for the provision of off-site trunk infrastructure. To acquire the land from DDA, the housing co-op is formed and registered with the proper authority—and initial deposits are taken from members. The cooperative is also eligible for a loan from an apex cooperative loan society—a primary lender for co-op housing. Loan terms are currently 13% interest repayable over 20 years with the first year interest only to complete construction. Loan

Figure L
Co-op Sector Flow of Funds
In Delhi



to value ratios are in the 40% to 60% range—co-op members must contribute from 40% to 60% of the total development cost for land, proportionate share of off-site infrastructure, site development and dwelling unit construction costs.

5.8 The cooperative housing finance societies are the single purpose lenders for the cooperative housing borrowing market. They are organized as a cooperative of cooperatives. They were initially capitalized by the central government, but also require equity investment on the part of their housing co-op borrowers which is linked to loan amounts. By law, the co-op finance societies are required to pay an 8% dividend to equity holders including the central government. In the case of the Delhi Co-operative Housing Finance Society Limited, its current paid in equity is Rs. 29.6 million of which approximately half has been contributed from the housing co-op borrowers. In addition to equity capital, lending resources are raised through:

- government guaranteed borrowings from the Life Insurance Corporation and the General Insurance Corporation;
- loan linked savings deposits from its member co-ops awaiting allocation of land from DDA; and
- project linked loans from HUDCO.

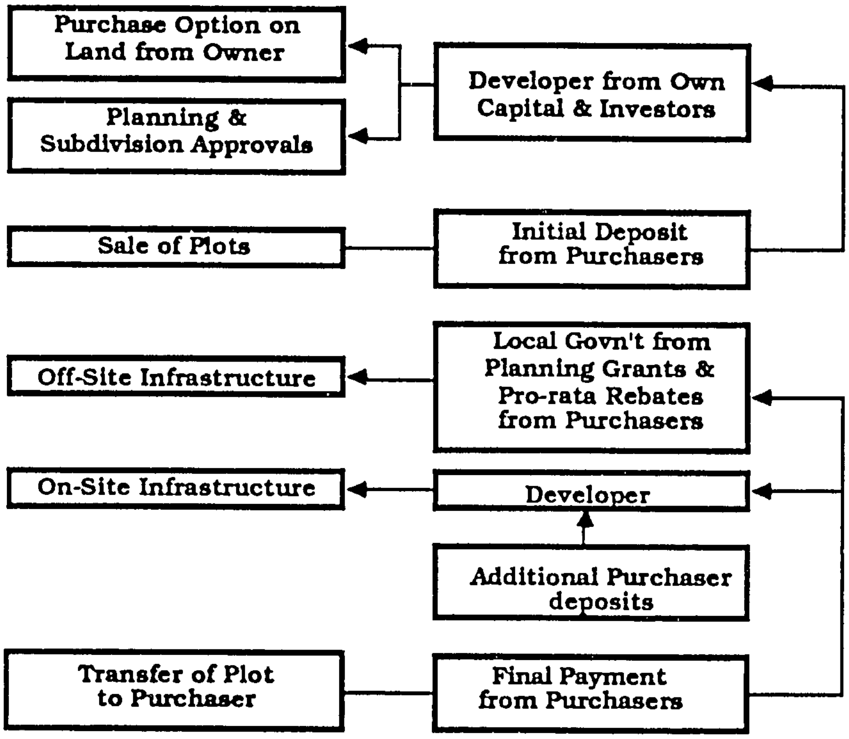
Lending rates are fixed by the Reserve Bank at 13% per year. Borrowing rates range from 9% to 12.5% depending on source and and aging. Fund reflows from reserve investments and quarterly loan payments are used to pay equity dividends, retire outstanding bonds and loans, cover operating expenses and fund mandated reserve requirements.

5.9 Flow of funding in the Haryana area for private sector developers is described in figure M. For the most part private developers in India use the same modus operandi as developers in western countries—maximize everyone else's money before putting your own into the deal. Therefore, developer funding comes from a wide variety of sources and in varying degrees depending on the financial strength of the developer and its ability to structure the venture.

5.10 For land acquisition, developers attempt to delay the actual acquisition from the land owner as long as possible, and even than to acquire the land in sections as dictated by the market demand for the land. Owners are paid as small a deposit as possible for an agreement to sell a fixed amount of land at a pre-determined price—negotiated on the basis of other land sales in the immediate market area, and at prices substantially higher than paid by the public sector. In effect, through this process the land owner provides a portion of the funding to the developer.

