Viewpoint

Housing supply in Delhi

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Delhi is experiencing the highest population growth rate among mega cities in India. By 2021 its population is projected to be around 27 million. The consequence of rapid increase in population and the changing socio-economic pattern in Delhi has resulted in an acute shortage of housing and related infrastructure especially for the poor and low-income households. Nearly half the population however lives in conditions of miserable poverty, crammed into overcrowded slums and hutment. Delhi's informal housing is a reflection of a poor and inappropriate urban planning system, with a lack of public investment and restriction in the formal land and housing market. This paper reviews the housing delivery system and the problems associated with the housing delivery system in Delhi and presents a broad guideline for policy makers to improve the housing delivery system in Delhi. It was found that to improve the housing delivery system of Delhi multiple sectoral approaches are required. The study demonstrates that the informal housing sector and its quality can be improved and transformed into formal housing by improving the essential infrastructure.
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Introduction

India has the second largest population in the world. In 2001 it was 1027 million, which constituted nearly 17 percent of the world's people (Census of India, 2001). Growth of population in urban areas is about twice as fast as that of the total country. The population of the National Capital Territory of Delhi, consisting of urban and rural Delhi, was 6.2 million in 1981, 9.4 million in 1991 and 13.8 million in 2001. This accounts for about 1.34 percent of the country's total population. Delhi has been experiencing this rapid population growth because of its functional importance. The city still has the highest growth rate among the mega cities in India, and by 2021 its popu-

lation is expected to be around 27 million (Kumar, 1996).

Delhi became a full-fledged state in 1994, and the name changed from Delhi Union Territory (DUT) to National Capital Territory of Delhi (NCTD); it is not only an administrative city but also a place for commerce, education and health-care provision. It is also of great historical significance. Delhi has served as a capital for several centuries because of its strategic location. It is a unique city, a kaleidoscope of old tradition and new forces. It is believed to be one of the oldest cities in the world, stretching from Indraprastha (10th century BC) to imperial New Delhi (Jain, 1989) and through to the modern republican capital.

The present formal system has failed to provide housing for everyone in Delhi. The most visible manifestations of the failure of city authorities are the numerous unauthorized housing settle-

ments scattered around the city. The phenomenal growth and development of these informal settlements is a testament to the drive and initiative of the poor, and their ability to forge affordable housing solutions. Forty-seven percent (DDA, 2000) of the population lives in the informal housing sector (Sen, 1998). First, this paper reviews the housing delivery system and the problems associated with the failure of the city authorities to provide housing for everyone. Second, it presents an open guideline for policy makers to improve the housing delivery system in Delhi.

The present housing delivery system

Delhi has three types of housing development, formal, informal and organic. These are similar to those in other developing countries (Pugh, 2000). Most of the formal housing efforts,

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especially since independence, have catered only to the middle classes and above, so that the only recourse left for lower income groups has been to live in the "hutments" commonly referred to as "slum" housing. The lower costs of housing in these settlements match their needs to minimize their housing expenditure. Formal developments are those that have the legal sanction of the planning agency prior to the development, have been developed within the framework of government rules, regulations and controls and have a minimum required standard of environmental quality and infrastructure. Informal developments are illegal and are composed of unauthorized colonies and squatter settlements. These have mostly emerged because of non-availability or unaffordability of housing in the legal housing market. The common characteristics of the informal sector are insecurity of tenure and low standard of infrastructure and facilities. The major distinction within the informal sector may be made in terms of the methods used to gain access to land. Households living on illegally appropriated land are termed squatters, whereas housing developed on legally owned or rented land, but without the necessary permissions from the local authorities, is referred to as quasi-legal. These distinct systems may be distinguished via a set of characteristics. The basic difference, however, underlines the motivations and legality of tenure and development (Mehta and Mehta, 1989).