5.11 As soon as the land is planned, the development sanctioned by the local authorities, and the developer licensed, the plots are put on the market. Typically, buyers make a series of cash payments to the developer, against a tentative purchase price as follows:

Figure M
Private Sector Flow of Funds in Haryana



- 10% at time of buyer registration;
- 70% in four or five payments during the development process; and
- 20% balance plus cost overruns at time of possession.

Therefore payments to the developer can be structured according to development cash flow requirements with profits as close to the front end as possible. In most cases insufficient cash flow must be made up by the developer from internal sources. According to interview sources, in a few instances bridge financing has been negotiated at 13% to 15% interest and repayable over one to two years either as principal and interest installments or as interest only. Since land acquisition is delayed as long as possible security was in the form of personal guarantees of the developer rather than a mortgage. Developer financing is currently available from HUDCO, and will be available from the National Housing Bank. These lenders have restrictions such as maximum plot size and loan amounts to insure that loan funds reach targeted income groups.

5.12 For the purchasers, mortgage financing resources are as yet available only in limited amounts in the market place. Therefore, most of the purchasers depend on savings, sale of assets, or in some cases black money to meet the developers terms and conditions. The first impact is that for the most part low and middle-income buyers are priced out of the private developer land markets. The market penetration into the middle-income by cooperatives is improved somewhat by the availability of financing for 40% to 60% of the total development cost. However, land and development costs make cooperatives also out of the reach for most low and middle-income markets.

5.13 A second important factor is the recent phenomenon where demand by certain income groups seems to be shifting to completed dwellings. It would appear that a trend is developing whereby those whose incomes are derived from salaried full time employment do not have the time to acquire land and go through the process of building a house. For them, priority is place on moving right in and setting up housekeeping immediately. Secondly, land costs are such that multi-family construction of flats is required to bring down the final cost to the purchaser. Therefore, in certain land markets multi-story flats may be the only possible land use.

Roles and Linkages of the Formal Private and Public Sectors in Land Development

6.1 The roles required to be carried out for formal sector land delivery are as follows: land acquisition, provision of on-site infrastructure, provision of off-site trunk infrastructure, securing sanctions, securing financing, provision of social facilities, and distribution of serviced land. The roles of the key public and private sector actors and the linkages between are described in the following chart:

Figure N: Roles & Linkages

Role	Public Sector	Private Sector
Land Acquisition	In Delhi: DDA responsible for all land acquisition. In Haryana: both HUDA & private developers share land acquisition.	In Delhi: Co-ops & developers depend on public sector for land supply. In Haryana: developers participate in land acquisition.
Provision of On-Site Infrastructure	In Delhi: DDA provides on-site infrastructure for plotted & auctioned land. In Haryana: HUDA provides on-site for its undertakings.	In Delhi: Co-ops provide on-site infrastructure for memebrs; individuals depend on DDA. In Haryana: developers share providing on-site; individuals depend on developers.
Provision of Off-Site Infrastructure	In Delhi: DMC provides off-site infrastructure to site. DDA depends on DMC for off-site. In Haryana: local govn't provides off-site to site.	In Delhi: Co-ops & individuals depend on DMC for off-site. In Haryana: developers depend on local govn't for off-site.
Securing Sanctions	In Delhi: DDA & DMC approve on-site; DMC approves off-site. In Haryana: HUDA approves developer; local govn't approves on-site & off-site.	In Delhi: Co-ops & developers depend on approval from DDA, DMC, Urban Arts Commission, Fire Officer, Urban Land Authority. In Haryana: Private developers depend on HUDA & local govn't.
Securing Financing	In Delhi: DDA depends on revolving fund & central govn't borrowing; DMC depends on plan grants from Delhi Admin. & pro-rata rebatefrom land purchasers. In Haryana: HUDA & local govn't depend on plan grants & pro-rata rebates.	In Delhi: Co-ops depend on members & co-op loan society; individuals depend on self-financing. In Haryana: Developers depend on self-financing by individuals & limited mortgage financing.

Role	Public Sector	Private Sector
Provision of Social Facilities	In Delhi: DDA provides land to DMC. DMC provides education, health & recreation facilities. In Haryana: HUDA provides provides land & local govn't provides facilities.	In Delhi: Co-ops depend on DMC for construction of facilities. In Haryana: developers provide land & local govn't provides facilities.
Distribution of Serviced Land	In Delhi: DDA distributes plots bu lottery & auction. In Haryana: HUDA shares distribution with developers.	In Delhi: Individuals depend on co-ops & DDA for serviced land. In Haryana: individuals depend on HUDA & private developers for serviced land.

6.2 DDA is responsible for land acquisition in Delhi. The co-ops depend on DDA for provision of raw land, while developers depend on individuals and co-ops for dwelling unit construction opportunities once the land is developed. In Haryana, HUDA participates with private sector developers in the acquisition of land, although the developers depend on HUDA for licensing to undertake development activities. Of note is the consequences caused by HUDA following Land Acquisition Act procedures while the private sector negotiates on the open market. Payment of market land prices by the private sector has forced most of the HUDA acquisitions into the courts in an attempt by the seller to increase the price.

6.3 The provision of on-site infrastructure consists of land planning, preparation of bid documents, bidding and construction for land regrading, roads, surface water distribution, sewer, water, and electricity. In Delhi, DDA is responsible for providing on-site works for the land that is plotted and either auctioned or allotted by lottery to individuals. Individual plot purchasers depend on DDA. Housing cooperatives acquire raw land from DDA and provide on-site infrastructure for its membership. Co-op members depend on the housing cooperative for providing on-site works. In Haryana, HUDA provides on-site infrastructure for its undertakings, and private developers provide their own. Individual purchasers depend on both HUDA and the private developer.

6.4 Off-site infrastructure includes water and sewer trunk lines, roads and bridges, and electric distribution systems needed to bring these services to a particular development. After on-site infrastructure is completed, occupancy of the development depends on the availability of these off-site services.

In Delhi, DMC is responsible for the construction of off-site works. DDA, housing cooperatives and individual purchasers all depend on DMC for the provision of these services. In Haryana, the local government is responsible for providing off-site works. Both HUDA and the private developers depend on the local government. In some cases, when the public sector was unable to provide off-site infrastructure within the time frame required for continued land sales, developers undertook the provision on their own initiative—passing the cost along to the individual purchasers.

Pictured at right is incremental build-out taking place on plots auctioned by DDA to middle income groups in ROHINI, a large scale DDA development on the north-west periphery of Delhi. Note the sign advertising properties for sale. Tenure is initially granted by DDA to the original purchaser through a 99 year leasehold. Subsequent resales are through the informal method of power of attorney.

6.5 Sanctions for subdivision, zoning and building permits are secured in all cases from the public sector—but the number and complexity varies greatly between Delhi and Haryana. In Delhi, after plans and bid documents are completed co-ops must seek the approval of the DDA, DMC, the Fire Chief, the Urban Arts Commission, and the Authority for Urban Land ceiling and Regulation. Many of these must be obtained in proper sequence, rather than all at once. In Haryana, private developers depend on only HUDA and the local government for land development approvals.

6.6 Securing financing covers all the necessary funding to carry out the acquisition and development activities. In Delhi, DDA depends on proceeds generated through the sale of developed land which was previously deposited into the revolving fund. In addition, it has recently turned to central government borrowings to supplement the revolving fund. For land development activities, DMC mostly depends on Delhi Administration annual negotiations for central government plan grants from the Ministry of Planning. It also charges co-ops and individuals for a portion of the off-site infrastructure costs. Co-ops depend on individual member contributions and loans from co-op sector lenders such as the Delhi Co-operative Housing Finance Society Limited. Individual purchasers depend on self-financing schemes, and limited sources of personal credit and mortgage financing. In Haryana, HUDA depends on proceeds generated from the sale of land, and allocations of central government plan grants from the state government. The local government depend on state government allocations of plan grants and pro-rata charges for off-site infrastructure. Developers depend on their own sources of working capital, limited sources of short term commercial loans, and income from sale of land. Individuals depend on self-financing, limited sources of personal credit and mortgage financing, and some developer provided financing.

6.7 Social facilities are defined as those which provide health, education and recreation resources. In Delhi, DDA provides the land to DMC for the provision of the facilities. DMC provides the construction of the schools, hospitals, clinics, parks, and playgrounds. Commercial lands for shopping centers are auctioned by DDA to private developers. Co-ops and individuals depend on DDA and DMC for the provision of social facilities. In Haryana, both HUDA and the private developers provide land to the local government. And, both are dependent on the local government for construction. In some instances where the market potential for land sales could be improved upon, developers have provided some social infrastructure to maintain sale momentum.