The unauthorized and squatter settlements have been much more pervasive on the eastern side of the city. On the south side, the private sector played a major role before the Delhi Development Act of 1957 was enforced. On the whole, however, on the eastern side, the share of informal housing has been much greater. In contrast, organic developments are the old city and rural settlements (known as urban villages in Delhi), that have evolved over a period of time without any conscious measures taken for their growth and that have now been included within the urban development. These settlements are not illegal, and therefore cannot be termed totally informal. Both old city and urban villages face different kinds of problems, such as being subjected to overcrowding, congestion, dilapidation

of structures and a low level of services. As the urban villages eventually become included within the urban limits, they face sudden population growth and the existing level of infrastructure is inadequate.

Formal housing delivery systems used in Delhi

This section identifies the general housing supply mechanism of Delhi. To study the housing delivery system the system was broken down into its various stages: planning; land assembly; implementation; and final disposal of the finished house. This permitted the various components of the problem to be examined individually, rather than trying to examine an entire system. Substages are identified in the following sections.

Planning Planning consists of two parts, plan preparation and plan approval. Except for area development plans, all are prepared by the Delhi Development Authority (DDA) on behalf of the central government. The Ministry of Urban Development (MUD) approves the Master Plan, and subsequently different bodies or committees within and outside the DDA approve the plan prepared at various levels of the housing development process.

Land assembly Land assembly consists of three components: land acquisition; payment of compensation to landowners; and finance to agencies. The Delhi government, under the Land Acquisition Act of 1894, acquires land, and it is handed over to the Land Department of the DDA. This in turn makes it available for development as and when required. Compensation to the landowners is generally based on the market rate at the time of notification of the area for acquisition, and is paid when the government takes over the land.

Implementation This stage consists of two steps, land development and construction of housing. Land development is the responsibility of government, and the responsibility for housing construction is divided among various sectors—public, private and cooperative. The

local body (MCD) is responsible for off-site development by using central government plan grants and pro-rata rebates from developed plots (Billand, 1990). Both the DDA and co-operatives depend on the MCD for off-site infrastructure. On-site development is undertaken by DDA using a revolving fund and government borrowing. Maintenance of the infrastructure is by the MCD, from property taxes and user fees.

Disposal The disposal of housing, tenure of property and the system of finance available to individuals is a formal system for allocation and disposal of housing and land for shelter overseen by the public sector and government-approved cooperatives. Housing disposal is mainly guided by government for all income groups, with some also by cooperative group housing societies. Tenure of the property in most of Delhi is leasehold with a 99-year perpetual lease. The system for providing finance to individuals is poorly developed. The only agencies that provide loans to individuals are the Housing Development Finance Corporation (HDFC) and, to a smaller extent, the National Housing Bank (NHB). As the finance system is not well developed, the rate of interest is prohibitively high (for example, 16% in 1998). *Table 1* is a summary of the present system for each stage and sub-stage of housing delivery.

Informal housing delivery systems used in Delhi

As the informal sector has become quantitatively significant, policy makers have begun to realize that simply understanding this sector is far from an adequate management response. In order to develop policy to provide housing to everyone, it is necessary to understand the mechanisms of informal housing delivery. It is common on the part of urban planners and policy makers to regard the entire slum formation or informal housing sector as being homogeneous. However, the generally similar physical characteristics of these areas (when compared to the middle income housing areas), hide the realities of their evolution. There are distinct patterns in their evolution and,

Table 1 Observed alternatives for the different stages of housing delivery in Delhi

Stages	Alternatives
I Planning	
Plan preparation	Central/federal government
	Plan of co-operative housing is prepared by co-operative housing societies
Plan approval	Central government except for those areas handed over to local bodies
II Land assembly	
Land acquisition	Compulsory acquisition by government
Compensation	Flat rate (fixed by government)
Finance to developing agency	Autonomous bodies
	Commercial banks
	Government
III Implementation	
Land development	Central government (DDA)
Housing construction	Government
	Individuals
	Co-operatives
IV Disposal	
System of disposal	Government
	Housing co-operatives
	Private (very small percentage)
Tenure	Freehold (very small percentage)
	Leasehold
	Rental
Finance	Commercial banks
	Financial agencies

for any given cluster, these also change over time.