6.8 The final step in the delivery process is distribution of the land. In Delhi, DDA is responsible for the auctioning of land to middle and high-income groups and the allocation by lottery of serviced plots to low-income groups. It is also responsible for allocation of raw land to housing co-ops. Individual plot purchasers depend on DDA for land distribution as do the housing co-ops. Cooperative members depend of the housing co-op for distribution. In Haryana, HUDA shares the distribution of land activities with the private sector developers. In both cases this includes land auctioned to middle and high-income groups as well as land allotted by lottery to low-income groups. Therefore, individuals depend on both the private and public sectors for delivery of serviced land.

Constraints Affecting the Private and Public Sectors in Improving the Supply of Serviced Land.

7.1 In this section we will examine the constraints which are operating against a more effective delivery of serviced land. First we will focus on the public sector, followed by the private sector.

i) Constraints on the Public Sector

7.2 The major constraints which operate against the public sector's ability to more effectively deliver land are: the provisions of the land Acquisition Act of 1894; inefficient administration; coordination with the DMC for the provision of off-site trunk infrastructure; the inability to mix land uses in development schemes; financial constraints; and the lack of a land information.

7.3 The Land Acquisition Act requires that compensation to the owner be based on the market price at the time that DDA notifies of their intent for compulsory acquisition. By the time that the acquisition actually takes place due to delays in the bureaucratic process, market prices have appreciated in value, and the owner is compensated at less than market value. Land acquisition by compulsory taking of the state with just compensation is difficult because individuals place a high value on the ownership of property. This system has further aggravated the situation because the method of compensation is perceived as extremely unfair, resulting in a further escalation of the adversarial relationship between the DDA and land owners. In most cases owners went to court to increase compensation. With the court finding in favor of many owners, seeking legal redress became a standard part of the process, and added substantially to the delay.

7.4 Within the DDA, there have been administrative inefficiencies in the process. The impacts have been delays in the development of land, cumbersome distribution procedures, inappropriate supply and pricing objectives, difficulty in defining the deserving users, inappropriate allocation procedures, restrictions on the resale of leasehold land, and the payment of bonuses to DDA employees.

7.5 After acquisition, the process of subdividing, preparation of construction documents for on-site works, bidding and letting of contracts, and management of the construction activities is lengthy. The process of allocation can be confusing and time consuming due to the number of visits to various offices that are required. The supply of auction versus allotted land, and the pricing has often been tied to the budgetary requirements of DDA rather than the market demand. Under severe supply constraints, the formal sector land delivery process is more likely to be skewed in favor of special interest groups with better access to the bureaucracy—while the low income is forced into the informal market. Due to the focus on producing revenue, land in prime locations tends to be auctioned first, while allotted lands are left to poorer, less centrally located areas. The resale restrictions on leasehold land has driven the property transfer process into the informal sector. Lastly, employee eligibility to share in DDA's profits encourages the distribution of income generating land at the expense of allotted land.

7.6 DDA has the authority to develop the land that it has acquired. Therefore, the provision of on-site water, sewer roads and power although time consuming, are under its control. DMV has the authority to provide off-site trunk water, sewer, power and roads. There is no institutionalized process for coordination of the activities of the two entities. Therefore, DMC's capital improvement planning, budgeting and works programs are mostly carried out without regard for the planning, budgeting and implementation of DDA's land development schemes. This has proven to be a serious constraint in the delivery of developed land.

7.7 The public sector is constrained by the lack of ability to mix land uses which results in initially undervalued land, additional speculation opportunities, and the potential for exceeding the design capacity of the infrastructure. Even with highly sophisticated levels of planning regulations, and more importantly the resources to monitor improvement activities, land use mixing is difficult. On the other hand the private sector land markets understand very well the economics of mixed land uses. For instance, plots fronting on wider streets and corners are subdivided and initially allocated as residential uses. As the market place takes over, these plots are converted into commercial uses and demand substantially higher prices—as they are producers of rental income to the owners. A second phenomenon is the increase in density. The driving factor is income generation to the owners through residential rental income as they increase the built-up space to accommodate additional households. Where blocks are initially subdivided into smaller plots, many times the plots are joined together and/or additional stories are added.

7.8 Financial constraints impact on the delivery of serviced land in three ways. First is the priority given by DDA to the development of income generating land. This reduced the allocation of land to lower-income households; the spatial distribution as better located parcels were brought to market earlier; and priority emphasis on higher cost land as DDA employees earned bonuses based upon income. The second is apparent lack of adequate funding for DMC to carry out the construction of off-site trunk infrastructure—and the consequent delays in delivery of serviced land by DDA. And the third constraint was Delhi Administration's lack of financial coordination and planning between DMC and DDA on the delivery of projects and off-site-infrastructure—leading to completed dwellings awaiting sewer or water services.

Due to the gap between supply and demand for land caused by DDA's monopoly of the serviced land delivery process in Delhi, much of the farm land surrounding Delhi has been purchased from farmers and illegally subdivided into UNAUTHORIZED COLONIES. *Pictured at right is one among many property dealers which specialize in the sale of farm land.*

7.9 A final major hurdle is the lack of adequate land information. In a land market with a large supply/demand gap, a good source of information is essential to both the public and private actors within the land delivery system. In Delhi there is a lack of information. For instance, little is actually known about the inventory of public sector land holdings. While DDA has been acquiring land since 1962, the DIT stockpiled land in the period prior to the institution of DDA. Other public agencies also have land holdings. A second short coming is the publication of land prices and sale transactions. Many of the regulations to help keep prices down and curb speculation have resulted in informal market transactions—and the resulting sheltering of information about sales. An underground land pricing structure can only add to the private property dealers and real estate brokers ability to manipulate prices. A third impact is on public sector enforcement. Lack of information makes the enforcement of subdivision regulations and building bye-laws more difficult; the implementation of a municipal revenue generating property tax system both inequitable and unenforceable.

ii) Constraints Affecting the Private Sector

7.10 The major hurdles faced by the private formal sector in participating in the land delivery process are: access to land, lack of off-site trunk infrastructure, delays in obtaining sanctions, and availability of financing.

7.11 The first constraint has been access to land for development. The land freeze of 1962 for all intents and purposes put private formal sector activities in authorized colonies out of the land development business. There was limited small scale development and construction activities on the DDA auctioned plots. Development of authorized colonies was restarted again in the late sixties when urbanization was pushed to the Delhi periphery by DDA. This allowed for private sector land acquisition and development in the adjoining states of Haryana and Uttar Pradesh. The cooperative sector has received limited access to land over the years in a start/stop fashion. In spite of this, by 1983 there were approximately 2300 registered societies in Delhi, most of which were awaiting access to land to provide housing.

7.12 A second constraint was the lack of available off-site trunk infrastructure. Insufficient coordination by Delhi Administration and an apparent lack of funding for DMC to provide infrastructure also impacted the private sector. This impact was most strongly felt by a number of cooperatives, who had met the requirements of registration and demonstrated the capability of undertaking development activities, but were denied access to completed dwellings due to lack of off-site infrastructure service.

7.13 A third area of hurdles is sanctions—obtaining permission of authorities to undertake development—which is a lengthy and cumbersome process. A developer of a Group Housing Scheme has to get approval from the Cooperative Societies membership, the Competent Authority under the Urban Land Ceiling and Regulation Act, Delhi Urban Arts Commission, the DMC and Chief Fire Officer, and the DDA. The process is sequential in that one approval is required before going on to the next. And it is time consuming in that it may take from one to three years to complete the process.

7.14 A fourth area is lack of availability of financing. For instance there are a number of fiscal incentives used to promote development and investment by the private sector in industrial development and foreign exchange commodity trading. These are not available for land development. Access to short term loans for acquisition and on-site infrastructure construction is limited by the commercial banking institutions. The present housing finance institutions have a very small capital base and are not in a position to meet the demand for financing by house purchasers. In addition, the inability to quickly perfect a mortgage through foreclosure is a disincentive to the commercial banking community to become more heavily involved to house purchasers.

Examples of Public/Private Partnerships for Further Analysis

8.1 Information for this study has been collected on two public/private partnership examples: the public/private joint venture in Haryana at the town of Gurgaon (Bansal A.,1986); and the feasibility of new town corporations as a public/private joint sector development vehicle (AIHDA, 1990).

i) The Haryana Model

8.2 The state of Haryana is contiguous to the southwest boarder of Delhi. During the 1960s and 1970s, while Delhi was adopting the public sector dominated approach to delivery of serviced land, the officials of Haryana recognized that the private sector could also play an effective role. In 1975, it adopted the Haryana development and Regulation of Urban Areas Act. A key provision was that the private developer could participate in the acquisition, development and distribution of the land,

8.3 The act set forth conditions to be met by private developers. They had to be licensed. Up to 20% of the plots were to be allotted to low-income households at subsidized prices. An additional 25% were to be developed and sold on a no-profit no-loss basis. The balance (55%) were to be sold to the general public with the restriction that the return on investment capital could not exceed 15%. In addition, a pro-rata charge for reimbursement to the local government for providing off-site infrastructure could be passed on to the purchasers. Most importantly, developers were free to negotiate and acquire land from owners without the involvement of the public sector.