Drawing on a number of studies that have directly, or indirectly, looked at the processes of evolution of slum clusters or settlements, there are two distinct types which appear prevalent in Delhi. These types are identified mainly on the basis of the mode of access to land. The squatter settlements are developed on illegally appropriated land, whereas the quasi-legal settlements are on legally owned or rented land, but have developed without the necessary permissions from the authorities. Within each group, further distinctions are made on the basis of the dominant actor groups involved in initiating these settlements.

Invasion/squatter settlements The unique feature of these settlements is that land is normally assembled, either by a community for its own use or by an opportunist "slumlord". The land on which squatting takes place may be vacant, either because of its unsuitability for development (due to the presence of flood plains, for instance) or because of its non-conformity with the zonal plans of the local authority. Similarly, publicly owned vacant land is a prime target for misuse. Often, land under long legal disputes or owned by absentee landlords is also squatted upon by the slumlords (Mehta and Mehta 1989). According to official descriptions, land is freely available in this sector, although in reality, land is never freely available. The dwelling is constructed in a self-built environment. In Delhi, squatting is generally found on the government's vacant land. These types of settlements are more likely to occur near places of work. It is seen that larger numbers of squatters tend to seek security of tenure because of the political vulnerability of the situation. Households at lower levels of the economic ladder are to be found here.

Pirates/quasi-legal settlements The second group of slum settlements consists of quasi-legal sub-divisions and tenements. These settlements are different from the squatter settlements as they are built with the explicit consent of the landowner. Three identifiable models exist within this group.

Unauthorized colonies/community based sub-division In this case, a community, either on the basis of social or occupational grouping, buys or leases out land from a landlord often with the help of a middleman. The group leaders, who also determine the land rents to be paid by the members, carry out the requisite sub-divisions and allocations. Individual households, according to their access to building materials, construct shelters. The settlements are quasi-legal, in the sense that no formal approval for the land sub-divisions or buildings is sought from the local authority. The materials used for shelter are also usually "temporary" and no building permission is sought. The overall size is properly laid out, with emphasis, however, on maximizing the use of land, even at the cost of environmental conditions.

Landlord based subdivision In the second model of this group, legal landlords initiate a similar type of development. In most cases the landlord operates through a middleman who often turns into a slumlord. There are two main reasons for landlords to promote such development. A lot of areas, which have been now engulfed by the urban growth of Delhi, were considered distant outlying areas just three or four decades ago. A second reason arises when the land is put under acquisition or reservation for some purpose. As the value of land to the owners is frozen, it may be more profitable to promote development of sub-divisions and distribute these through an intermediary on collection of deposits and monthly payment of rents.

Policies, regulations, controls and acts

Delhi is not able to provide adequate housing through the formal housing market, and there are still many problems relating to housing delivery in Delhi. Major constraints, which operate against the public sector's ability to move effectively to deliver land for housing are:

- existing policies, regulations and controls;
- poor coordination among public agencies responsible for the provision of off-site trunk infrastructure, and poor management of the housing projects;
- lack of reasonable financial instruments to provide loans to the middle and lower income groups; and
- the delivery mechanism.

Land policy in Delhi is not fully con-

ducive to efficient housing delivery. The present policy was formulated to curb the activities of private land developers, to check undesirable speculation, and to operate a land bank in order to keep land prices within reasonable limits and ensure planned development with special reference to the needs of the poorer segment of the population. But the freezing of large areas of land for planned development and its slow development and supply in the market has had the opposite effect on the urban poor. The inadequate supply of land has led to increases in land prices since 1974 being disproportionately higher than increases in income (Pugh, 1991). The land bank policy has resulted in a slow rate of land acquisition. Before 1980, the cost of land acquisition was based on the 1959 cost fixed by the government, but since 1980 the cost of acquisition has been revised to reflect its market value. The relatively high cost of land acquisition has resulted in a financial constraint for the DDA. Although the land acquisition policy gives the power to public authorities to compulsorily acquire land for public purposes, it is a cumbersome, expensive and time-consuming process. Procedures required under the present act most often end in legal disputes normally taking three to four years to resolve—and in some cases up to 20 years (Billand, 1990). The Land Acquisition Act requires compensation to be paid to landowners for land acquired, based on the market rate prevailing at the time when the notification of intent occurs. But because of the time lag before actual acquisition, the owner is compensated at less than the market value prevailing at the time of the actual acquisition. Owners perceive this to be unfair and resort to litigation, which delays the process. The leasehold system exercises strict control over the use of land by restricting legal transfer. But it has acted as an incentive to transfer plots and dwelling units illegally and, in the process, the government has lost out on revenue from transfer fees.