8.4 Gurgaon was designated as the location to be developed under this concept. The town is located on the southwest periphery of Delhi's urbanized area, on National Highway 8, at the intersection of a number of key transportation routes. The land is generally flat, does not flood, and is generally well suited for intensive urban development. Its population had grown from 4,765 in 1901 to just under 38,000 in 1961. By 1981, Gurgaon had become a bedroom community for Delhi growing to over 100,000, and its expected size by year 2001 will be 700,000.

8.5 Of the proposed 7,000 hectares of land to be included in the urbanized area, 3,364 hectares were designated for residential land use. With the availability of large tracts of land for private sector development, the lack of land development opportunities in Delhi, a demonstrated growth potential, and a public sector land development policy sympathetic to its interests, Gurgaon became attractive to the private sector development community.

8.6 DLF Ltd., a private developer, had been active in the area beginning in 1969. Along with the Haryana Urban development Authority (HUDA), it had undertaken acquisition, development and sale of land in Gurgaon. Important points to note are that (1) the private sector was able to bring serviced land to market twice as fast as the public sector; and (2) the primary reason that only one in four plots was build out, was that neither entity was able to bring land development in a t a cost affordable to the low-income households.

8.7 Large scale development by the private sector began in 1981. Of the 3364 hectares designated for residential development, 1458 were assigned for public sector acquisition and development, while 1458 were assigned to the private sector. A number of other developers joined DFL, including Ansals, Unitech, Utility Builders, Garden Estates (ITC Group) and Dalmais, among others. The following chart compares the results of the two sectors:

Figure O: Public/Privatre Comparison

Activity	Public Sector	Private sector
Area under development	1,458 hectares	1,466 hectares
Time for acquisition & development	10 Years	5 Years
Land delivered by 1986	300 hectares	1,000 hectares
Land delivered as a percentage of land under development	21%	68%
Current selling price	Rs.294 per sq. mtr.	Rs. 504 per sq. mtr.
Estimated total development cost including land acquisition	Rs. 200 per sq. mtr.	Rs. 200 per sq. mtr.
Estimated Gross Return	47%	152%

Source: Bansal 1986

By 1986, the private sector was still able to bring land to the market faster than the public sector. In five years the private sector had acquired and serviced 68% of its allotted land while the public sector was only able to bring 21% of its land to market in a 10 year time period. On the other hand, the public sector land served a lower income population because its selling price was 40% less than the public sector. Most of this price differential came from the fact that the private sector's gross return was estimated at more than three times that of the public sector.

8.8 A second factor which made up for the private sector's higher sales price was the amount paid for raw land. The public sector followed the provisions of the Land Acquisition Act, and by 1986, paid an average of Rs. 100,000 per hectare. The private sector was not subject to the provisions of the act and by 1986 was paying 2 to 4 times the amount paid by the public sector. Besides its impact on total development cost, this land price differential cause problems for the public sector. Land owners preferred dealing within the private developers due to their ability to pay higher prices and close the deal quickly. Therefore, land owners dealing with the public sector resorted to the courts to set compensation, and most of the land notified for acquisition by the public sector since 1982 is under dispute. This undoubtedly contributed to the time differential in delivering serviced land.

8.9 A second interesting comparison was the development characteristics of the two sectors. In the case of the public sector it was not necessary to obtain approval of the local Town Planning Department. This lead to a tendency by HUDA to overlook the provision of plots for the lower-income, social facilities and on-site infrastructure. Unlike the private sector which depended on its customers for financing on-site works, the public sector was constrained by budget allocations and other bureaucratic hurdles. The bulk of its funding for on-site infrastructure was spent on road construction at the expense of sewer and water. Surveys revealed great dissatisfaction amongst residents over the provision of services by the public sector. The private sector tended to spread its infrastructure development funding more proportionately among sewer, water and roads. In some cases where off-site infrastructure was not available on time to meet sales demand, the developer provided its own alternative, passing the cost along to the purchaser.

8.10 Social facilities for health, education and recreation have been delayed in both sectors. Land is provided to the local government by both sectors for the provision of schools, clinics and parks. In the public sector, the facilities are still not available to residents. The private sector has done somewhat better. First, where the availability of a specific facility would improve marketing, the developer would use its own funds to keep sales momentum going. Second, the private sector had a stronger motivation to pressure the agency responsible for constructing facilities, and was able to obtain earlier action.