Management and coordination

There is a lack of project management of urban development on the part of Delhi Administration, the apex body in Delhi for coordinating all plan implementation agencies involved in the development of basic services such as water supply, sewerage and electricity. Unfortunately all of these agencies are working independently. Every agency makes its plans, on its own, without considering the priorities of other related agencies. Because of lack of coordination the DDA is not able to allot houses immediately after construction because of non-availability of basic services. In this process, the DDA's investment in housing gets locked up over several years and it is not able to reinvest in quick succession. At the same time, the slow pace of land development creates an artificial scarcity of land for housing and other uses. Persistent scarcity of land very often leads to unauthorised housing developments on the urban fringe and on vacant land.

Financial constraints

The lack of adequate funding for the MCD to carry out the construction of trunk infrastructure delays the delivery of serviced land and housing, because on-site infrastructure provided by the DDA cannot be used until off-site connection is made. Finance in general is a constraint that places impacts most seriously on the provision of off-site trunk infrastructure. A study on the housing finance needs of potential homeowners brings out the fact that low-income informal sector households do not have significant access to the formal system of housing finance (Aggarwal, 1996). Much of their financing is generated from family savings and the sale of assets, as well as loans from friends and relatives. As about 35% of total employment in Delhi is in the informal sector, these people are deprived of institutional loan facilities for housing, as commercial banks do not provide loans without security. Institutional housing finance mechanisms need to be reviewed to explore how they can address the needs of the poor and people in the informal sector.

Delivery mechanisms

Registration in public sector housing schemes is necessary to acquire a house or flat in Delhi. The DDA allots plots or dwellings to the registrants on a seniority basis, but for many years it has not opened any new registrations. However, those already registered with DDA under various schemes have been waiting for many years to get an allotment. This adversely affects the housing market and diverts potential buyers to the unauthorised sector. In spite of planning and land legislation, the private sector—in the form of unauthorised colonies—is providing large number of dwelling units. One reason is the rapid and simple methods of transaction and comparatively cheaper land in the unauthorised market. In spite of low level of amenities and facilities in unauthorised colonies, this sector is thriving in Delhi because of the mismatch of demand and supply of housing. The poorest segment of the population, who cannot afford either public or privately developed housing, resort to squatting on public land. Households in squatter settlements increased from 31.2 to 38.3% over the period 1981–1990 (National Institute of Urban Affairs, 1993).

Emerging policies to reduce the problems of housing delivery

The government in Delhi is interested in improving the housing delivery system and getting rid of the policies and regulations that are obstacles to housing delivery. This is reflected in the action taken by the Minister of Urban Affairs and Employment in the Government of India for scrapping the Land Ceiling Act, making changes to urban development law, and making decisions to involve the private sector in housing delivery (*The Economic Times*, 1998; *The Times of India* 1998a–1998h, 1999). Debate on the participation of private developers and other sectors in land and housing development is taking place at all levels within government circles. Within the federal government, there now exists a widely held view that the activities of legitimate private developers should be encouraged. Indeed, before the present urban land policy in Delhi came into existence in 1961, large residential projects were developed by the private sector.

It is also clear from the 1998 budget report that the Indian government has

been interested in reform and involvement of the private sector (*The Economic Times*, 1998) and the Government of India's (2001) Gazette notification "Public Private Partnership". All the above recent changes indicate that the union government has amended and liberalised some of the policies, regulations and controls to make housing supply smoother.