8.11 The proportion of plots to be provided to lower-income by both sectors was the same—45%. In spite of this, both sectors are delivering land to middle and high-income households. Surveys revealed that less than 5% of all plots have gone to the lower-income. As an example, the rate fixed by the public sector for lowest-income plots was Rs. 177 per Sq. Mtr. The total cost including a modest house would be approximately Rs. 120,000, which is far beyond the affordability of the lowest-income group. Obviously, these plots were subsequently resold to middle and high income households.

ii) Joint Sector New Town Corporations

8.12 It is appa ent herein from the Haryana model, and from other undertakings of the public and private sectors that each has certain strengths and weaknesses. These result from the different goal orientations of the two sectors: the public sector is focused on the social goals of suitable access to land, public health and safety; while the private sector has as its main goal efficient land development to increase returns on capital investment. The concept underlying the Joint Sector New Towns Corporation approach being advanced by the All India Housing development Association (AIHDA) with financial support of the private sector, is to combine the strengths of both sectors in hopes that they would off-set each others weaknesses. The vehicle would be structured similar to the public/private joint ventures successfully used for the industrial development schemes.

8.13 According to a feasibility study prepared by AIHDA, the objectives of the joint sector approach would be six-fold. The first is to accelerate the development process by placing management under the leadership and control of the private sector. Second, eliminate land speculation by placing policy control of the public sector. Third, use the public sector weight and ability to assemble large land tracts to develop new growth centers. Fourth, make the intervention of sufficient size to attract new technology applications in planning, development, management and maintenance. Fifth, develop a new town culture which emphasizes goals for health, hygiene, and ecology. Lastly, make the undertakings self-sustaining, commercially viable and profit making.

8.14 According to the feasibility study, the proposed joint venture would be structured in the same manner as joint sector industrial ventures. A public institution such as HUDCO would provide 26% of the equity capital. A private sector developer would provide 25% of the capital, and 49% would be raised through the sale of equity shares to the public. The chairman would be provided by the public sector; the managing director from the public sector.

8.15 The advantages of public sector participation, according to the study, would allow for assembling the large tracts of land required to carry out development. In addition it would allow for coordination of the provision of off-site trunk infrastructure which is under the control of the various state governments. The advantages of private sector participation is efficiency in project execution; modern, efficient and responsive management control mechanism; access to international technology with in-house ability to choose appropriate levels of technology application; and a profit orientation and cost benefit approach to implementation.

8.16 While this approach needs further analysis, an initial observation is that there appears to be some basic structural weaknesses. First, social objectives at the policy level, and profit motivation at the management level is fertile ground for goal conflicts. The institutional ability to resolve these conflicts may be insurmountable. Second, the public sector is supposed to facilitate assembling large tracts of land and coordinating the delivery of off-site infrastructure which—as we have seen in Delhi and Haryana—has not been the case so far.

Existing Land Information Systems

9.1 As best as can be determined within the scope of this study, a current, useful, and working land information system does not exist. Previous attempts have been unsuccessful because the maintenance of such a system has not been seen as a useful exercise—one for which the costs are judged to be worth the benefits.

9.2 Approximately 12 years ago, the Town and Country Planning Organization attempted to establish a land information system. It began the process with a large selection of data collection fields, and a broad geographic area. Due to the lack of perception of the need for the information system, sufficient funding was not available. Ultimately, the number of date collections fields were substantially reduced, and data was collected from only one location. A computer fro data storage and manipulation was not made available and the information was processed and stored on cards. By the time all the data was collected and entered by hand, the information was not considered to be sufficiently current to be useful. Therefore, the project was abandoned.

9.3 In Delhi, land is officially registered in two places: the census department, and the Delhi Administration's land and land revenue department. The purpose of the census registration is data collection for planning purposes. The purpose of the land and land revenue department registration is for the imposition of property taxes. The two registration systems are not cross correlated. Sources interviewed indicated that a recent check for one location not in Delhi showed a 15% to 20% differential between the properties registered in the two systems. Neither of these systems maintain current ownership title records for properties.