Future strategies to improve housing delivery in Delhi

Given the inability of the City authorities' formal sector institutions to provide affordable housing, policy makers should consider adopting a new alternative two-pronged strategy of improving housing delivery by improving formal housing delivery and regularizing and expanding informal housing production and upgrading existing informal areas.

Formal housing delivery: alternative approaches

The methods used in this study involved two steps: (i) identification of possible alternative methods for the delivery of housing and (ii) obtaining the preferences of the housing actors on various alternatives. To generate sets of alternatives for each of these stages, a variety of cities from both developed and developing countries were examined to determine the present mode of housing delivery for each stage in each of the cities. The cities were selected to cover both developed and developing countries and cities where it was known that there were major differences in the approaches used. The sample consists of Canberra and Melbourne in Australia, Lucknow, Ahmedabad and Gurgaon in India, and Jakarta and Singapore.

The alternatives developed in this way were then tested in Delhi, through individual interviews with different actors in Delhi's housing delivery system, to observe how the different sets of actors see the strengths and weaknesses of each alternative at each stage. This resulted in suggestions for each of the stages of the housing supply in the formal housing market appropriate for Delhi. The suitability of each of the various alternatives was then assessed, via further interviewing of the varied actors involved. There were altogether 175 respondents from various groups, including government professionals; researchers and academics; executives from financial institutes; professionals in the private sector; property lawyers; private developers; engineers from implementation agencies; and politicians and bureaucrats (for details, see Sivam, 1999).

The results of the research suggest that the participation of the public, private and other sectors is seen as essential for efficient housing delivery to take place. While the public sector would shape the city planning and urban policies, the common perception of the various participants is that other sectors, either alone or in joint ventures with government, should manage the development and implementation. However, the results suggest that no one sector— public, private, cooperatives, non-governmental organizations, community-based organizations—can meet the challenge in isolation for the later stages of the housing delivery system. Guidelines for improving formal housing delivery in Delhi are explained in turn for each stage of the housing delivery system.

Planning As Delhi is a city of national and international importance, the central government should prepare and approve the overall plan including plans for areas of national importance. DDA's work should be restricted to planning policy and development guidelines only. Planning and approval for the rest of the area should be the responsibility of the state government. For better coordination, management and implementation, Delhi should be divided into four zones; each zone should have an office at zonal level, responsible for planning and plan approval. At present DDA has approximately 23,000 employees and there is poor staff accountability. At the city level, there should be one office to coordinate the zonal offices and look after policy matters. Responsibility should be distributed at each level.

Land assembly A multiple approach is favored for land assembly, to reduce the financial burden on the public sector and to reduce the monopoly of the DDA. The results of the study led one to speculate that various options should be available to assemble and acquire the land needed for housing. Payment of compensation to landowners should be based on market rates, and should be made available within a short span of time, say two to four months. Multiple agencies should be developed to provide loans to developers, and income tax rebates should be given to developers based on the percentage of lower income group housing in their portfolio of housing developments.

Implementation Joint ventures are favored for land development to reduce the financial burden on the public sector. Multiple options for housing construction will reduce the monopoly effect of the DDA, and improve the flow and choice of housing in the formal market. When implementing housing developments, off-site infrastructure should be developed by joint venture, with the government as a partner. On-site infrastructure should be the responsibility of the developer (public, private, NGO, CBO etc). Housing construction for the lower income group will generally be the responsibility of the government, either by itself or in partnership, but for other groups, construction could be carried out by a multiplicity of agencies.

Off-site infrastructure development and services at the city level and zonal level should be the responsibility of the state government. Peripheral and on-site development may be given to the respective sector developing the area. Provision of sector level facilities should be the responsibility of the developer. Also developers should be permitted to develop housing only after providing facilities and services. This would increase the involvement of other sectors and more housing could come onto the market. Planning norms for cooperative housing societies need to be changed; a minimum of eight members, because smaller groups make it easier to build. Plans of all these housing developments should be approved by the state government within a limited time span.

Disposal Housing disposal for the lower income groups should be the responsibility of the government, but for other groups it could be carried out

by a variety of agencies. Tenure, at least on the present evidence, should always be freehold, except in areas of national importance. Housing finance should be provided by a variety of agencies, but it may be necessary for the government to facilitate the setting up of additional agencies. An example is the Central Provident Fund (CPF) system in Singapore. There is always the problem of low incomes and the consequent inability to pay for housing in the cities of the less developed economies, but this factor was outside the scope of this study, which was limited to exploring an improved approach to the institutional problem of housing delivery and the focus has been on issues of supply rather than housing demand. Freehold land tenure is preferred to reduce the corruption and bureaucracy involved in the present system of land transactions. Leasehold tenure may be restricted to areas of national importance. The finance system for agencies and individuals needs to be improved to increase the capital flow in the formal market and to facilitate the reduced rate of interest.

Policies and regulations Controls need to be modified to involve private sectors and the DDA in the formal housing market in order to improve housing development. Actors felt that over-detailed policies and regulations resulted in delay in the development of housing. A majority of the actors were of the opinion that policies, regulations and controls should be revised to make them more flexible and transparent. Delhi's present housing system reflects the fact that there is a need for the government to improve the slum areas by providing services and infrastructure, similar to the Kampung programme in Indonesia. About 47% of respondents drawn from the informal sector preferred government to change strategies towards the informal sector because it is part and parcel of housing provision for almost half the population.

Informal housing delivery: alternative approaches

The informal delivery of housing is a viable approach and it works well in providing housing that is affordable to those earning down to the 20th income

percentile (Pugh, 2000). For very low-income households, conditions are considerably worse as such households have few resources for housing consumption. In contrast, the planned formal sector provides much higher quality housing but does so at much higher unit prices. The enormous differential between formally and informally provided housing raises fundamental policy questions regarding the appropriateness of government programmes aimed at expanding formal housing production to assist the poor. While well intentioned, this policy has been, and will continue to be, a failure as it is simply too expensive. For example, the least expensive housing project now on the market cost approximately Rs 100,000, about double the average cost of housing in the informal sector.

The regularization of the informal land and housing development process should concentrate on ameliorating the negative effects of informal shelter delivery and enhancing the capacity of the informal sector to provide affordable housing. This process would concentrate on providing secured land title, the provision of essential services and ensuring that informal settlements are sited in areas which are adjacent to existing or planned infrastructure and away from environmentally sensitive areas. Such approaches have been successfully adopted in Indonesia. The informal housing delivery system may not reach the high quality levels found in planned areas, but it is far more efficient and demand responsive. Government policies to regularize and expand new informal settlement activities and upgrade existing areas could be a highly effective means of responding to Delhi's housing crisis.

Summary and conclusions

In Delhi, the policy of large-scale acquisition, development and disposal of land forms the basis for urban and housing development. Development of land by private developers has been effectively frozen, and the government has a near monopoly in the formal land and housing market. Over time, this policy has directly or indirectly contributed to increasing the housing shortage. Some of the housing legislation enforced in Delhi adversely affects the

production of housing. Finance policy for housing does not include schemes to provide housing loans to people in the informal sector, and mobilisation of resources for housing by this large segment of the population is often restricted to self-savings and borrowing from relatives.

Land development involves numerous government departments and public sector undertakings at both federal and state level, but coordination among these agencies is weak, and as a result, their programs are not synchronised for faster land development.

Therefore it is highly unlikely that, without a major change in the mechanisms of the public sector housing delivery processes, additional housing in the formal market will be available to absorb the projected increase in population. It is clear that change in the present housing delivery system is necessary and urgent. Multiple approaches need to be adopted to provide housing in Delhi. It requires both public and private sectors and the involvement of civil society to improve both formal and informal housing sectors. As approximately 50% of total housing is in the latter, there is a need to improve quality and the essential infrastructure.

Despite the protestations of government officials and policy makers, low cost informally provided housing in Delhi's informal sector is a valuable and important component of the overall housing delivery system in the city. This has and will continue to provide the safety net for low and moderate income households seeking shelter. From a policy perspective, it is important to understand why this sector operates and what kind of housing it provides: the important lesson for public agencies to learn from the informal sector is how to combine housing quality with affordability.

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