Annex I: People Interviewed

G. Ansal, Joint Managing Director
Ansal Group

H. J. Bijlani, Consultant
Housing Urban Development and Municipal Affairs

M. Dham, Assistant General Manager (Technical)
Ansal Properties & Industries Limited

G. C. Gambhri, Commissioner of Planning
Delhi Development Authority

H. C. Joshi, General Manager
Delhi Co-operative Housing Finance Society Limited

R. M. Kapoor, Chief of Urban Studies Centre
The Times Research Foundation

R. K. Khatra, Executive Director (Technical)
Ansal Properties & Industries Limited

O. P. Mathur, Director
National Institute of Urban Affairs

Raj Mulkh, Director of Finance
Housing and Urban Development Corporation Limited

E. F. N. Ribiero, Director
School of Planning and Architecture

N. Risbud, Assistant Professor of Housing
School of Planning and Architecture

K. S. Sastry, Chairman
National Housing Bank

S. C. Sharma, Executive Director
Human Settlement Management Institute
HUDCO

Mr. Tripathi, Commissioner of Lands
Delhi Development Authority

R. V. Verma, Assistant General Manager
National Housing Bank

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Annex III: Case Study Protocol

Land Resources In and Around Delhi

• What is the situation regarding availability of land for new development? Are there any potentials for adaptive re-use of existing uses?
• What is the availability of additional capacity within the existing sewer, water and electric supply systems?
• The pricing data is based on 1989 information. Is there data available on distribution of Delhi housing stock after 1981 by: Legal Subdivided; Multifamily Housing; Resettlement; Squatter Settlements; Unauthorized; and Traditional Villages & Others? (see Neelima Risbud: *Residential Prices in Delhi—Implications for Policy*)

Roles and Linkages of the Formal Private and Public Sectors in Land Development.

• Are there any other main actors besides the Delhi Development Authority (DDA), Delhi Administration, The Cooperative Sector, Ansal Properties, and DLF Limited?
• Are there any other linkages beyond land distribution, sanctions and exemptions, utilities and power?
• How is physical and capital budget planning coordinated?
• Who provides the social infrastructure—health, education, recreation and transportation—for each sector?

Systems for Allocation and Disposal of Land for Shelter

• What is currently being distributed?
• What is planned to be distributed over the next planning periods?
• Are any changes in the distribution methods being contemplated?

Sources of Funds for Land Development and Methods for Allocation

• Who provides short and long term financing for each sector?

• How are the public capital budget funds allocated—from the state and federal governments?

• What resources are currently available?
• What resources will be available for the next planning periods?

Summary of Policies Affecting Urban Land Delivery

• Are there any other major policies beyond those which produced the following legislation: Land Acquisition Act of 1894; Delhi Development Authority and the General Plan of Delhi (Master Plan) in 1957; Scheme for Large-Scale Acquisition, Development and Disposal of Land for Delhi of 1961; Factory and Wages Act of 19??; Delhi Cooperative Societies Act of 1972; and the Urban Land Ceiling and Registration Act of 1976?
• What are the policies regarding controls on rents?

Constraints Affecting Private Sector (Developers and Cooperatives) Land Development

• Are there any other constraints besides: access to land distributed by DDA; administrative hurdles in obtaining sanctions for subdivision plans, and building permits; availability of off-site sewer, water and electricity?
• Are there any approval requirements for environmental and historical impacts, transportation requirements, commercial development or the provision of social infrastructure?
• How does the supply of short and long term financing impact the private sector?
• How does the administration of Cooperatives impact the delivery of land?
• What is the impact of availability of developable land in the Delhi metropolitan area?

Constraints on the Public Sector in Improving the Supply of Serviced Land

• Are there any other constraints beyond: management inefficiency within the bureaucracy on acquisition, development, and distribution; coordination between DDA and Delhi Administration on the provision of sewer, water and electricity (both capacity and trunks); impacts on timing and price caused by the provisions of the Land Acquisition Act; and land use restrictions against mixed uses?

Summary of Regulations Governing Land Development

- Are there any other major regulations beyond the following: Land Acquisition Act of 1894; Delhi Development Authroity and the General Plan of Delhi (Master Plan) in 1957; Scheme for Large-Scale Acquisition, Development and Disposal of Land for Delhi of 1961; Factory and Wages Act of 19??; Delhi Cooperative Societies Act of 1972; and the Urban Land Ceiling and Registration Act of 1976?
- What are the controls on rents? How are they regulated? What is the regulating agency? How effectively are they enforced?
- What subdivision and building standards are required? How do they impact on affordability?

Examples of Public/Private Partnerships for Further Analysis

- What is the joint sector approach contemplated by the Housing and Urban Development Corporation (HUDCO) and the Ministry of Urban Development?
- What are the successful private sector development initiatives at Haryana, Pradesh, and Tamil Nadu? Is there any data or evaluation material available? Would it be worth a site visit if any are reasonably close by?

Existing Land Information Systems

- What is the current status of the Town and Country Planning Organization's land study that was begun in 1980? Is there any relevant material available?
- Are there any other data collection initiatives that have been undertaken?
- Are there any plans to undertake data collection on land information?

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